



**Commonwealth Edison**  
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October 2, 1989

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

Subject: Zion Nuclear Power Station Units 1 and 2  
Response to Notice of Violations as Issued  
in IR Nos. 50-295/89018 and 50-304/89017  
License Nos. DPR-39 and DPR-48  
NRC Docket Nos. 50-295 and 50-304

References (a): September 1, 1989 letter from H.J. Miller to  
Cordell Reed.

(b): September 29, 1989 telephone conversation  
between J. Hinds and G.E. Trzyna.

Dear Mr. Davis:

The above referenced letter transmitted the results of a special maintenance team inspection conducted by Mr. Z. Falevits and others of your office on various dates during the June and July, 1989, of activities at Zion Nuclear Power Station. During the course of this inspection, it was determined that certain activities appeared to be in violation of NRC requirements. In addition, the cover letter which accompanied the Inspection Report addressed a specific concern about the failure of the mechanical overspeed mechanism of the turbine driven Auxiliary Feedwater pump to perform its intended function. Our response to this concern is contained in our response to Violation 2.d.

Our response to the Violations are contained in the Attachment to this letter, except for the response to Violation 2.b. This violation is related to the untimely corrective action that was taken to correct the failures of the DC battery to bus circuitry interface. This problem has been long-standing in nature and Commonwealth Edison has procured new DC breakers which were intended to address the problem. Unfortunately, however, these

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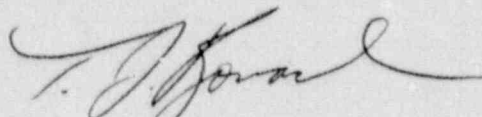
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breakers were procured from the Satin America Corporation and are included in the suspect population of potentially counterfeit breakers. Therefore, Commonwealth Edison must reevaluate the corrective action that will be taken to address the concern with the DC breaker. This complication was discussed in Reference (b) and an extension of thirty (30) days was granted to develop an action plan with the appropriate corrective action.

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

Very truly yours,



T. J. Kovach  
Nuclear Licensing Manager

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cc: C. Patel - Project Manager, NRR  
Senior Resident Inspector - Zion

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## ATTACHMENT

### 1. VIOLATION:

10 CFR 50, Appendix B, Criterion V, as described in Section 5, of Topical Report CE-1A, Revision 55, and as implemented by Quality Assurance Manual, Section 5, requires that activities affecting quality be prescribed by documented instructions, procedures and drawings, and that those activities be accomplished in accordance with those instructions, procedures and drawings.

Contrary to the above:

- a. Surveillance Procedure PT-30, Paragraph 5.2, required that the electrolyte levels in station batteries be verified to be between 1/4 inch below the full line and the low level line. However, electrolyte levels for battery No. 212 were verified to be between the full line and the low level line, which resulted in acceptance of the levels even though the procedural requirements were not met (295/89018-02A; 304/89017-02A).
- b. The wrong procedure was used during repair of the Limitorque operator for Valve 2MS006 (295/89018-02B; 304/89017-02B).
- c. Procedure E022-1, "Inspection and Maintenance of Limitorque Valve Motor Operators", Revision 1, did not provide adequate instructions to prevent miswiring of the torque switch associated with Valve 2MS006 (295/89018-02C; 304/89017-02C).
- d. Maintenance personnel failed to document the lifting and landing of leads as required by ZAP 3-5-1, "Temporary Alteration Program", Revision 26, during corrective maintenance performed on the 1B Emergency Diesel Generator (295/89018-02D; 304/89017-02D).

This is a Severity Level IV Violation (Supplement 1).

### RESPONSE TO VIOLATION 1.a

#### CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

The immediate corrective action taken was to determine the operability of the batteries with high electrolyte levels in the cells. Technical Staff engineers verified the batteries to be operable.

A clarification of the intent of battery level check was made to PT-30 "Station Battery Record - Monthly Quarterly Equalizing Charge". The note also requires notification of the Tech. Staff engineer if overfill occurs while adjusting cell electrolyte level.

This event was reviewed with the individuals involved, describing the responsibility for understanding each procedural step with emphasis on the importance of following procedures.

#### CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

Maintenance has formed a Work Practices Committee, whose charter through the Corporate Conduct of Maintenance Directive is to formulate corrective actions for problems related to work performance. This committee is described in the Zion PIP (Performance Improvement Plan) and includes specific long term action plans and shorter term interim actions. Notice of this violation has been included to the references used by the Work Practices Committee for long term corrective actions intended to prevent violations for "Failure to Follow Procedures".

In addition, Maintenance has formalized tours conducted by both Senior and Department management to provide oversight on ongoing work practices.

#### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Work Practices Committee is scheduled to complete their charter by the end of the first quarter of 1990. (Commitment defined formally within Zion PIP Manual)

#### RESPONSE TO VIOLATION 1.b

#### CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

The two procedures referenced in this event are P/M016-5N and P/M016-6N. A side by side comparison of both procedures was performed to determine whether the "incorrect" procedure had steps which would if performed, result in the operability of the valve being questioned. This review determined that the procedures are essentially the same and although the "incorrect" procedure was attached to the work package, no operability concerns resulted.

#### CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

Maintenance has formed a Work Packages Committee, whose charter through the Corporate Conduct of Maintenance Directive is to formulate corrective actions for problem involving work packages. This committee is described in the Zion PIP and includes specific long term action plans and shorter term interim actions. Notice of this violation has been included to the references used by the Work Packages Committee for long term corrective actions intended to prevent violations for "Failure to Develop Adequate Work Packages".

In addition, Maintenance will perform a review of both procedures P/M016-5N and P/M016-6N to determine if, in fact, separate procedures are warranted. This review will be completed by November 30, 1989.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Work Packages Committee is scheduled to complete their charter by the end of the first quarter of 1990. (Commitment defined formally with Zion PIP Manual)

The review of Procedures P/M016-5N and P/M016-6N will be completed by November 30, 1989. (Commitment # 295-100-89-018NOV1)

RESPONSE TO VIOLATION 1.c

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

?MS0006 was repaired on July 13, 1989 under Work Request Z-83483. The valve was then tested and declared operable.

Training has been conducted with all personnel in the Electrical Maintenance Department. The training included a demonstration of how to determine proper contact points using actual torque switches.

CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

Procedure E02201, "Inspection and Maintenance of Limitorque Valve Motor Operators" has included an Attachment F. Attachment F is a reference diagram which allows differentiation between old and new style torque switches. The Attachment F will be revised to illustrate proper contact placement.

To prevent miswiring of contacts, steps for disconnecting and reinstalling torque switches will require the wires be labelled per the connect/disconnect data sheet.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The revision to E022-1 will be completed and in use after this refueling outage and no later than January 19, 1990. (Commitment # 295-100-89-018 NOV2)

RESPONSE TO VIOLATION 1.d

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

The Instrument and Control Department has developed a troubleshooting procedure (IMTS-1 "Electronic Loop Troubleshooting/Repair for Safety Related Loops") which requires that lifted and landed leads be documented.

The Instrument and Control Department will be required to use this procedure whenever troubleshooting efforts involve the lifting and landing of leads.

CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

Maintenance has formed a Work Practices Committee, whose charter through the Corporate Conduct of Maintenance directive is to formulate corrective actions for problems related to work performance. This committee is described in the Zion PIP and includes specific long term action plans and shorter term interim actions. Notice of this violation has been included in the references used by the Work Practices Committee for long term corrective actions intended to prevent violations for "Failure to Follow Procedures".

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Work Practices Committee is scheduled to complete their charter by the end of the first quarter of 1990. (Commitment defined formally within Zion PIP Manual)

2. VIOLATION:

10 CFR 50, Appendix XVI, as described in Topical Report CE-1A, Revision 55, and as implemented by Quality Assurance Manual, Section 16, requires that measures be established to assure conditions adverse to quality are promptly identified and corrected. In the case of significant conditions adverse to quality, the measure shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, the licensee failed to:

- a. Take timely and effective corrective action to ensure that adequate work instructions were provided in work requests. This had been identified as a violation during a 1986 NRC inspection and remained uncorrected (295/89018-01A; 304/89017-01A).
- b. Provide timely corrective action to correct dc battery to bus circuit breaker failures. A history of problems in reliably closing the breakers on the first attempt was initially identified on work requests dated October 10, 1987. However, since all breakers had successfully closed on the second attempt, the work requests were never completed, even after vendor representatives indicated the problem appeared to be worn bearings (295/89018-01B; 304/89017-01B).
- c. Provide timely or adequate corrective action on known problems in post-maintenance testing, temporary modifications, and work control. These recurring problems were identified in September 1987, and again in February 1989, during self-assessment (295/89018-01C; 304/89017-01C).
- d. Take adequate and timely corrective action to maintain and test 2A Auxiliary Feedwater pump turbine overspeed mechanism for approximately 17 years, or successfully test the 1A Auxiliary Feedwater pump turbine overspeed mechanism in 1987. The vendor recommended testing once a week. The necessity of the tests was previously made known to the licensee by General Electric Company in July 1986, by the NRC in Information Notice 88-67, by the licensee's own Safety System Functional Inspection in September 1988, and by an INPO assessment team in February 1989.

Subsequent to the Maintenance Team Inspection and NRC's inquiry, the licensee conducted a static test of the linkage and valve mechanism on July 22, 1989, for the 1A Auxiliary Feedwater pump turbine with unsuccessful results. Maintenance had to be performed on the overspeed trip mechanism before a successful test was obtained. The inspectors were informed that the tests for the 2A Auxiliary Feedwater pump turbine were successfully completed on July 23, 1989 (295/89018-01D; 304/89017-01D).

This is a Severity Level IV Violation (Supplement 1).

## RESPONSE TO VIOLATION 2.a

### CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

Commonwealth Edison formally issued a Corporate Conduct of Maintenance (CCOM) directive early in 1989. Each of the six Nuclear Stations has been tasked with development of pilot implementation programs for portions of that directive. Zion Station's portion of the CCOM includes upgrades in work package preparation. The pilot program covers improved work package format, Post Maintenance Testing (PMT) requirements, and work instructions.

To adequately implement the CCOM, Zion has identified the need for additional Work Analysts. Ten additional positions were authorized and to date six have been filled. It is the belief of Zion Station that the additional manpower will allow a more thorough review of the work packages.

In addition, a draft work package checklist has been created and is undergoing a trial implementation.

The final version of the checklist will be implemented for all work packages by December 31, 1989.

### CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

Maintenance has formed a Work Packages Committee, whose charter through the Corporate Conduct of Maintenance Directive is to formulate corrective action for problems related to work packages. This committee is described in the Zion PIP and includes specific long term action plans and shorter term interim actions. Notice of this violation has been included in the references used by the Work Packages Committee for long term corrective action intended to prevent violations for "Failure to Develop Adequate Work Instructions".

### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Work Packages Committee is scheduled to complete their charter by the end of the first quarter of 1990. (Commitment defined formally within Zion PIP Manual) Final version of the work package checklist will be fully implemented by December 31, 1989. (Commitment 295-100-89-018NOV3)

## RESPONSE TO VIOLATION 2.b

The response to this Violation will be provided within thirty (30) days as granted during a September 29, 1989 telephone conversation between J.A. Hinds and G.E. Trzyna.



## RESPONSE TO VIOLATION 2.c

### CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

Each finding from the Production Services Maintenance Self Assessment report has been entered into the Nuclear Tracking System (NTS) commitment data bank in order to track to completion resolution of these findings. Action plans are currently in place or are being written to drive the implementation of the Conduct of Maintenance directive at Zion. (At the end of 1989, 3 chapters of the Conduct of Maintenance are expected to be fully implemented).

### CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

The action plans in place or being developed will have, as an integral part, interim measures to address findings from these assessments.

### DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The Conduct of Maintenance Directive is planned to be fully implemented at Zion by the end of 1991, contingent on corporate analysis.

## RESPONSE TO VIOLATION 2.d

### CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

Changes to PT-7, "Auxiliary Feedwater System Checks and Tests", have been incorporated to test the overspeed trip mechanism in manual fashion. This PT is run monthly and both AFW turbines have been tested under this procedure since the change went into effect in July of 1989. Both the Unit 1 and Unit 2 AFW turbine overspeed mechanism trip tests, performed as part of PT-7, have been successful.

### CORRECTIVE ACTIONS TO BE TAKEN TO PREVENT FURTHER VIOLATIONS

In addition, TSGP-50, "Auxiliary Feedwater Turbine Overspeed Test", has been revised and is going through on-site review. This test is a physical overspeed of the AFW turbine and will be performed with the pump uncoupled from the turbine. The original test identified some control problems that needed to be addressed to allow a more controlled speed increase. Once approved, it is anticipated that the Unit 1 AFW turbine will be tested before the end of the year (1989) and Unit 2 prior to or during the March 1990 unit outage. Both procedure changes have vendor concurrence as to adequacy, given the frequency of operation of the pumps.

The trip linkages are currently inspected and lubricated on an every other refueling outage frequency. This inspection and lubrication frequency will be changed to once per operating cycle. In addition, Zion is investigating the best methodology to provide lubrication to the trip linkage monthly; the frequency at which these pumps operate. Therefore, with the added testing and greater frequency of lubrication, a higher level of confidence as to operability will result.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

The revision to TSGP-50 will be completed by November 30, 1989. (Commitment # 295-100-89-018NOV4) The physical overspeed test on the Unit 1 AFW turbine will be conducted on or before 31DEC89 (Commitment #295-100-89-018NOV5). The physical overspeed test on the Unit 2 AFW turbine will be conducted before 31MAR90. (Commitment # 295-100-89-018NOV6) The investigation to determine the best methodology to provide lubrication to the trip linkages will be completed by November 30, 1989. (Commitment # 295-100-89-018NOV7)