



**Commonwealth Edison**  
Dresden Nuclear Power Station  
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Telephone 815/942-2920

June 10, 1994

MDL Letter 94-0022

U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

**Subject:** Dresden Nuclear Power Station Units 2 and 3 Response to Notice of Violation and Request for Information  
Inspection Report 50-237/94003; 50-249/94003  
NRC Docket Numbers 50-237 and 50-249

**Reference:** G. C. Wright letter to M. D. Lyster, dated May 11, 1994,  
transmitting Inspection Report 50-237/94003; 50-249/94003.

Enclosed as Attachments 1, 2, 3, and 4, are Commonwealth Edison Company's (ComEd) responses to the following items which were transmitted with Inspection Report 50-237(249)/94003: 1) Notice of Violation regarding Inadequate Design Control; 2) Notice of Violation regarding Use and Control of Instructions, Procedures and Drawings; 3) Request for information regarding actions taken to address an Unresolved Item associated with LPCI Piping System analysis, and; 4) Request for information regarding an Inspection Follow Up Item associated with Control Circuit Calculations and Evaluations. The responses are being submitted as requested in the referenced letter.

If your staff has any questions concerning this letter, please refer them to JoAnn Shields, Regulatory Assurance Supervisor at Dresden, (815) 942-2920, at extension 2714.

Sincerely,

M. D. Lyster  
Site Vice President Dresden Station

**attachments**

cc: J. B. Martin, Regional Administrator Region III  
J. F. Stang, Project Manager, NRR  
M. N. Leach, Senior Resident Inspector, Dresden

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**ATTACHMENT 1**  
**RESPONSE TO NOTICE OF VIOLATION**  
**NRC INSPECTION REPORT**  
**50-237/94003; 50-249/94003**

**VIOLATION:** (50-237(249)/94003-01)

10 CFR 50, Appendix B, Criterion III, "Design Control", requires verifying and checking the adequacy of design.

Contrary to the above:

Design control measures for controlling modifications M12-2-84-119 and M12-3-84-119, which were made to the Standby Liquid Control system in 1986 and 1987, were not adequate. The system pressure, after the modifications, was calculated to be 1330 psig, which exceeded the original design pressure by 55 psig, this increased pressure was not addressed. The hardware was not upgraded and the increase in pressure was not included in specified testing requirements.

This represents a Severity Level IV (Supplement I)

**REASON FOR THE VIOLATION:**

The need to test the SBLC system at 1330 psig, in order to address the ATWS 10 CFR 50.62 rule, was erroneously omitted from the Post Modification Testing of modifications M12-2(3)-84-119.

**CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED:**

- a. Inadequate Post-Modification Testing -- In April, 1994, Special Procedure SP 94-3-60 was successfully performed on the SBLC System for both Unit 2 and 3 and verified proper equipment operation and the integrity of the system components at 1330 psig, as well as verifying minimum required flows per 10 CFR 50.62.
- b. Technical Specification not Updated -- Dresden's Technical Specifications identify the system pressure for the SBLC system to be 1275 psig. The ATWS system pressure of 1330 psig is not required to be part of Dresden's Technical Specifications. This fact was reiterated by Mr. H. Denton (NRC) to Mr. J. Fulton (BWROG) in a letter (August, 1985).
- c. Inadequate System Testing Procedures -- Surveillance procedures DOS 1100-01, "Standby Liquid Control System Pump Test", DOS 1100-03, "Standby Liquid Control Injection Test" and DOS 1100-04, "Quarterly Standby Liquid Control System Pump Test for the Inservice Testing (IST) Program" will be changed to reflect the calculated test pressure of 1330 psig. Procedure revisions are expected to be completed by November 1, 1994.

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**CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED:(Continued)**

- d. Standby Liquid Control Design Basis Document Errors --The SBLC system pressure (1275 psig.) was correctly reflected in the Standby Liquid Control Design Basis Document, DBD-DR-139, Revision A. However, SBLC system pressure testing at 1330 psig, in order to address the ATWS 10 CFR 50.62 rule, was erroneously omitted.

The ATWS issues identified during this inspection were also identified by a General Electric (GE) technical expert toward the end of the SBLC DBD creation process. The results of his reviews regarding ATWS was diverted from the normal review and comment process because he inadvertently sent the results of his review by "memorandum", instead of the proper procedural review form. As a result of this, the ATWS issues were never entered into the DBD program. This omission is judged to be an isolated incident and not indicative of a DBD program failure. Therefore, additional reviews of other DBDs are not needed.

The SBLC DBD, DBD-DR-139 was immediately withdrawn from use at Dresden, Quad Cities, and Downers Grove Engineering offices. ComEd will re-review DBD-DR-139, and incorporate the ATWS concerns. This revision to the SBLC DBD will be completed by 12/31/94.

- e. Hardware Was Not Upgraded -- The performance objective of the SBLC System is to bring the reactor to a shut down condition from normal full power operation independent of control rod capabilities. Operation of SBLC to mitigate an ATWS event is not considered "Normal" operation.

The components in the 1275 psig classification portion of the system (from the 1101-16 valve to the reactor) and the 1500 psig classification (from the pumps to the 1101-16 valve) are of the same 900 lb. class rating. Dresden Station's original Code of Construction, USAS B31.1.0 - 1967, permits that stresses in pipe may exceed code allowable stress at the maximum expected temperature during the variation by up to 15 % provided the variation occurs during 10 % of the operating period. Therefore operation of the SBLC during an ATWS event is well within the Code allowables and the 1275 psig design classification for the referenced portion of the system is acceptable. No hardware upgrades are necessary as the increased pressure of 55 psig is bounded by the above.

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**CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER VIOLATION:**

- a. Inadequate Post-Modification Testing -- Subsequent to the implementation of these modifications, changes have been made to the modification process which heighten the level of awareness in the modification testing area. Specifically, ENC Procedure ENC-QE-06.4, "Modification Acceptance Testing Evaluation" were changed to provide additional guidance and associated training was given. Additionally, the governing modification procedure ENC-QE-06, "Design Modifications", was changed to require that all calculations for the modification be listed and kept in the design package.
- b. Technical Specification not Updated -- The modification program contains requirements to ensure that potential changes to the Technical Specifications are reviewed and changes are made. These requirements are contained in procedure ENC-QE-06, "Design Modifications".
- c. Inadequate System Testing Procedures -- Dresden's Rebaselined UFSAR section 9.3.5 will be revised to provide additional SBLC versus ATWS issue clarification. This action will be completed by 9/1/94.

ENC-QE-06, "Design Modifications", requires that Station procedure be reconciled to the installed modification prior to operation of the system.

- d. Standby Liquid Control Design Basis Document Errors -- Commonwealth Edison (ComEd) DBD documents identify the specific function to be performed by structures, systems or components and the specific values or ranges of values chosen for controlling parameters as reference bounds for designs.

The DBD is the main controlled design document which must be used during the preparation of modifications, operability determinations, or procedure changes. The creation, review, and revision process is controlled by ENC Procedure ENC-QE-76.0, "Design Basis Document Program". The DBD does not establish new Design Input Requirements or reconstitute Design Analyses but is intended as an assembly of topical, structural, system and component information which already exists.

The DBD Manual is only one element in the Defense in Depth concept. Related source documents are referenced in the DBD and must be utilized. It is only one of many controlled documents which must be used during the preparation of modifications, operability determinations, or procedure changes.

Existing DBD's and the Design Basis Program itself have been regularly reviewed for status and quality resulting in a continually improving product.

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(Continued)

**DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:**

Full compliance will be achieved when the impacted surveillance procedures and SBLC DBD have been revised. This actions will be completed by 12/31/94.

ATTACHMENT 2  
RESPONSE TO NOTICE OF VIOLATION  
NRC INSPECTION REPORT  
50-237/94003; 50-249/94003

**VIOLATION:** (50-237(249)/94003-02A, -02B, and -02C)

10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings", requires, in part, that activities affecting quality be accomplished in accordance with documented instructions, procedures, or drawings.

- A. Dresden Operating Procedure DOP 6500-04, "Racking Out 4160 Volt Manually Operated Air Circuit Breaker", required that breakers removed from cubicles be restrained to prevent rolling.
- B&C. Dresden Administrative Procedure DAP 02-09, "Control of Critical Drawings" required that control room drawings be revised or updated to reflect the correct plant configuration.

Contrary to the above:

- A. On March 30, 1994, a spare 4KV breaker in the Unit 2 Turbine Building 4KV Switchgear Room, was found not to be secured to prevent rolling as required by DOP 6500-04 (50-237/94003-02A)
- B. On March 10, 1994, the control room copy of drawing 12E-2322B, "Overall Key Diagram, 125V DC Distribution Centers, Dresden Nuclear Power Station Units 2 & 3", Revision C, dated July 3, 1991, had not been marked or revised to show the changes made by the installation of partial modification M12-3-90-13A as required by DAP 02-09. This partial modification was completed in January of 1993 (50-249/94003-02B).
- C. On March 10, 1994, the control room copy of drawing 12E-3345, Sheet 2, "Schematic Control Diagram, 4160 Volt Bus 33-1, 4KV Switchgear Bus 40 Feed Bkr., Unit 3", Revision AF, dated March 9, 1993, was found to be incorrectly marked for temporary alteration TA III-40-92 and did not reflect the correct plant configuration as required by DAP 02-09 (50-249/94003-02C).

This violation represents a Severity Level IV problem (Supplement I).

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**REASON FOR THE VIOLATION:**

- A. The cause of this violation has been identified as a weakness in management's ability to reinforce procedure adherence at the worker level. Causal factors in this event are inadequate reinforcement of management's expectations and the inadequate reinforcement of the requirements to comply with procedures.

Contributing to this violation is the failure of personnel to comply with written procedures due to either shortcuts taken to complete the task (inadequate work practice), or a perceived pressure to complete a task (inadequate supervisory methods).

- B. Due to lack of attention to detail, Drawing 12E-2322B (Unit 2 drawing) was not changed to reflect the installation of the Unit 3 Alternate 125V DC battery modification, M12-3-90-13A. In addition, drawing, 12E-3322B (Unit 3 drawing), was not changed to reflect the installation of the Unit 2 Alternate 125V DC battery modification, M12-2-90-13A. These drawings reflect aspects of the other Unit's configuration for informational purposes. Prior to the installation of the alternate battery modification, M12-2(3)-90-013A, these drawings were identical.
- C. Due to a lack of attention to detail during the mark up of the critical control room drawing 12E-3345, Sheet 2, a numerical character seven was transposed into a numerical character two. The number seven refers to the time delay for the second level undervoltage relays for Bus 33-1 and 34-1 on Unit 3. The mark up of drawing 12E-3345, Sheet 2 was made to reflect changes resulting from Temporary Alterations Nos. 3-40-92 and 3-43-92.

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(continued)

**CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED:**

- A. Programmatic corrective actions were established to address procedure adherence issues associated with the securing of equipment. These actions include assigning a Material Condition Coordinator to the Maintenance Staff, assigning Material Condition Area Inspectors throughout the organization with proceduralized expectations, making continuous improvements to planning and scheduling to adequately allocate resources, and conducting communications meetings between station management and bargaining unit leadership for the purpose of opening lines of communication, reinforcing standards and expectations, as well as reviewing accountability measures for all site personnel. The Shift Operations Supervisor has completed his rotating shift assignments and non-licensed operators have completed a coaching session on the performance of operator rounds. This coaching was provided by a senior shift supervisor.

Some results of these corrective actions have been a continued improvement in the material condition of the plant, a reduction in procedure compliance issues in the Operations Department, an improving relationship between station management and bargaining unit leadership, a better understanding of procedure usage and adherence expectations by station personnel, and a development of a total record policy for purposes of accountability.

The current revision (Rev 03) of DAP 03-20 (Restraint of Portable Equipment) was reviewed to determine if adequate guidance and direction is provided for securing portable equipment when it is left unattended. The review determined that the procedural guidance provided in DAP 03-20 is adequate.

The current revision (Rev 15) of DAP 03-11 (Dresden Inspection Program), which provides guidance and direction for the Material Condition Coordinator and Area Inspectors, was reviewed to determine if the issues of unsecured portable equipment and other conditions adverse to quality at the site are adequately addressed, including direction on how to correct and/or report deficiencies. The review determined that the procedural guidance provided in DAP 03-11 is adequate.

- B. Document Change Request (DCR) Number D-94-097 was written to correct drawings 12E-2322B and 12E-3322B. Drawing 12E-2322B (Unit 2 drawing) was requested to be changed to reflect the installation of the Unit 3 Alternate 125V DC battery modification, M12-3-90-13A. In addition, drawing, 12E-3322B (Unit 3 drawing), was requested to be changed to reflect the installation of the Unit 2 Alternate 125V DC battery modification, M12-2-90-13A.
- C. Drawing 12E-3345, Sheet 2, was corrected to reflect that the time delay was 7 seconds for the second level undervoltage relays for Bus 33-1 and 34-1.

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(continued)

CORRECTIVE ACTIONS TAKEN TO AVOID FURTHER VIOLATION:

- A. Management expectations and policies governing the proper adherence to procedures has been and continues to be emphasized by Station Tailgates.

Personnel performance expectations are being clearly conveyed to management personnel both verbally and in writing as a standard part of management personnel's PPR (Performance Planning and Review) process. Included in the written communication are specifics associated with procedural compliance, personal safety, station security and radiation exposure. All bargaining unit personnel are receiving the same message by way of department meetings.

A Level 2 PIR (Problem Investigation Report) was performed to address the concerns related to procedure adherence. As a result of that investigation, the job descriptions for all first line supervisory personnel and bargaining unit personnel in the Electrical Maintenance, Instrument Maintenance, Mechanical Maintenance, and Site Engineering and Construction departments have been revised as needed to establish clear lines of responsibility for plant work activities, including procedure adherence and procedure problem resolution.

The Maintenance and Technical Services area of the Training Department will incorporate DAP 03-20 (Restraint of Portable Equipment) training into the annual required training for maintenance and technical services personnel. This will be accomplished by June 30, 1994. DAP 03-20 is already included in the operations area of training.

Organizational and functional changes have been made in the Maintenance Department to remove the administrative burden from the first and second line supervisors and the Maintenance Masters. Items such as package preparation and management of the work analyst staff, procedures and management of the procedure writing staff, surveillance scheduling, and NTS (Nuclear Tracking System) have been transferred to the Maintenance Staff. This will allow first and second line supervisors and the Maintenance Masters to focus on quality, production, active supervision including coaching and teaching, communicating expectations, and holding personnel accountable for their performance.

An effectiveness review is scheduled to ensure that actions taken to address procedural compliance issues associated with the securing of equipment were adequate and comprehensive.

- B&C. DAP 21-03, "Processing Plant Modifications" will provide direction to the cognizant engineer to ensure that modifications are reflected on all drawings which impact the configuration of both Units.

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(continued)

**DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED:**

- A. Full compliance will be achieved when the effectiveness review, which will be conducted in accordance with the revised DAP 02-27 (Integrated Reporting Process), is completed. This review will be completed by January 03, 1995.
  
- B&C. Full compliance will be achieved when DCR D-94-097 is incorporated and DAP 21-03, "Processing Plant Modifications" is issued. These actions will be completed by 10/1/94.

ATTACHMENT 3  
UNRESOLVED ITEM INFORMATION  
NRC INSPECTION REPORT  
50-237/94003; 50-249/94003

**UNRESOLVED ITEM:** (50-237(249)/94003-04)

Piping stress analysis for the LPCI piping system -- During a visit to a CEC Co design contractor on March 16, 1994, the inspectors noted that only one uniformly hot temperature was used in the original piping analysis for the LPCI system. The inspectors counted five different temperature combinations. Since, in some cases, thermal loads were dominating loads, licensee personnel agreed to re-run the piping stress analysis for the LPCI piping system in a simplified manner. The review focus was placed on the heat exchanger 2B-1503 outlet nozzle. This heat exchanger had the largest design loading imposed on the overstressed structural wide flange in Unit 2 southwest corner room. The piping stress analysis showed significantly higher loadings in some directions. This raised a question on the validity of some of the earlier piping stress analysis.

Licensee personnel also agreed to re-run the seismic and dead weight analyses, and to perform a technical audit on the previous piping stress analysis. This matter is unresolved pending review of the stress analysis and audit (237/249/94003-04).

**FOLLOW-UP INFORMATION:**

The seismic, dead weight and thermal analyses for the LPCI piping system were performed and indicate minor load variations in individual load cases when compared with VECTRA individual loads. Some components have calculated load increases while other components have calculated load decreases. The individual component loads and total system load increase are within the load criteria limit as specified in "Limit Criteria for Piping Load Changes", Revision 3. The heat exchanger nozzle combined loads for upset condition design and emergency design in all directions are within 20% of the load limit criteria as specified in the "Limit Criteria for Piping Load Changes". The support loads on the supports in the vicinity of the heat exchanger outlet nozzle are within the design loads shown on the latest support drawings. The differences in loads are expected due to the different modeling techniques and analysis performed based on present technology and incorporation of as-built information.

A technical audit/review was performed by Downers Grove Mechanical/Structural Engineering on VECTRA's LPCI calculations for Dresden Station as documented in CHRON No. 208897. Identified weaknesses were reviewed by Downers Grove Mechanical/Structural Engineering and VECTRA, corrective actions or appropriate engineering justifications were performed as necessary.

The VECTRA analyses have been determined to be acceptable by ComEd Engineering. The existing loads on the heat exchanger outlet nozzle and the support loads in the vicinity of the outlet nozzle are acceptable and meet the load limit criteria.

**ATTACHMENT 4**  
**INSPECTION FOLLOW UP ITEM INFORMATION**  
**NRC INSPECTION REPORT**  
**50-237/94003; 50-249/94003**

**INSPECTION FOLLOW UP ITEM:** (50-249/94003-03)

Calculation 8982-19-19-2, "Calculation for Contactor/Interposing Relay Coil Voltage at Pickup", Revision 1, dated December 22, 1992 -- Revision 0 of this calculation identified the marginally acceptable conditions for the contactor coils associated with the modifications P12-3-92-611, 612, 613, and 614. However, the results and conclusions of this calculation, including Revision 1, indicated that the minimum pickup voltage acceptance criteria was not met by six circuits. These control circuits were identified as those for the following motor loads: HPCI auxiliary coolant pump; HPCI pump area cooling unit; Reactor protection system MG Set 3B; Reactor building cooler recirc pump; Motor operated valve 202-4A; and Motor operated valve 202-4B.

Licensee personnel indicated that these six circuits had been analyzed and the conditions had been resolved or justified. Documentation could not be located to support this response. Licensee personnel advised that they would continue to search for the documentation and, if the records could not be found the conditions would be reanalyzed and new documentation prepared. The inspectors considered this to be an inspection follow up item pending NRC review of the documentation and resolutions (249/94003-03).

**FOLLOW UP INFORMATION:**

A review of the six circuits has been completed and direction has been given to update the calculations for these circuits. This review is documented in NETS Electrical / I&C Engineering Report, CHRON #209725. With the exception of the HPCI pump area cooling unit circuit, all other circuits were found not to require any action to improve the voltage drop. The HPCI pump area cooling unit circuit was found to require actions to improve the voltage drop in the circuit to an acceptable level.

Dresden Station issued LER 50-237/94-010 to address the unacceptability of the existing control circuits for the HPCI pump area cooling units. The specific corrective actions taken are identified in that document.

The original engineering judgement for the HPCI pump area cooling unit circuit in these degraded voltage calculations assumed that this load was not required to perform a safety related function during design basis accident conditions. However, upon further review it was found that the HPCI Room Cooler Fans are required to function in the event of a DBA LOCA. Operability evaluations were performed for both Units, and compensatory actions were taken. Dresden Station has taken actions to replace the existing NEMA size 2 contactors with NEMA size 1 contactors.

The installation of the NEMA size 1 contactor on Unit 2 has been completed under Exempt Change P12-2-94-215. The installation of the NEMA size 1 contactor on Unit 3 will be installed under Exempt Change P12-3-94-246, and is scheduled to be completed during the current refuel outage. The contactor replacements improve the voltage drop in the circuit to an acceptable level.