Commonwealth Edison Company
Dresden Generating Station
6500 North Dresden Road
Morris, IL 60450
Tel 815-942-2920

ComEd

January 28, 1997

JSPLTR #97-0018

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

Subject: Response to Apparent Violation in Inspection Report Nos. 50-237;249/96013(DRP). NRC Docket No. 50-249

Reference: J. L. Caldwell letter to J. S. Perry dated December 30, 1996 transmitting NRC Inspection Report Nos. 50-237;249/96013(DRP).

The above referenced Inspection Report discusses the results of a recent NRC inspection conducted at Dresden Station. This Inspection Report identified one apparent violation that is being considered for escalated enforcement. In lieu of seeking a predecisional enforcement conference, Commonwealth Edison Company (ComEd) is submitting this letter in response to the apparent violation prior to the NRC making its enforcement decision.

Based upon its understanding of the apparent violation, Dresden Station concurs in the essential findings as stated in the inspection report and acknowledges the NRC's concern. The apparent violation identifies a concern involving failure to maintain primary containment leakage less than or equal to 0.6 La as required by Technical Specification 3.7.A.2. Leakage past the Unit 3 Main Steam Line drain valves was greater than the test equipment could measure. During the root cause evaluation of this event, preliminary analysis based on worst case assumptions showed that during the Design Basis Accident, containment leakage might have resulted in exceeding the dose limits for Control Room Operators as well as Exclusion Area Boundary and Low Population Zone dose limits.

Subsequently, ComEd performed a realistic estimate of the post-LOCA radiological dose using the expected containment pressure profile, the delayed release of iodine and the results of a study that demonstrates that the chemical form of iodine tends to remain in solution and does not become airborne. The NRC has acknowledged that ComEd's realistic analysis demonstrated that the thyroid and whole body doses are less than the applicable 10 CFR 100 and 10 CFR 50 (Appendix A, General Design Criteria 19) limits of concern. Furthermore, the NRC has also acknowledged ComEd's assessment of the radiological consequences of leakage from the other primary containment isolation valves which concluded that such leakage would not result in exposure in excess of 10 CFR 100 limits.

Although the realistic analysis demonstrates that radiation doses would not have exceeded regulatory limits, ComEd recognizes that this violation should not have occurred and is taking strong steps to preclude its recurrence. After identifying and analyzing the violation, ComEd determined that design modification review and maintenance instructions warranted upgrading, and several steps to accomplish this have been taken.

The circumstances surrounding the apparent violation, ComEd's response to these circumstances, the corrective actions already taken, and significance of the issue are discussed in the Attachment to this letter. The information in the attachment summarizes and augments the information previously submitted in Licensee Event Report 50-249/95-007, Revision 0, 1, and 2.

If there are any further questions regarding this issue, please contact Frank Spangenberg, Dresden Station Regulatory Assurance Manager at (815) 942-2920 ext. 3800.

Sincerely,

J. Stephen Perry FOR
Site Vice President
Dresden Station

Subscribed and Sworn to before me on this

29 day of January 1997

Notary Public

OFFICIAL SEAL
SHERRY L BUTTERFIELD
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/23/00

attachment

cc: A. Bill Beach, Regional Administrator, Region III
P. L. Hiland, Branch Chief, DRP, Region III
J. F. Stang, Project Manager, NRR (Unit 2/3)
C. L. Vanderniet, Senior Resident Inspector, Dresden
Office of Nuclear Facility Safety - IDNS
File: Numerical

ATTACHMENT

Response to an Apparent Violation in Inspection Report Nos. 50-237;249/96013(DRP)

COMED'S UNDERSTANDING OF THE APPARENT VIOLATION

The failure to maintain primary containment leakage less than or equal to 0.6 La is considered an apparent violation of Technical Specification 3.7.A.2.

REASON FOR THIS APPARENT VIOLATION

Based upon its understanding of the apparent violation, Dresden Station concurs in the essential findings as stated in the inspection report and acknowledges the NRC's concern. Evidence that the Technical Specification limit had been exceeded was discovered in June 1995, during Unit 3 Maintenance Outage D3F18. Leakage through the inboard and outboard Main Steam Line (MSL) drain valves (valve numbers 3-220-1 and 3-220-2) was found to be in excess of test gauge capacity, and therefore in excess of Technical Specification limits.

During the D3R13 refueling outage, March 1994 to November 1994, the then-installed valves were replaced with Anchor Darling dual disk gate valves. The unit then operated for approximately 6 months before entering maintenance outage D3F18. Leakage past the inboard MSL drain valve (3-220-1) resulted from low spots in the valve seating surfaces, due to poor alignment between the valve disk and its seat. This poor alignment was most likely due to human error during installation, caused by inadequate maintenance instructions for valve initial assembly, coupled with a lack of experience with maintenance on Anchor Darling dual disk gate valves. The installation of these valves during D3R13 marked the first time valves of this type were used at Dresden Station. Missing valve internals, specifically the valve's lower wedge, resulted in excessive leakage past the outboard MSL drain valve (3-220-2). The failure mechanism that displaced the lower wedge of the outboard MSL drain valve was excessive thrust applied to the valve's handwheel during manual operation of this motor operated valve (MOV). The root cause of the failure was that the modification to change the style and manufacture of the valve did not identify the relatively low torque that could damage the valve during manual operation. A contributing cause of this valve failure was the informal control of Out-of-Service card verification on MOV handwheels. Maintenance and operating personnel who had not been trained on manual MOV operation were permitted to locally verify MOV positions prior to performing maintenance.

CORRECTIVE ACTIONS TAKEN AND RESULTS ACHIEVED

The following corrective actions were promptly completed upon discovery of the non-conforming condition, and prior to the restart of Unit 3 from the D3F18 outage in September of 1995. Thus, no plant operation was permitted once this non-conformance was identified and appropriate corrective actions were completed before restarting Unit 3. In addition, those corrective actions which would also effect Unit 2 were completed prior to the restart of the unit from refueling outage D2R14.

The inboard MSL drain valve was repaired using Dresden Mechanical Procedure (DMP) 0040-58, "Anchor Darling Dual Disk Gate Valve Maintenance." This procedure was written subsequent to the initial installation of these gate valves and it provided more detailed instructions for alignment of Anchor Darling valve disks than was available in other procedures. This procedure was used to realign the inboard MSL drain valve. Due to internal damage of the outboard MSL drain valve, the valve installed during D3R13 was replaced. A successful post-installation Local Leak Rate Test (LLRT) was performed on the MSL drain valves following completion of these repairs.

Based on these two MSL drain valve failures, coupled with knowledge of recent related problems at other stations, Dresden Engineering personnel (Engineering) determined that ComEd should perform LLRTs on the other Anchor Darling dual disk gate valves installed in 1994, during D3R13. Out of this group, only the inboard Reactor Water Cleanup (RWCU) valve (3-1201-1) was found to have a leak rate in excess of the capacity of the LLRT test gauge. Inspections revealed a low spot in the seating surface of the outboard disk, which was then repaired. An acceptable post-repair LLRT was subsequently completed.

Engineering determined which safety-related MOVs were susceptible to damage from manual handwheel operation, for both operating Dresden Units. Those potentially susceptible to damage had their integrity verified by a review of component parameters, that revealed either:

* That manual operation could not have caused component structural limits to be exceeded, or

* That component limits could have been exceeded, in which case these "weak link" parts were replaced.

Engineering and Operating Department personnel reviewed the out-of-services used during the performance of LLRTs for both Units 2 and 3. If an out-of-service card had been placed on the MOV's handwheel and the possibility existed that the valve may have been closed manually, an LLRT was performed to determine valve leakage and to ensure containment integrity. The LLRT results, when compared to the previous results, demonstrated that these valves had not been manually operated.

ACTIONS TO PREVENT FURTHER OCCURRENCE

The "Anchor Darling Dual Disk Gate Valve Maintenance" procedure, DMP 0040-58, is required to be used whenever valve internal maintenance is performed.

Interviews conducted with Operating Department and Maintenance Department personnel established the practices used for manual operation of MOVs. These interviews revealed that some personnel had manually operated MOVs improperly. Tailgate training was held where Maintenance Department personnel reviewed and subsequently qualified on the correct process for verifying MOVs out-of-service closed, but they alos instructed the only Operating Department personnel may verify closed MOVs using their handwheels. Non-Licensed Operators received training and subsequent qualification during continuing training which was updated to address proper manual MOV operation, with special emphasis on operation of Anchor Darling valves.

The responsible Design Engineer and work package preparers/reviewers were counseled on the importance of identifying changes to component installation, operating parameters, and operating modes when a modification is designed or reviewed. Established site design change controls which contain such cautions were reviewed with these Engineers.

Dresden Administrative Procedure (DAP) 03-05, "Out-of-Service and Personnel Protection Cards," was revised to formally control MOV handwheel operation during out-of-service placement, and to note the potential to invalidate LLRTs when an MOV is operated manually.

Dresden Operating Procedure (DOP) 0040-01, "Station Motor Operated Valve Operation," was revised to provide the Operations Department with detailed instructions on manually operating MOVs.

DAP 07-27, "Independent Verification," was revised to include precautions for manual MOV operation. This procedure also now has a detailed description of the proper technique for manually verifying that an MOV is closed. According to DAP 07-27, manual operation of an MOV's handwheel to seat or verify closed an MOV is strictly forbidden.

Engineering calculated proper closing torque values for approximately 532 safety-related and balance of plant MOVs to be used when valves must be manually operated. These torque values were supplied to the Operating Department Manager.

The Engineering and Support Personnel Continuing Training (ESPT) discussed the failure of MOVs during manual operation during the fourth quarter 1995 mandatory training session. The instructor guide for this class included a description of these inboard and outboard MSL failure events, as well as other related events, and discussed how these failures could have been prevented or mitigated during the design, review and installation process.

Dresden Technical Surveillance (DTS) 1600-01, "Local Leak Rate Testing of Primary Containment Isolation Valves," was revised to include a prerequisite to spin each MOV's handwheel to verify that the handwheel spins freely before commencing the LLRT, thereby confirming that the MOV handwheel is disengaged, the motor is engaged, and the valve has been closed by its normal means. If the handwheel is found engaged, the Operating Department must stroke the valve open and then closed using the motor operator.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Dresden has been in full compliance since the repairs of the affected valves and the successful LLRTs were completed during D3F18. This was accomplished before the restart of Unit 3 in September 1995.