Commonwealth Edison
1400 Opus Place
Downers Grove, Illinois 60515

October 28, 1994

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

Subject: Dresden Nuclear Power Station Unit 2
Request for Schedular Exemption From 10 CFR 50, Appendix J,
Type A Test Interval
NRC Docket No. 50-237

Pursuant to 10 CFR 50.12(a), Commonwealth Edison requests a one time schedular exemption for Dresden Unit 2 from the approximate 18 month test interval for the Type A integrated leak rate testing required by 10 CFR 50, Appendix J, Section III.A.6(b). This extension is needed since Dresden Unit 2 failed to meet the acceptance criteria stated in Section III.A.5(b)(2) of 10 CFR 50, Appendix J during its last two integrated leak rate tests. Therefore, as a result of failing two consecutive periodic Type A tests, Section III.A.6(b) of 10 CFR 50, Appendix J specifies "Additional Requirements" which require a Type A test to be performed at each plant shutdown for refueling or approximately every 18 months whichever occurs first.

The original shutdown date for the fourteenth Dresden Unit 2 refuel outage (D2R14) was September 10, 1994. However, the current cycle was extended to March 4, 1995, and the due date (November 14, 1994) for the Type A ILRT was not identified to be affected by this schedule change. The root cause for this oversight is still under review. This interval will cause the Station to exceed the approximate 18 month Type A integrated leak rate testing surveillance interval required by 10 CFR 50, Appendix J. This exemption would provide for extending the approximate 18 month accelerated Type A test interval by 8 months to a maximum of 26 months. This exemption requests additional time beyond the current schedule due to a possible extension to no later than July 14, 1995, which is currently under review. If a separate forced outage was imposed to perform Type A testing, Commonwealth Edison would be subject to "undue hardships or other costs" that result from generating time lost due to the current forced outage or a future forced outage. The exemption would provide only temporary relief from the applicable regulation and would not extend beyond the normal test interval required for containments not being on the accelerated test schedule.

Attachment 1 provides justification for the exemption in accordance with the guidelines established in 10 CFR 50.12(a).

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We regret any inconvenience the timeliness of this request may cause you or your staff and appreciate your attention and urgency to this matter. Please direct any questions you may have regarding this matter to this office.

Sincerely,

Peter L. Piet
Nuclear Licensing Administrator

Attachment

cc: J. B. Martin, Regional Administrator - RIII
J. F. Stang, Project Manager - NRR
M. N. Leach, Senior Resident Inspector - Dresden
Office of Nuclear Facility Safety - IDNS

Maryellen D. Long
10-28-94

OFFICIAL SEAL
MARYELLEN D LONG
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES:04/15/98

ATTACHMENT 1

JUSTIFICATION FOR SCHEDULAR EXEMPTION FROM

10 CFR 50, APPENDIX J

TYPE A APPROXIMATE 18 MONTH TEST FREQUENCY

EXEMPTION:

ComEd requests a one time schedular exemption from the approximate 18 month Type A integrated leak rate test (ILRT) interval required by 10 CFR 50, Appendix J, Section III.A.6(b), since two consecutive periodic Type A tests failed to meet the applicable acceptance criteria in Section III.A.5(b). This exemption applies only to Dresden Unit 2 and requires a maximum 8 month extension for a total interval of 26 months (New due date July 14, 1994) for the Type A integrated leak rate test. To compensate for the surveillance extension, ComEd will impose a limit of 519.0 scfh on Type A leakage, which is 85% of the acceptance criteria, 610.56 scfh, until the fourteenth refuel outage, D2R14.

DISCUSSION:

The original shutdown date for the fourteenth Dresden Unit 2 refuel outage was September 10, 1994. This schedule would have been acceptable for the current Type A ILRT interval (approximately 18 months or shutdown for refuel, whichever occurs first). However, the current start of D2R14 was extended to March 4, 1995, and the due date (November 14, 1994) for the Type A ILRT was not identified to be affected by this schedule change. The causes for this oversight are still under review. During a review of surveillance intervals for another possible refuel outage schedule change, ComEd identified that the due date for the Type A ILRT was not properly identified when the original refuel outage scope was initially moved to March 4, 1995. Unfortunately, this discovery occurred within three weeks of the due date for the Type A ILRT. The tracking mechanism has been corrected to set the interval at 18 months instead of refuel.

Therefore, an extension to the approximate 18 month test interval is required for the Type A ILRT, which cannot be performed during reactor operation. The exemption requests a maximum extension of 8 months for a total interval of 26 months; the additional time provides for the possible further extension of the current refuel schedule beyond March 4, 1995. It is expected that the shutdown date will not be extended beyond July 14, 1995.

If the performance of a Type A test during a future forced outage or during the current forced outage was imposed, ComEd would be subject to "undue hardship or other costs" that result from generating time lost due to a forced outage. Considering the intent of the 18 month interval cap and its relation to longer fuel cycles, ComEd believes that the safety benefit to be derived from performing a Type A test at 18 months rather than 26 months does not justify the hardship of forced plant shutdown. In addition, ComEd Dresden Unit 2 has demonstrated through previous Type A testing that the Type A ILRT boundaries have been acceptable. These boundaries include the containment liner, containment head, suppression chamber, its downcomers and piping and instrumentation not tested through Type B and C tests. The two consecutive Type A ILRT failures that have placed Unit 2 on the accelerated test schedule were the result of the addition of Type B and C test results to the Type A leakage, and not due to problems with the Type A test boundaries. The containment leakage rate minus the Type B and C leakages for the last two Type A test failures during D2R12 and D2R13 are 285.50 scfh and 302.62 scfh, respectively. These values are 47% and 50% of the Type A ILRT acceptance criteria of 610.56 scfh (.75La). The acceptance criteria is from Dresden Unit 2 Technical Specification 3.7.A.2.b.(1).

During D2R12, the Type A ILRT failed due to a leak of the inboard flange of the Reactor Building to Suppression Chamber Vacuum Breaker Valve, 2-1601-20A. This leakage was quantified to be 12720.05 scfh. If this leakage did not occur the Type A ILRT results would be 543.40 scfh, which is less than the acceptance criteria, 610.56 scfh. During the previous refuel outage, D2R11, repairs were made to the valve; however, a proper Type C test was not performed to the inboard flange after the repairs were completed. The root cause for this event was attributed to the work performed on this valve was not properly reviewed for proper 10 CFR 50, Appendix J testing requirements and the identification for testing was missed. Due to this event, significant corrective actions were taken to prevent recurrence. One corrective action is that every work request is reviewed by the station 10 CFR 50 Appendix J coordinator for applicable testing requirements. Another corrective action was to install test fixtures to allow testing for all inboard flanges of containment isolation valves. These test fixtures were installed during D2R13, and the inboard flanges were tested in accordance with 10 CFR 50, Appendix J. These tests had passed. ComEd is confident that these corrective actions have properly addressed this issue and further events will not occur.

During D2R13, the Type A test failed due to the as-found minimum pathway leakage of primary containment isolation valves found during Type B and C testing. The minimum pathway leakage is defined as the leakage through a series of valves assuming the leakage is through the valve with the lowest amount of leakage. These as-found minimum pathway leakages are added to the leakage through the actual containment structure, i.e., containment liner, containment head, pressure suppression pool, its downcomers and piping and instrumentation not tested through Type B and C tests, to determine the total as-found Type A leakage. The volumes that were the major contributors to this failure are the 'B' Feedwater Line isolation check valves, 2-220-58B and 2-220-62B, and the Shutdown Cooling (SDC) isolation valves, 2-1001-1A, 2-1001-1B, 2-1001-2A, 2-1001-2B and 2-1001-2C, Reactor Water Clean-Up (RWCU) isolation valves, 2-1201-1, 2-1201-1A, 2-1201-2, 2-1201-3 and 2-1299-004 and 2-1299-005, Low Pressure Coolant Injection (LPCI) containment spray isolation valves, 2-1501-27B and 2-1501-28B, High Pressure Coolant Injection (HPCI) drain pot to Suppression Chamber valves, 2-2301-34 and 2-2301-71, Traversing Indicating Probe (TIP) purge check valve, 2-4799-514, Electrical Penetration X-202W and Drywell Bellow X-113. The total minimum pathway leakage for these volumes is 685.75 scfh. The following is a list of the valves or penetrations that failed, the problem discovered and the corrective action taken:

<u>Outboard 'B' Feedwater Line Check Valve 2-220-62B</u>

The outboard 'B' Feedwater Line Check Valve 2-220-62B was disassembled and inspected. An inspection of the valve internals revealed rust residue on the O-ring which is designed to seal between the disc/seat assembly and the valve body, and on the machined surface of the valve body which mates with the seal. This rust residue is indicative of leakage past the O-ring seal. The seat/disc assembly was removed and bench tested to verify the integrity of the seating surfaces. A Type C local leak rate test (LLRT) was performed and yielded a leakage rate of 0.50 scfh. The disc/seat assembly was reinstalled into the valve body along with a new O-ring seal. A final LLRT was performed and an as-left leakage of 2.14 scfh was obtained. LLRT records dating back to 1983 indicate one other failure of this valve. Future corrective actions to prevent leakage past the disc/seat assembly and the valve body will be in place for the next refuel outage. The corrective actions include machining the valve body to accept a metallic gasket, which replaces the O-ring seal, and provide additional hold down hardware for the disc/seat assembly. This design was recommended by the manufacturer, Crane Valve, to improve the leakage performance of the check valve.

Inboard 'B' Feedwater Line Check Valve 2-220-58B

The inboard 'B' Feedwater Line Check Valve 2-220-58B was disassembled and inspected. An inspection of the valve internals revealed approximately 0.003" clearance between the valve's hinge pins and the bushings. The disc/seat assembly to valve body mating surface showed indications of leakage past the O-ring seal in the area between 120 and 150 degrees. Additionally, some scratches were identified in the pressure seal ring area on the valve body. The valve's disc/seat assembly was replaced since the hinge pin to bushing clearances were out of specification. A new O-ring was also installed upon reassembly. The scratches in the valve's pressure seal ring area were bored out and the surface was machined to the correct specifications. A final LLRT was performed and an as-left LLRT yielded a leakage rate of 3.52 scfh. LLRT records dating back to 1983 indicate two failures. Future corrective actions to prevent leakage past the disc/seat assembly and the valve body will be in place for the next refuel outage. The corrective actions include machining the valve body to accept a metallic gasket, which replaces the O-ring seal, and provide additional hold down hardware for the disc/seat assembly. This design was recommended by the manufacturer, Crane Valve, to improve the leakage performance of the check valve.

HPCI Check Valve 2-2301-34

The High Pressure Coolant Injection (HPCI) Drain Pot Drain To Suppression Chamber Stop Check valve, 2-2301-71, and HPCI Drain Pot Drain To Suppression Chamber Check Valve 2-2301-34 were disassembled under work requests 15415 and 14043 respectively. The 2-2301-71 valve is not subject to testing to the provisions of Appendix J, however, it is used as a boundary isolation valve during the LLRT for the 2-2301-34 valve. Troubleshooting of the 2-2301-34 valve identified the majority of the 32.54 scfh of leakage past the 2301-71 valve. This valve was removed from the line and replaced with a like for like valve since a blue check of the valve's seating surfaces revealed poor contact on one side. This damage is thought to be caused by excessive torquing of the handwheel.

An internal inspection was performed on the 2-2301-34 valve. A "blue check" of the valve seats revealed good contact. The valve internals were cleaned and the valve was reassembled. An as-left LLRT was performed and yielded a leakage rate of 14.17 scfh. LLRT records dating back to 1983 indicate one previous failure for each valve.

Attachment 1 (continued)

Shutdown Cooling Inboard Isolation Valve 2-1001-1A

Shutdown Cooling Inboard Isolation Valve 2-1001-1A was disassembled, inspected, and repaired. Upon disassembly, an inspection of the valve's internals revealed poor contact between the valve seat and disc. The valve seats were lapped and a new disc was machined for a proper fit since the original disc was too small after the required machining. Shutdown Cooling Inboard Isolation Valve 2-1001-1B was disassembled and inspected under work request 10050. An inspection of the valve internals also revealed poor contact in the valve's seating area. The valve seats were lapped and the disc machined to obtain proper contact. A final LLRT was performed and yielded a leakage rate of 27.40 scfh. LLRT records dating back to 1983 indicate one failure for valve 2-1001-1A and two failures for valve 2-1001-1B. Future corrective action for these valves is to replace the valves during the next refuel outage with an Anchor Darling parallel disc style valve, based on recommendations from the manufacturer to increase the leakage performance.

LPCI Drywell Spray Outboard Isolation Valve 2-1501-27B

LPCI Drywell Spray Outboard Isolation Valve 2-1501-27B was disassembled and inspected. The valves disc to seat contact was found to be unacceptable after a "blue check" was performed on the seating surfaces. The valve seats were lapped and the disc was stripped of its seating material and overlaid with Stellite. Additional machining of the valve disc was performed to obtain an acceptable seat to disc contact pattern. An as-left LLRT was performed and yielded a leakage rate of 1.01 scfh. LLRT records dating back to 1983 indicate no previous failures for this valve.

LPCI Drywell Spray Header Inboard Isolation Valve 2-1501-28B

LPCI Drywell Spray Header Inboard Isolation Valve 2-1501-28B was disassembled and inspected. Similar to valve 2-1501-27B, the valve's disc to seat contact was unacceptable when a blue check was performed. The valve's seats were removed and replaced with a new set. The valve disc was stripped of its surface material and overlaid with Stellite. The disc was then machined to provide for proper contact with the seats. A final LLRT was performed and yielded a leakage rate of 1.01 scfh. LLRT records dating back to 1983 indicate no previous failures for this valve.

TIP Purge Check Valve 2-4799-514

TIP Purge Check Valve 2-4799-514 was replaced with a suitable valve. LLRT records dating back to 1983 indicate no previous failures for this valve.

RWCU Test Connection and Drain valves 2-1299-004/005

Reactor water cleanup test connection and drain valves 2-1299-004 and 2-1299-005 were removed from the piping and bench tested after troubleshooting of the test volume indicated potential leakage through these valves. The valves were removed and bench tested to confirm and quantify the leakage past these valves. A LLRT was performed on the valves and indicated a leakage rate of approximately 60 scfh. New valves were installed and a final LLRT yielded a leakage rate of 5.21 scfh.

Electrical Penetration X-202W

Electrical penetration X-202W was repaired. Leakage out of this penetration was reduced from 55.89 scfh to 1.65 scfh after being repaired with Loctite 286 sealant. LLRT records dating back to 1983 indicate two previous failures for this penetration.

Penetration X-113

Penetration X-113 were replaced with a new design which provides an increased space between the plies. This allows the total surface of the bellows to be challenged during Type B Local Leak Rate Testing.

The minimum pathway leakage from the remaining valves tested through Type B and C was 199.31 scfh when added to the containment structure leakage the total Type A ILRT results would have been 501.93 scfh, which is less than the acceptance criteria, 610.56 scfh. These valves were repaired during the refuel outage and subsequently passed post-maintenance Type C tests.

In addition to the above corrective actions, the station has committed to solving its primary containment isolation valves problems by forming a project team that will concentrate on valve corrective and preventative maintenance. This team is formed of technical and maintenance expertise in the key areas such as air-operated valves, motor-operated valves, check valves and valve internals. Input from Type B and C LLRTs is also being used as a basis for future corrective and preventative maintenance actions.

Furthermore, a limit will be imposed on the total Type A leakage results until the refuel outage, D2R14. This limit will be 519.0 scfh, which is 85% of the acceptance criteria, 610.56 scfh. The current Type A leakage is 493.36 scfh. All additional minimum pathway leakage will be added to this total as operational Type B and C tests are performed.

Based on the information provided above it and ComEd's self-imposed limit, ComEd has concluded that the integrity of the Type A tested boundaries remains secure and that adequate corrective actions associated with the Type B and C tested valves have been implemented to reduce the likelihood of an increase to the consequences of any accident for the expected duration of the Unit 2 Cycle 14. (July 1995).

BASIS:

As discussed in the following sections, the requested exemption meets the three necessary criteria of 10 CFR 50.12(a)(1). In addition, there are special circumstances present which qualify for consideration for an exemption per the criteria established in 10 CFR 50.12(a)(2).

A. <u>Criteria for Granting Exemptions Are Met per 10 CFR Part 50.12(a)(1):</u>

1. <u>The Requested Exemptions and the Activities Which Would Be Allowed Thereunder Are Authorized by Law</u>

If the criteria established in 10 CFR 50.12(a) are satisfied, as they are in this case, and if no other prohibition of law exists to preclude the activities which would be authorized by the requested exemption, and there are no such prohibition, the Commission is authorized by law to grant this exemption request. [1]

2. <u>The Requested Exemption Will Not Present Undue Risk to the Public</u>

As stated in 10 CFR 50, Appendix J, the purpose of primary containment leak rate testing is to ensure that the leakage through primary containment shall not exceed the leakage allowed by the Technical Specifications or associated basis and to ensure that proper maintenance and repair is performed throughout the service life of the containment boundary components. Specifically, the purpose of the Type A test is to ensure the integrity of the containment structure, that part of primary containment that Type B and C testing does not test.

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[1] See U.S. vs. Allegheny-Ludlum Steel Corp., 406 U.S. 742, 755 (1972).

The Type A tests with leakage rates results beyond the acceptance criteria were attributed to Type B and C failures in the containment structure, i.e., containment liner, single-ply bellows, personnel interlock, hatches, pressure suppression chamber and its downcomers. The failures are ones that are tested using the Type B and C test methodology. Therefore, due to the past performance, the integrity of the containment structure is not decreased due to an extension of Type A testing. However, in order to address minimum pathway leakage found during Type B and C testing, a self-imposed limit of 519.0 scfh of the total Type A leakage (containment leakage, 302.62 scfh, plus minimum pathway leakage of Type B and C tests) until D2R14 will be imposed on the operational Type B and C testing that will be performed during this time.

A station-imposed limit for minimum pathway leakage and the Type B and C project team as previously discussed provides a basis for demonstrating that the probability of exceeding the off-site dose rates established in 10 CFR 100 will not be increased by extending the approximate 18 month Type A testing interval by a maximum of 8 months. Therefore, this exemption will not "present an undue risk to the public health and safety."

3. <u>The Requested Exemptions Will Not Endanger the Common Defense and Security</u>

The common defense and security are not in any way compromised by this exemption request.

B. At Least One of the Special Circumstances Are Present Per 10 CFR 50.12(a)(2)

1. The Requested Exemptions Will Avoid Undue Hardship or Costs

The requested schedular extension is required to prevent a forced outage of Dresden Unit 2. Preparations for a refueling outage are proceeding based on a scheduled shutdown in March 4, 1995 with the possibility of further extension no later than July 14, 1995. An extension of the current shutdown or a future forced shutdown would result in an overall increase in the duration of the outage if equipment delivery, preparation, and mobilization of work forces were to occur. In addition, an earlier forced outage would present undue hardship and costs in the form of generating time lost due to a forced outage. Furthermore, a heatup and cooldown cycle could be eliminated by increasing the Appendix J test interval. Because the requested exemption does not jeopardize the health and safety of the public, as previously discussed, its approval is warranted in order to prevent a shutdown or extension of the current outage. ComEd does not believe that when Appendix J was implemented that extended outages or extended operating cycles, such as those associated with 18 to 24 month fuel cycles or extended coast-downs, were foreseen.

The Dresden Unit 2 situation therefore represents a special circumstance per item (iii) of 10 CFR 50.12(a)(2) i.e., "Compliance would result in undue hardship or other costs that are significantly in excess of those contemplated when the regulation was adopted, or that are significantly in excess of those incurred by others similarly situated." Exemptions to Appendix J requirements have subsequently been granted in such cases.[2]

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[2] (a) Docket No. 50-293, Pilgrim Nuclear Power Station, Unit No. 1, Exemption from the Requirements of Appendix J to 10 CFR 50 for the Containment Integrated Leak Rate Test Interval, Section III.A.6(b) (TAC NO. 73773)

(b) Docket No. 50-249, Dresden Nuclear Power Station, Unit No. 3, Schedular Exemption from 10 CFR Part 50, Appendix J - Dresden Nuclear Power Station, Unit 3 (TAC NO. M87084).