Commonwealth Edison Company
1400 Opus Place
Downers Grove, IL 60515

September 22, 1995

ComEd

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

Subject: Dresden Nuclear Power Station Unit 3
Request for Schedular Exemption From 10 CFR 50, Appendix J, Type A Test Interval
NRC Docket No. 50-249

Pursuant to 10 CFR 50.12(a), Commonwealth Edison requests a one time schedular exemption for Dresden Unit 3 from the approximate 18 month test interval for the Type A integrated leak rate testing (ILRT) required by 10 CFR 50, Appendix J, Section III.A.6(b). This extension is needed since Dresden Unit 3 failed to meet the acceptance criteria stated in Section III.A.5(b)(2) of 10 CFR 50, Appendix J during its D3R11 and D3R12 refueling outage 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 until two consecutive Type A tests meet the acceptance criteria. Dresden Station Unit 3 met the acceptance criteria during its D3R13 Type A ILRT, however, Dresden Unit 3 would still need to pass the upcoming D3R14 ILRT to be removed from the accelerated testing schedule.

The original shutdown date for the fourteenth Dresden Unit 3 refuel outage (D3R14) was January 14, 1996, however, the current cycle was extended to March 18, 1996. This extension will cause ComEd to exceed the approximate 18 month Type A integrated leak rate testing surveillance interval (due date January 15, 1996) required by 10 CFR 50, Appendix J. This exemption would provide for extending the approximate 18 month accelerated Type A test interval by slightly more than 2 months. 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 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.

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A decision is needed by December 15, 1995 in order to obtain the necessary equipment for performing the containment integrated leak rate test.

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

If there are any questions concerning this submittal, please contact this office.

Sincerely,

Peter L. Piet
Nuclear Licensing Administrator

OFFICIAL SEAL
MARY JO YACK
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES: 11/29/97

Mary Jo Yack 9-22-95

Attachment

cc: H.J. Miller, Regional Administrator - RIII
J. F. Stang, Project Manager - NRR
C.L. Vanderniet, Senior Resident Inspector - Dresden
Office of Nuclear Facility Safety - IDNS

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ATTACHMENT 1

JUSTIFICATION FOR SCHEDULAR EXEMPTION

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)(2). This exemption applies only to Dresden Unit 3 and requires an extension of slightly greater than 2 months 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 refuel outage, D3R14.

DISCUSSION:

The original shutdown date for the fourteenth Dresden Unit 3 refuel outage was January 14, 1996. 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 D3R14 was extended to March 18, 1996, and the due date (January 14, 1996) for the Type A ILRT would be exceeded.

If the performance of a Type A test during a future 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 20 months does not justify the hardship of a forced plant shutdown. In addition, ComEd Dresden Unit 3 has demonstrated through previous Type A testing that the Type A ILRT boundaries have been acceptable. These boundaries include the containment liner, containment head, downcomers, suppression chamber, and piping and instrumentation not tested through Type B and C (Local Leak Rate Tests (LLRT)) tests. The two consecutive Type A ILRT failures that have placed Unit 3 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 leakage back corrections for the last two Type A tests during D3R12 and D3R13 are 341.20 scfh and 332.81 scfh, respectively. These values are 55.9% and 54.5 % of the Type A ILRT acceptance criteria of 610.56 scfh (.75L_a). The acceptance criteria is specified in 10 CFR 50, Appendix J, Section III.A.5(b)(2) as well as Dresden Unit 3 Technical Specification 3.7.A.2.b.(1).

During D3R12 (Fall 1991), the addition of as-found minimum pathway leakage past primary containment isolation valves, found during Type B and C testing, to the containment boundary resulted in a failure of the Type A ILRT. See Enclosure 1 for a description of minimum pathway leakage and as-found Type A leakage.

The volumes that were contributors to this failure are: the Shutdown Cooling Suction Line valves 3-1001-1B and 3-1001-2B; the Low Pressure Coolant Injection (LPCI) Discharge Header Cross-tie valves, 3-1599-61 and 3-1599-62; Drywell/Torus Vent valves 3-1601-22 and 3-1601-55; the High Pressure Coolant Injection (HPCI) Turbine Exhaust line check valve, 3-2301-45; the 'A' Post Accident H_2/O_2 Monitor return line check valve, 3-2499-28A; and the 'B' Post Accident H_2/O_2 Monitor return line check valve, 3-2499-28B.

The following is a list of the valves that failed, the problem discovered and the corrective action taken:

Shutdown Cooling Suction Line Valves 3-1001-1B and 3-1001-2B

Shutdown Cooling Suction Line Valve 3-1001-1B was disassembled and inspected. The inspection revealed a badly cracked wedge and slightly scratched seat. The wedge was replaced and the seat lapped. Shutdown Cooling Suction Line Valve 3-1001-2B was disassembled and the inspection revealed an indication on the seat. The valve failed a blue check and the seat was lapped. An as-left Type C test was performed which yielded a leakage rate of 0.29 scfh. LLRT records dating back to 1980 indicate one previous failure (December, 1989). Corrective actions of refurbishing and replacing were considered adequate corrective actions for both failures because of the low failure history. During refuel outage D3R13, after one operating cycle, these valves were Type C tested and yielded a slight leakage increase to 5.24 scfh.

<u>LPCI Discharge Header Cross-tie Valves 3-1599-61 and 3-1599-62</u>

LPCI Discharge Header Cross-tie Valves 3-1599-61 and 3-1599-62 were flushed to clean the seats. This flushing improved the disk to seat contact of the valves. An as-left Type C test was performed which yielded a leakage rate of 3.76 scfh. LLRT records dating back to 1980 indicate one previous failure for each valve. A review of 10 CFR 50, Appendix J determined that these valves do not meet the definition of an Appendix J Primary Containment Isolation Valve since they are not exposed to the containment atmosphere after an accident. This volume was appropriately dropped from the leak rate testing program.

<u>Drywell/Torus Vent Valves 3-1601-22 and 3-1601-55</u>

Drywell/Torus Vent Valve 3-1601-22 was disassembled and inspected. The piston rod was not adjusted properly, therefore, the valve was not fully closed. This valve had been replaced in 1988. In addition, Drywell/Torus Vent Valve 3-1601-55 was disassembled and the inspection revealed that the valve seats required replacing. An as-left Type C test was performed which yielded a leakage rate of 1.09 scfh. LLRT records dating back to 1980 indicate one previous failure for valve 3-1601-55 which occurred during the 1989 refuel outage D3R11. Corrective actions of readjusting and replacing were considered adequate corrective actions for both failures because of the low failure history. During refuel outage D3R13, after one operating cycle, these valves were Type C tested and yielded a slight leakage decrease to 0.96 scfh.

<u>HPCI Turbine Exhaust Line Check Valve 3-2301-45</u>

The HPCI Turbine Exhaust Line Check Valve 3-2301-45 was removed and the inspection of the valve internals revealed that the Viton seats were torn. This premature failure of the check valve was attributed to excessive cycling of the check valve caused by operating the HPCI turbine at 1000 rpm during monthly surveillance testing. Turbine exhaust pressure at 1000 rpm is approximately 7 psig and this low exhaust pressure causes the 3-2301-45 to cycle excessively.

The HPCI Turbine Exhaust Line Check Valve 3-2301-45 was replaced with a similar check valve. An as-left Type C test was performed which yielded a leakage rate of 0.14 scfh. There have been failures of this valve in subsequent outages with the corrective actions discussed later in this exemption request under D3R13 repeat failures.

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28A

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28A was disassembled and inspected. Due to piping corrosion products on the seating surfaces, the valve was replaced. An as-left Type C test was performed which yielded a leakage rate of 1.04 scfh. This check valve also failed a Type C test during reactor power operation (February, 1994) from corrosion products fouling the seating surfaces. These conditions result from the moist drywell atmosphere condensing in the cooler H_2/O_2 Analyzer return piping. The cause of the valve failure is an inadequate application of the valve. The lift-type check valve was replaced with an Anchor Darling swing-type check valve which is less susceptible to corrosion and fouling of seating surfaces. Limited testing of Anchor Darling swing-type check valves in the ACAD System has demonstrated positive results.

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28B

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28B was disassembled and inspected. Due to piping corrosion products on the seating surfaces, the valve was replaced. An as-left Type C test was performed which yielded a leakage rate of 0.22 scfh. There have been failures of this valve in subsequent outages with the corrective actions discussed later in this exemption request under D3R13 repeat failures.

During D3R13 (Spring and Summer 1994), Dresden Station passed its as-found Type A ILRT. The addition of as-found minimum pathway leakage past primary containment isolation valves, found during Type B and C testing, to the containment boundary resulted in a successful Type A ILRT.

The volumes that were repeat failures from the previous refuel outage are: the High Pressure Coolant Injection (HPCI) Turbine Exhaust line valves, 3-2301-45 and 3-2301-74 and the 'B' Post Accident H_2/O_2 Monitor return line check valve, 2-2499-28B.

The following is a list of the valves which were repeat failures, the problem discovered and the corrective action taken:

HPCI Turbine Exhaust Line Check Valve 3-2301-45

HPCI Turbine Exhaust Line Check Valve 3-2301-45, a Marlin duo-check valve, was removed from the system and inspected. The rubber seat was found to be worn and is attributed to erosion during low flow conditions. Corrective actions include installation of a C & S dual disk check valve with a lighter spring. This change will allow the valve to open fully against low steam flow. A revision to Operations Department procedures, which includes minimizing operating time within this low flow condition, has been completed. An as-left Type C test was performed which yielded a leakage rate of 0.10 scfh. Dresden station has experienced an additional LLRT failure of the 3-2301-45 valve during forced outage D3F18 (Summer 1995).

HPCI Turbine Exhaust Line Stop Check Valve 3-2301-74

The HPCI turbine exhaust line stop check valve, 3-2301-74, has not been considered to be an Appendix J testable valve since there was no practical means of testing this valve in the accident direction. After the D3R13 ILRT, while the Suppression Pool was still pressurized above 48 psig, a Type C test was performed by opening a vent and measuring the leakage past the stop check valve. There was no leakage past the valve, however, the lowest marking on the ILRT flowmeter (84 scfh) was recorded as the as-found leakage. A loose-fitting plug was later installed in the submerged piping within the Suppression Pool in order to perform a Type C test of the stop check valve. That LLRT yielded a leakage of 14.39 scfh, of which, none was past the valve but rather leakage from around the plug. The stop check valve 3-2301-74 is the leakage barrier before the containment atmosphere reaches the check valve 3-2301-45.

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28B

Post Accident H_2/O_2 Analyzer Return Line Check Valve 3-2499-28B was disassembled and the inspection revealed moisture in the valve, light grayish corrosion and a small piece of debris on the piston seat. These conditions result from the moist drywell atmosphere condensing in the cooler H_2/O_2 Analyzer return piping. The cause of the valve failure is an inadequate application of the valve. The lift-type check valve was replaced with an Anchor Darling swing-type check valve which is less susceptible to corrosion and fouling of seating surfaces. An as-left Type C test was performed which yielded a leakage rate of 5.90 scfh. LLRT records dating back to 1980 indicate 2 previous failures (January, 1992 and

February, 1994) of this valve. Limited testing of Anchor Darling swing-type check valves in the ACAD System has demonstrated positive results. The second barrier for containment atmosphere leakage past the return line check valve is the Post Accident H_2/O_2 Analyzer loop.

Three containment penetrations were previously reported as single valve (3-2301-45, 3-2499-28A and 3-2499-28B) pathways for containment atmosphere leakage. New Type C testing of the HPCI Turbine Exhaust Line Stop Check Valve 3-2301-74 and of the Post Accident H_2/O_2 Analyzer loops has upgraded these containment penetrations to double barrier pathways (ie. leakage past the check valves has a second barrier to overcome). The HPCI Turbine Exhaust Line Check Valve 3-2301-45 has the stop check valve 3-2301-74 as an inboard barrier. The outboard barrier for valves 3-2499-28A and 3-2499-28B is their respective Post Accident H_2/O_2 Analyzer closed loop. These second barriers have been tested per the requirements of 10 CFR 50, Appendix J and have demonstrated adequate leak tightness.

In addition to the above corrective actions, the station has committed to solving its primary containment isolation valve problems by forming a project team that will concentrate on valve corrective and preventative maintenance. This team was 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 preventive maintenance actions.

During the forced outage D3F18 (Summer 1995), several Type C test volumes failed local leak rate tests.

<u>Main Steam Line Drain Valves 3-220-1 and 3-220-2</u>

During D3F18, the Main Steam Line Drain Valve 3-220-1 failed its Type C test with an undetermined as-found leakage. Failure of this valve was attributed to a scratch on the valve disk. The internals were replaced and the subsequent as-left leakage was 0.1 scfh.

There have been additional Type C test failures of the Anchor Darling dual disk gate valves during D3F18. The 3-220-2 valve disassembly revealed valve internal damage, a bent valve stem and valve internals missing. This problem has been attributed to closing the valve by use of manual engagement of the Motor Operated Valve's (MOVs) valve handwheel. Dresden Station has directed personnel and modified its OOS program to ensure that MOV valve handwheel operation will not occur without approved torque values.

Reactor Water Cleanup (RWCU) Supply Valve 3-1201-1

On account of the problems encountered with the Main Steam Line Drain Anchor Darling dual disk gate valves, a Type C test was performed on the RWCU Supply valves, since three of the four valves in the test volume are Anchor Darling dual disk gate valves. The undetermined leakage was attributed to the valve 3-1201-1. The valve was disassembled and the inspection revealed a gap between the outboard disk and the valve seat. Repairs were performed and the as-left Type C test yielded a leakage of 26.94 scfh.

'A' LPCI Drywell Spray Valves 3-1501-27A and 3-1501-28A

On account of the potential for damaging Motor Operated Valves components when using the manual handwheels, a Type C test was performed on the LPCI Drywell Spray valves. Both LPCI valves were disassembled and the inspections revealed corrosion and scale on the valve disk and valve seats. After cleaning and polishing of seating surfaces, the as-left Type C test yielded a leakage of 0.1 scfh.

HPCI Turbine Exhaust Line Check Valve 3-2301-45

Past performance of the HPCI Turbine Exhaust Line Check Valve 3-2301-45 warranted Type C testing on an accelerated six month test schedule in order to determine the effectiveness of previous corrective actions. During D3F18, this valve failed the Type C test with undetermined leakage. Inspection of the check valve showed the seats to be acceptable, however, the valve would not fully close. This valve is a C & S dual-disk check valve equipped with springs that assist the disks in closing. The valve closing springs were replaced with the springs from the original manufacturer which provide a greater closing force. An as-left Type C test yielded a leakage of 0.1 scfh. The interim corrective action consists of monitoring the valve disk chattering by use of acoustic sensors while maintaining the accelerated Type C testing schedule.

Furthermore, a limit will be imposed on the total Type A leakage results until the refuel outage, D3R14. This limit will be 519.0 scfh, which is 85% of the acceptance criteria, 610.56 scfh. The current Type A leakage is 334 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 and the self-imposed limit, ComEd has concluded that the integrity of the Type A tested boundaries remains secure. 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 3 Cycle 14 (March, 1996).

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)(1).

A. Criteria for Granting Exemptions Are Met per 10 CFR Part 50.12(a)(1)

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

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. The Requested Exemption Will Not Present Undue Risk to the Public

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.

The Type A tests with leakage rates results beyond the acceptance criteria were not attributed failures in the containment structure, i.e., containment liner, single-ply bellows, personnel interlock, hatches, pressure suppression chamber and its downcomers. The failures are attributed to the test volumes that are tested using the Type B and C test methodology. Therefore, due to the past performance, the

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

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 for total Type A leakage will be imposed on the operational Type B and C testing that will be performed during the time prior to D3R14.

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 slightly greater than 2 months, therefore, this exemption will not "present an undue risk to the public health and safety."

3. The Requested Exemptions Will Not Endanger the Common Defense and Security

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

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

1. The Requested Exemptions Will Avoid Undue Hardship or Costs

   The requested schedular extension is required to prevent a forced outage of Dresden Unit 3. Preparations for a refueling outage are proceeding based on a scheduled shutdown on March 18, 1996. 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 3 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. M870843)

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, downcomers, pressure suppression pool, and piping and instrumentation not specifically challenged during Type B and C tests, to determine the total as-found Type A leakage.