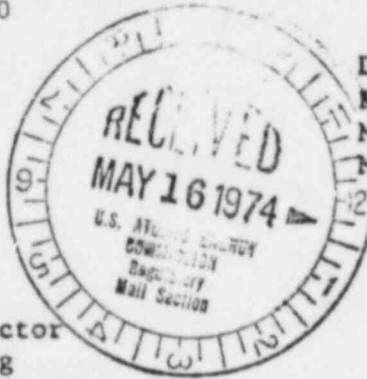




Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

BBS Ltr.#339-74



Dresden Nuclear Power Station
R. R. #1
Morris, Illinois 60450
May 13, 1974

Mr. J. F. O'Leary, Director
Directorate of Licensing
U. S. Atomic Energy Commission
Washington, D. C. 20545

50-249

SUBJECT: LICENSE DPR-25, DRESDEN NUCLEAR POWER STATION, UNIT #3, REPORT OF ABNORMAL OCCURRENCE PER SECTION 6.6.B.2 OF THE TECHNICAL SPECIFICATIONS.
FEEDWATER PRIMARY CONTAINMENT ISOLATION VALVE LEAKAGE.

- References: 1) Notification of Region III of AEC Regulatory Operations
Telephone: Mr. F. Maura, 1330 hours on May 6, 1974
Telegram: Mr. J. G. Keppler, 1500 hours on May 6, 1974
- 2) Dwgs: P&ID M-347
- 3) Letter to Mr. A. Giambusso from Mr. W. P. Worden (WPW Ltr. #468-73) dated June 20, 1973.
- 4) Letter to Mr. J. F. O'Leary from Mr. B. B. Stephenson (BBS Ltr.#212-74) dated March 22, 1974.

Dear Mr. O'Leary:

This letter is to report a condition relating to Local Leak Rate Testing while the unit was shutdown for refueling. The test was conducted on the day shift on May 6, 1974. The test of the feedwater check valves, 3-220-58B and 3-220-62B, determined that the leakage through each valve was in excess of the Technical Specification limit. This malfunction is contrary to Section 4.7.A.2.f, which specifies that the total leakage rate through any one isolation valve will not exceed $L_{10}(48)$.

In addition, this letter reports the conclusions of the on site review regarding the fix to the Unit 3 feedwater check valves. This will satisfy the commitment for reporting review conclusions as made in a prior letter, reference 4, reporting test failure of valves 3-220-58A & 62A.

PROBLEM

At the time of the deviation, the unit was shutdown for refueling and LLRT was being conducted.

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COPY SENT REGION III

May 13, 1974

During testing of the Unit 3 "B" line check valves on May 6, 1974, excessive leakage was discovered from both tested volumes. One of the tested volumes is bounded by valves 220-57B & 220-58B and the other is bounded by valves 220-57B & 220-62B. The leakage through 220-58B was 1,207.9 scfh. The leakage through 220-62B was 7,135.1 scfh. Both rates are in excess of 5% $L_{to}(48)$, or 29,381 scfh, the maximum leakage allowed.

INVESTIGATION

The 18" diameter swing type check valves (220-58B & 220-62B) were disassembled and inspected to determine the cause of the leakage. It was determined that the "O"ring which seals the valve seat to the valve body was no longer in its groove on either valve.

This is the same condition, as found, on the "A" line check valves in March, 1974 and reported in a letter dated March 22, 1974 (Reference 4).

Both the "A" and "B" line check valves were modified in June of 1973 (M12-3-73-112). This modification replaced the original stainless steel trim seal ring with a silicone "O"ring.

The silicone "O"ring is 3/16" diameter by 16" I.D. and conforms to MILR-5847 Class 2 Grade 70: Military Specification Rubber, Silicone, Low and High Temperature and Tear Resistance. Class 2 has resistance to extreme high temperature (425°F).

The absence of this "O"ring is the cause of the excessive leakage.

CORRECTIVE ACTION

An on site review (74-66) to determine a fix to the Unit 3 feed-water check valves was completed on May 2, 1974.

After reviewing the recommendations made by CECO's Engineering Department the review approved the use of a Viton "O"ring in place of the Silicone "O"ring. The longevity of the Silicone "O"ring was not acceptable for its environment. The Viton ring has good sealing characteristics, it will withstand radiation and should be better able to withstand environmental conditions of the 350°F water. The Viton "O"rings were installed in the "A" and "B" line valves and were leak rate tested successfully. Satisfactory longevity can only be assumed based on manufacturer's data until the next local leak rate test is conducted.

The success of the "O"ring modification and the anticipated success of Viton "O"ring are such that during the next refueling outage of Unit 2 the same modification will be made.

The retested data is listed below:

Valve 220-58A	0.835 scfh
220-62A	9.90 scfh
220-58B	0.00 scfh
220-62B	1.108 scfh

EVALUATIONS

An on site review (74-65) was completed on April 4, 1974 regarding the missing "O" rings. A sample of the same material as the missing "O" ring was analyzed. The results of the analysis indicate that they contained no substances to cause stress corrosion cracking. The material will break down under heat and radiation to form water, carbon dioxide and silica. The review concluded that the loss of the rings could have no significant affect on either present or future reactor operations.

Considering the possibility of loss of the newly installed Viton "O" rings, the results of such loss were evaluated. The disadvantage of Viton, is that it contains flourides. According to DuPont, supplier of Viton, the ring contains 43 weight percent flourides. The flourides are tightly held within the molecules by covalent bonding with carbon. Thus it is unlikely that any significant amount of flourides will be released.

Assuming a catastrophic failure releasing all flourides, the flouride content of the reactor pressure vessel water inventory will increase by 0.084 parts per million. Any flourides would soon be removed by the clean-up system.

The modification (M12-3-74-87) which effects the change to Viton addresses the fact that no probability of an occurrence or consequence of an accident important to safety as evaluated in the FSAR is increased.

Concerning the leaking check valves, the occurrence did not endanger the safety of the public or of plant personnel.

The particular valves in question serve to prevent excessive release of reactor water (vapor) into the reactor or turbine building should the feedwater line break in either of these areas. Should the highly improbable break have occurred, the release would have been minor since the leakage was through a circuitous path by the seal ring. If the leakage was into the secondary containment, the Standby Gas Treatment System offers a sufficient barrier to keep offsite doses within 10CFR100 and station procedures protect plant personnel. If the leakage was into the turbine building, motor operated valves are available to effectively isolate the leak, with the exception of two lengths of approximately 12 feet each between the MO valves in the turbine building and secondary containment. The probability of a failure of this piping is so remote as to be considered non credible. Should it have failed station emergency procedures would have been the only protection.

Mr. J. F. O'Leary

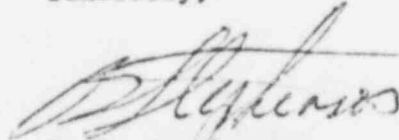
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May 13, 1974

Cumulative experience on these valves has been poor regarding leak rate tests. As mentioned above, the Unit 3 valves were modified to produce a better seal at the low test pressure of 48 psig and retain equally effective sealing at high differential pressures.

Now they have been modified to change the "O"ring material to one more suitable to the environment of the system.

Sincerely,

A handwritten signature in dark ink, appearing to read "B. B. Stephenson", written in a cursive style.

B. B. Stephenson
Superintendent

BBS:JR:do