Enclosure 1

SAFETY EVALUATION REPORT CONCERNING
TECHNICAL SPECIFICATION CHANGES FOR
THE DAVIS-BESSE NUCLEAR POWER STATION, UNIT 1
DOCKET NO.: 50-346

I. INTRODUCTION

By letter dated August 18, 1983, the Toledo Edison Company (the licensee) requested an amendment to Operating License No. NPF-3 for the Davis-Besse, Unit 1 to revise Appendices A and B of the Technical Specifications (T.S.) . These revisions will, in part, change Section 3.6.1.2 to include a special leak integrity test requirement for the containment purge system isolation valves.

The subject test stems from the long term resolution of Generic Issue B-24, "Containment Purge During Normal Plant Operation", which includes, in part, the implementation of Item B.4 of Branch Technical Position (BTP) CSB 6-4. Item B.4 specifies that provisions should be made for leak rate testing of the purge/vent system isolation valves, individually, during reactor operation. Although Item B.4 does not address the test frequency, Appendix J to 10 CFR Part 50 (Appendix J) specifies a maximum test interval of two years.

As a result of numerous reports of unsatisfactory performance of resilient seats for the isolation valves in containment purge/vent lines (addressed in OIE Circular 77-11, dated September 6, 1977), Generic Issue B-20, "Containment Leakage Due to Seal Deterioration", was established to evaluate the matter and establish an appropriate test frequency for the isolation valves. Excessive leakage past the resilient seats of isolation valves in purge/vent lines is typically caused by severe environmental conditions and/or wear due to frequent use. Consequently, the leak test frequency for these valves should be keyed to the occurrence of severe environmental conditions and use of the valves.

As a result of the staff's investigation of this issue, it was recommended that the following provision be added to the Technical Specifications for the leak testing of purge/vent isolation valves:

"Leakage integrity tests shall be performed on the containment isolation valves with resilient material seals in (a) active purge/vent systems (i.e., those which may be operated during plant operating modes 1 thru 4) at least once every

three months; and (b) passive purge systems (i.e., those which must be administratively controlled during reactor operating modes 1 thru 4) at least once every six months".

The purpose of the leak integrity testing of the purge system isolation valves for Davis-Besse, Unit 1 is to identify excessive degradation of the resilient seats for these valves. These tests would be performed in addition to the quantitative Type C tests required by Appendix J. Therefore, the tests need not be conducted with the precision required for the type C testing of the valves, but they would not relieve the licensee of the responsibility to conform to the requirements of Appendix J.

II. EVALUATION

The purge system at Davis-Besse, Unit 1 utilizes four 48-inch butterfly type isolation valves. Two series valves are located in the supply line and two series valves are located in the exhaust line; all of the valves are air operated.

The licensee has changed the T.S. Section 4.6.1.2.J to 4.6.1.2.K and added a new 4.6.1.2.J to propose a special periodic leakage test requirement for the

containment purge system isolation valves. The new Section 4.6.1.2.J specifies that special leak rate tests be performed on the containment purge supply and exhaust isolation valves after each time the valves are opened if the valves have not been tested within the past six months, and the tests shall be conducted with a test pressure greater than 20 psig and the acceptable leakage rate shall be less than 0.15 L_a.

We find the licensee's proposed leakage integrity test program does not conform with the staff recommendations addressed above. Alternatively, the staff would find acceptable a periodic test program under either of the following provisions:

(1) Test the isolation valves at three month intervals in the manner proposed by the licensee. The staff recommends a 3-month test interval; or

(2) Test the isolation valves (in the manner proposed by the licensee or in accordance with Appendix J) after each usage of the containment purge system with a maximum interval between leak tests of six months. This means a test would have to be performed even

if the purge system was not used for time periods exceeding six months. This approach would be acceptable because the purge and exhaust isolation valves are used infrequently (less than 90 hrs/yr) and the valves could be considered to be in a passive state between purge operations. Therefore, the 6-month test interval for passive valves, with the added provisions that the valve be leak tested after each use, is an acceptable compromise to the 3-month test interval for active valves.

III. CONCLUSIONS

Based on our review, we find the licensee's proposed leakage integrity testing of the purge system isolation valves to be unacceptable. We recommend the licensee revise T.S. 4.6.1.2J to comply with the staff's recommendations.

This evaluation was prepared by J. S. Guo of the Office of Nuclear Reactor Regulation.

Dated: August 3, 1984