UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NO. DPR-24

AND AMENDMENT NO. 69 TO FACILITY OPERATING LICENSE NO. DPR-27

WISCONSIN ELECTRIC POWER COMPANY

POINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-266 AND 50-301

Introduction

A number of events have occurred in the past which directly relate to the practice of containment purging and venting during normal plant operation. These events have raised concerns relative to potential failures affecting the purge/vent penetrations which could lead to a degradation in containment integrity, and, for PWRs, a degradation in ECCS performance. By letter dated November 28, 1978, the Commission (NRC) requested all licensees of operating reactors to respond to certain generic concerns about containment purging or venting during normal plant operation. The generic concerns were twofold:

(1) Events had occurred where licensees overrode or bypassed the safety actuation isolation signals to the containment isolation valves. These events were determined to be abnormal occurrences and were so characterized in our Report To Congress in January 1979.

(2) Recent licensing reviews have required tests or analyses to show that containment purge or vent valves would shut without degrading containment integrity during the dynamic loads of a design basis loss of coolant accident (DBA-LOCA).

The NRC position letter of November 1978 requested that licensees cease purging (or venting) of containment or limit purging (or venting) to an absolute minimum. Licensees who elected to purge (or vent) the containment were requested to demonstrate that the containment purge (or vent) system design met the criteria outlined in the NRC Standard Review Plan (SRP) 6.2.4, Revision 1 and the associated Branch Technical Position (BTP) CSB 6-4.

Further licensee guidance was published in NUREG-0737 under Item II.E.4.2, "Containment Isolation Dependability" which required that:

(5) The containment setpoint pressure that initiates containment isolation for nonessential penetrations must be reduced to the minimum compatible with normal operating conditions.

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(6) Containment purge valves that do not satisfy the operability criteria set forth in Branch Technical Position CSB 6-4 or the Staff Interim Position of October 23, 1979 must be sealed closed as defined in SRP 6.2.4, Item II.6.f during operational conditions 1, 2, 3 and 4. Furthermore, these valves must be verified to be closed at least every 31 days.

(7) Containment purge and vent isolation valves must close on a high radiation signal.

(Items 1-4 had been resolved during previous NRC staff reviews and were listed only in NUREG-0737 for reference.)

Additionally, by letters dated July 21, 1981 and November 23, 1981, the NRC staff provided Wisconsin Electric Power Company (licensee) with sample Technical Specifications (TS) that the staff felt would satisfy the requirements of NUREG-0737, Item II.E.4.2, "Containment Isolation Dependability" and the generic concerns related to containment purging and venting during normal operation. The staff requested the licensee to compare existing TS with those transmitted in the above letters and to submit applications for amendments to the facilities' TS, as necessary, to address the staff's concerns.

Discussion and Evaluation

The purge/vent systems in each unit Point Beach consist of two 36-inch lines for purging the containment atmosphere to allow personnel access and one 1-inch vent line to maintain the containment pressure during normal operation within a prescribed range. The isolation valves for the 1-inch vent line are gate valves and do not employ resilient seals.

By letters dated December 23, 1980 and May 7, 1981 the licensee responded to NUREG-0737 Item II.E.4.2 (5) "Containment Pressure Setpoint". The NRC staff transmitted its safety evaluation of that item in a letter to licensee dated August 14, 1981 in which the staff found the licensee's proposed setpoint to be acceptable.

Additionally, the licensee proposed TS changes in letters dated August 28, 1981 and January 28, 1982 addressing the operation and surveillance testing requirements for the containment purge supply and exhaust system isolation valves. The proposed TS would require that these valves be locked closed unless the reactor is in the cold shutdown or refueling shutdown condition. The licensee had proposed this change because previously obtained vendor analysis was not able to demonstrate that these valves were capable of closing from the full open position during a design basis loss of coolant accident. The locking devices proposed by the licensee would be placed on the control board operators for these valves to preclude power from being supplied to the valve operator.

The proposed TS also would require verifying that the containment purge supply and exhaust isolation valves are locked closed monthly and that the leak-tight integrity of these valves be tested at six-month intervals.

The staff has reviewed these proposed TS and has found that they conform with the sample TS transmitted to the licensee in the staff's July 21, 1981 and November 23, 1981 letters and are, therefore, acceptable. Further, because the licensee has committed to maintaining the containment purge and exhaust isolation valves closed during all but cold and refueling shutdown conditions and to verifying that these valves are locked closed on a monthly frequency, the licensee has met the requirements of NUREG-0737 Item II.E.4.2(6) for these valves.

An additional item of concern transmitted to the licensee in the staff's November 23, 1981 letter involved the deterioration of purge isolation valve resilient seals. The staff had indicated in that letter that industry experience had shown some unsatisfactory performance associated with the resilient seal material utilized in containment isolation valves. We further indicated that the containment purge isolation valves that are closed during reactor operation should be leak tested every six months and that a requirement for periodic seal replacement in accordance with the valve manufacturer's recommendations should be established.

As stated previously, the six-month testing interval contained in the licensee's proposed TS partially satisfies the above concerns. With regard to the replacement of resilient seals, the licensee's submittals indicate that no failure of the purge supply and exhaust isolation valves resilient seals has ever been observed at Point Beach Units 1 and 2. Further, the valve manufacturer has no specified or recommended frequency for replacement of seals. The licensee's proposal was to replace the seals upon evidence of deterioration based upon the periodic six-month test results. In the absence of a valve manufacturer recommended replacement frequency for the seals, the staff finds this approach acceptable.

The staff's concerns over the ability of valves to close during a design basis loss of coolant accident (LOCA) do not apply to the licensee's 1-inch vent isolation valves. This position is further explained in our letters to all licensees of November 28, 1978 and October 23, 1979 (the latter being Attachment 1 to NUREG-0737 Item II.E.4.2). Further, the NRC staff concerns over degradation of resilient seals apply only to the large butterfly-type isolation valves and not to small gate valves.

With regard to Item II.E.4.2(7), automatic closure of the containment purge and vent isolation valves upon receipt of a high radiation signal,

the licensee's submittal of December 23, 1980 states that this function was a part of the original plant design for the large containment purge supply and exhaust valves and that no modifications were necessary.

The staff has reviewed the licensee's responses and found them acceptable for the large 36-inch containment purge supply and exhaust isolation valves.

With regard to the small 1-inch ventilation isolation gate valves, the licensee indicated that although they do not close on high radiation signal, they do close on receipt of a containment isolation signal triggered by either safety injection system actuation or containment high pressure (6 psig). Further, radiation monitors (radioactive gas and particulate) are installed in the lines to these valves which alarm in the control room upon detecting a high radiation level. Continuous monitoring and accounting of the amount of radioactivity passing through these valves is done by the control room computer which receives input from vent-line flowmeter and radiation monitors. The licensee has proposed no modifications (i.e., automatic closure on high radiation signal) for these small 1-inch gate valves, contending that the protection provided to ensure automatic closure of these valves during a design basis LOCA is adequate and further that these valves are too small to be considered as within the scope of NUREG-0737 Item II.E.4.2(7).

The staff has reviewed the licensee's submittals and, after discussions with the licensee's staff, finds the licensee's present automatic closure system for the containment vent isolation valves meets the requirements of NUREG-0737 Item II.E.4.2(7) because this 1" vent line is a very small opening in the containment and this size of isolation valves are highly reliable. The staff's acceptance is also contingent upon the licensee's completion of a confirmatory analysis that unacceptable radioactive releases from containment would not take place as a result of a small-break LOCA in which operator action is required to close these valves.

The licensee's analysis should assume a source term for primary coolant activity equivalent to that seen during normal operation (no fuel or fuel cladding damage is expected from a LOCA not large enough to initiate safety injection). The licensee should also assume a containment pressure equal to just under the containment high pressure trip setpoint and 15 minutes to be required for operator action upon receipt of the containment radiation alarm in the control room.

Concerning the proposed administrative TS changes to the basis of section 15.4.4 of the licensee's TS, the staff has reviewed these changes and finds that they clarify the basis to conform with TS changes previously issued in license amendments 61 and 66 on June 25, 1982 and are, therefore, acceptable.

Environmental Consideration

We have determined that the amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendments involve an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of an accident previously evaluated, do not create the possibility of an accident of a type different from any evaluated previously, and do not involve a significant reduction in a margin of safety, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Date: October 4, 1982

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