

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NOS. 38 AND 43 TO

FACILITY OPERATING LICENSE NOS. DPR-24 AND DPR-27

WISCONSIN ELECTRIC POWER COMPANY

PUINT BEACH NUCLEAR PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-266 AND 50-301

Introduction

As a result of our ongoing review of the events associated with the March 28, 1979 accident at Three Mile Island Unit 2, the NRC Office of Insrection and Enforcement issued a number of IE Bulletins describing actions to be taken by licensees. IE Bulletin 79-06 (April 11, 1979) called for licensees with Westinghouse PWRs to instruct operators to manually initiate safety injection whenever pressurizer pressure indication reaches the accuation setpoint whether or not the pressurizer level indication has drooped to the actuation setpoint. IE Bulletin 79-06A (April 14, 1979) further called for these licensees to trip the low pressurizer level bistables such that, when the pressurizer pressure reaches the low setpoint, safety injection would be initiated regardless of the pressurizer level. IE Bulletin 79-06A. Revision ! (April 18. 1979; modified the action called for in 79-06A by allowing pressurizer level bistables to be temporarily returned to their normal (untripped) operating positions during the pressurizer pressure channel functional surveillance tests so that these tests can be conducted without causing a faise safety injection actuation.

Tripping the pressurizer low level bistables, which are normally coincident with the pressurizer low pressure bistables, has the effect of reducing this safety injection actuation logic to a one out of three logic*. A single instrument failure of one of the three (or one of the two for Point Beach) low pressure bistable channels could therefore result in an unwanted safety injection. To prevent this, the licensee proposed in an April 27, 1979 letter, a design modification which would align the existing pressurizer low pressure bistables in a two out of three logic. 295 166

*To prevent spurious safety injection actuation of both units at Point Beach in the event of loss of off-site power, the licensee has tripped two level channels, thus changing actuation logic to one-out-cf-two. This modification is required in order to prevent an overload condition on the diesel generators at Point Beach. This is discussed more fully later.

Discussion and Evaluation

On April 27, 1979, all three pressurizer level channels were placed in the tripped condition on both Point Beach units in response to IE Bulletin 79-06A. This action had the effect of changing safety injection actuation logic to one-out-of-three on low pressurizer pressure. In reviewing the impact of this change, called for by the Bulletin, the license identified a problem that would lead to simultaneous safety injection on both units. This event could lead to possible overloading of the plants snared diesel generators (two) during the sequencing (starting) phase of safety injection on one unit and a simultaneous shutdown on the other (and not for simultaneous safety injection on both).

Two pressure channels are fed from DC supplies (through inverters). The third is supplied by an AC source. Thus any momentary loss of power to the AC supplied pressure channel would lead to a spurious safety injection signal on that unit. Loss of of the power would result in loss of power to one pressure channel on each unit, thus leading to simultaneous safety injection on both units. This potential problem was reported to NRC (Region III) in a letter dated April 30, 1979.

As a result of this discovery, the licensee concluded that literal compliance with the Bulletin would not be an appropriate course of action for Point Beach. To correct this problem, the licensee returned one pressurizer low level instrument bistable to the untripped condition (on each unit). The one selected is supplied from the station battery and is paired with the pressurizer low pressure bistable supplied by the AC instrument bus. This scheme would not result in inadvertent safety injection actuation on loss of AC power. At the same time, it complies with the Bulletin to the extent practicable - safety injection would actuate on one-out-of-two low pressurizer pressure signals, irrespective of pressurizer level.

Recognizing that this configuration could trigger a plant trip and spurious safety injection actuation at any time due to a single channel failure, the licensee requested a change to the Point Beach Technical Specifications on April 27, 1979. The proposed change would revise the safety injection actuation logic to two-out-of-three on low pressurizer pressure, thus making each unit immune to a single pressurizer channel failure. At the same time, safety injection logic associated with low pressurizer level would be removed. This is consistent with the NRC position in this matter. While in the process of reviewing the licensee's proposed change, it became apparent that even after converting to a two-out-of-three logic on pressurizer pressure for safety injection, the AC supplied pressure channel design could still result in spurious safety injection on both units under a specific set of circumstances. It was also apparent that this problem was not limited to pressurizer pressure, but involved all safety injection actuation circuits*.

Specifically, if the site were to experience a loss of all AC power, together with a loss-of cc. ant accident in one unit while a batterysupplied safety injection actuation instrument channel was in test (or was tripped due to a failure) in the other unit, simultaneous safety injection in both units would result. This problem was reported by the licensee in a Licensee Event Report on May 2, 1979.

To correct this design problem for all safety injection actuation channels, the licensee proposed, in a letter of May 7, 1979, a modification to the power supply for some of these channels. Basically, the AC powered channels would be supplied power from an inverter on the other unit, thus making all safety injection actuation channels supplied from the station batteries, throug, inverters. Analysis by the licensee indicates that loss of off-site power and loss of any one inverter would not result in safety injection, steam line isolation, or containment spray. The channel II and I. safety injectic pressure circuits that are powered by AC would be powered from opposite unit inverters. The Unit 1 circuits will be on the A battery; the Unit 2 circuits will be on the B battery. The changes involve four conduit runs and associated wiring from breaker panels to the analog racks. The cianges will acceptably resolve this problem.

The licensee plans to shutdown one unit for the pressurizer level logic change about May 12; the second unit would be shut down the weekend of May 19-20 for both this same logic change and the power supply change for both units.

*Safety injection is actuated by a variety of pressure signals at Point Beach, as follows: high containment pressure (two of three); low steam line pressure in either line (two of three in each line); and (with this change) low pressurizer pressure (two of three).

295 168

In the interim period of operation prior to the power supply modification (when instrument testing combined with a postulated off-site power loss could cause spurious safety injection actuation), the licensee has committed to not place any of the safety injection actuation instrumentation in the test mode*. This will prevent this problem from occurring as far as testing is concerned. However, the licensee did not state what action would be taken should a channel fai¹ Juring the interim period.

The NRC staff has concluded that, if any battery-powered channel should fail, the affected unit should be shutdown and placed in a blockpermissive condition for safety injection actuation unless the failed channel can be restored to an operable status within one hour. This has been discussed with the licensee who has agreed to this condition.

The pressurizer pressure instrumentation channels also provide control and interlock inputs to the power-operated relief valves (PORV). Two separate pressurizer pressure instruments supply each power-operated relief valve controller. The licensee has proposed to modify the interlock setpoint for the PORVs such that each PORV will require two-out-of-two high pressurizer pressure signals to open. This will reduce the probability of spurious PORV opening, and is acceptable. No credit for PORV opening is taken in the safety analysis of the facility.

We have reviewed the electrical, instrumentation and control systems aspects of the proposed changes as described above. Based on this review and other considerations previously discussed, we conclude that the proposed changes are acceptable. We also conclude that the safety injection system actuation logic change satisfies IEEE standard 279-1971.

Environmental Consideration

We have determined that the amendment does 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 haver further concluded that the amendment involves 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 this amendment.

*Except for pressurizer pressure brief', to test the overtemperature delta T channels due on a sis (less than one hour).

^{295 169}

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the change does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the change does 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: May 11, 1979