

SAFETY EVALUATION REPORT
SAFETY INJECTION SYSTEM ACTUATION
TECHNICAL SPECIFICATION CHANGE REQUEST NO. 62
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2
DOCKET NOS. 50-266 AND 50-301

I. INTRODUCTION

The licensee, Wisconsin Electric Power Company, in its submittals dated April 27, April 30, and May 7, 1979 proposed certain modifications to the safety injection actuation system circuitry for Units 1 and 2 in response to Item No. 3 of IE Bulletin 79-06A dated April 14, 1979.

2.0 DISCUSSION

As a result of our ongoing review of the events associated with the March 28 accident at Three Mile Island Unit 2, the NPC office of Inspection 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 PWR's to instruct operators to manually initiate safety injection when the pressure indication reaches the actuation setpoint whether or not the level indication has dropped 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 1 (April 18, 1979) modified the action called for in 79-06A by allowing pressurizer level bistables to be returned to their normal (untripped) operating positions during the pressurizer pressure channel functional surveillance tests.

The effect of 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 1 out of 3 logic. A single instrument failure of 1 of the 3 low pressure bistable channels could therefore result in an unwanted safety injection. To prevent this, the licensee proposed in an April 27, 1979 letter, and subsequent submittals, a design modification which would align the existing pressurizer low pressure bistables in a 2 out of 3 logic.

The arrangement of power supplies to the instrumentation buses at Point Beach is such that if the plant were to experience a loss of offsite power, the present one-out-of-three low pressurizer

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pressure safety injection actuation logic would subject both units to a simultaneous spurious actuation of safety injection. The shared emergency diesel generators (2) at the plant were not designed for this situation and would be subjected to an overload condition. Upon becoming aware of this problem, the licensee returned one pressurizer low level setpoint bistable to the untripped condition. The one bistable selected is supplied from the station battery and is paired with the pressurizer low pressure bistable supplied by the a-c instrument bus. The plant will remain in this condition until the logic change in the April 27, 1979 licensee amendment request is reviewed for acceptability and implemented.

3.0 EVALUATION

The proposed modification to the safety injection actuation system involves removing the pressurizer level signal from each of the pressurizer level/pressure channel trips and converting the system to a two-out-of-three pressurizer low pressure trip. The instrumentation logic takes pressurizer pressure signals from three of the four pressure transmitters and initiates a safety injection actuation whenever two of the three signals reach the low pressure setpoint of 1715 psig.

In order to correct the situation where if the plant site were to experience a loss of all AC power together with a LOCA in one unit and a battery supplied SI instrument channel in test or failure in the other unit, thus initiating simultaneous SI in both units and subsequent diesel overloading, the licensee proposed the following:

Modify the power supplies to the instrumentation channels associated with the safety injection actuation circuits, such that all instrument channels in the SI actuation circuitry will be supplied by DC power sources. Analysis by the licensee indicates that loss of off-site AC and loss of any one inverter will not result in safety injection steam line isolation, or containment spray. The channel II and IV safety injection pressure circuits that are presently powered by plant AC will be powered from opposite unit inverters. The Unit 1 circuits will be on the "B" battery. These changes involve four conduit runs and associated wiring from breaker panels to the analog racks.

The four 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. In order to reduce the probability of spurious PORV opening, the licensee proposed to modify the interlock setpoint for the PORV's such that each PORV will require two-out-of-two high pressure pressurizer signals to open.

4.0 TECHNICAL SPECIFICATIONS

The proposed changes to the Technical Specifications correct the safety injection actuation discussion in the basis of Specification 15.3.5 and revise item 3 of Table 15.3.6-1 and item 1 of Table 15.3.5-3 to specify automatic safety injection actuation on two-out-of-three low pressurizer pressure signals. We find the changes to the Technical Specifications to be acceptable.

5.0 CONCLUSIONS

Based on our review of the electrical, instrumentation and control aspects of the licensee's submittal, we conclude that the proposed modifications to the safety injection actuation system logic satisfy the requirements of IEEE Std. 279-1971 and that the associated Technical Specification changes are correct; and therefore, are acceptable.

6.0 REFERENCES

1. IE Bulletin No. 79-06A (Rev. No. 1), April 18, 1979
2. Wisconsin Electric to NRC, April 27, 1979
3. Wisconsin Electric to NRC, April 30, 1979
4. Wisconsin Electric to NRC, May 7, 1979