

SAFETY EVALUATION
MODIFICATION TO INSTRUMENTATION
POWER SUPPLY
POINT BEACH NUCLEAR PLANT UNITS 1 AND 2

I. INTRODUCTION

The licensee, Wisconsin Electric Power Company, in its submittals of April 30, 1979; May 2, 1979; and May 21, 1979 requested and was granted approval for a modification to the design of the vital instrument power supply for the Point Beach Nuclear Plant Units 1 and 2. The modification was designed to correct an unacceptable arrangement of sources which was discovered during the safety evaluation of the plant changes that resulted from IE Bulletin No. 79-06A dated April 14, 1979.

With the exception of the high containment pressure signal, which requires power to trip, all other protection is initiated at the channel level upon a loss of power. The logic for initiation of the engineered safety features is two-out-of-three and the reactor trip function is two-out-of-four.

As a result of the IE Bulletin the low pressurizer pressure logic was changed from a one-out-of-three coincidence of low pressurizer pressure and level to two-out-of-three on low pressure. At the same time one of the two instrument channels which is powered from offsite power was transferred to a vital inverter. This resulted in powering all ESF trips from an onsite source and prevents a loss of offsite power coincident with an instrument channel failure from spuriously initiating the engineered safety features.

II. EVALUATION

The modification to the vital instrumentation power supply consists of moving the channel II and IV safety injection pressure circuits that were powered by plant AC to the opposite unit inverters. The Unit 1 circuits are now on the "A" battery and the Unit 2 circuits are on the "B" battery. These changes involved four conduit runs and associated wiring from breaker panels to the analog racks. The additional wiring was run to receptacles in the white and yellow analog racks. Circuits PC 469, PC 430, PC 949 and PC 479 are plugged into the newly wired receptacles.

Based on our review, we conclude that the previous modification to the power supplies provided some assurance that a loss of offsite power would not cause the shared diesel generators to be overloaded and, therefore, was an acceptable interim design. However, the staff does not believe that the modification provided protection against, single failures causing the spurious starting of all emergency loads in both units during an emergency. (Such an event could result from a loss of offsite power and a LOCA in Unit 1 and a failure of the B battery or Unit 1 Channel III (Blue) inverter under the proposed design).

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III. CONCLUSION

Based on our review of the licensee's submittal, we conclude that the previous modifications to the vital instrumentation power supply offer an easily implementable improvement over the original design, but that neither the original nor the present shared system designs satisfy IEEE 279-1971. Accordingly, we find that the modification is acceptable only as an interim modification and require that a suitable alternate design using an additional independent battery to which a third inverter would be connected be provided. This modification should be installed within 1 year of the issuance of this evaluation.

Our basis for the judgement that the requirements of 10 CFR 10.109(a) have been met by this report are the demonstrated* failure of the present design to satisfy the following General Design Criteria 17, 18, 21, 22, 23, 29, 33, 34, 35, 37, 40 and 43.

*See "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 Point Beach Nuclear Plant, Units 1 and 2 Docket Nos., 50-266 and 50-301", dated May 11, 1979, pages 3 through 4.