APR 25 1983

50-266
50-301

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: C. E. Norelius, Director, Division of Project and Resident Programs, RIII

SUBJECT: SAFETY EVALUATION OF THE PREFERRED A.C. POWER SYSTEM CONFORMANCE TO GENERAL DESIGN CRITERIA 17, POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2, TAC NOS. 46522 AND 46523 (Ltr fm W. G. Guldemond, SRI, to T. Colburn, ORPM dtd 6/11/81, same subject)

Per your request, we have completed the review of the Senior Resident Inspector's concerns that the Point Beach Nuclear Plant's preferred power source does not meet the requirements of General Design Criteria (GDC)-17.

The review concludes that the preferred power systems do not fully meet the intent of GDC-17 because of the proximity of the two low voltage auxiliary transformers, 1-X04 and 2-X04 and because the two preferred systems could be automatically disconnected from the 4160 volt safeguards buses in the worst case accident loads and the failure of one low voltage transformer.

We were unable to find any guidance in standards, Regulatory Guides, or fire codes on what separation distance between the transformers is acceptable to prevent or mitigate the likelihood of their simultaneous failure; however, the Fire Protection Handbook states that transformers containing appreciable quantities of flammable, inhibited mineral oils with flash points ranging from 130°C to 135°C are placed at least 25 feet away from windows or other openings in the walls of the substation control building and from other important structures or placed in a vault of the type specified in the National Electric Code of the National Fire Protection Association. The flash point of the PBNP oil is 140°C, a Class III combustible oil, and License Amendment Nos. 39 and 44, August 2, 1979, concluded

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that the existing fire protection system for the transformers and the Gas Turbine Building was adequate to protect the equipment required for safe shutdown.

We considered other interactive or simultaneous failures of both transformers to be unlikely, but possible. The licensee is considering two ways to mitigate the effects of a simultaneous failure of both transformers. They are considering the procurement of a spare transformer, which is unique and requires several months to obtain, but only a few days to install, if on hand. They are also working on a procedure to backfeed offsite power through the main transformer, which, if possible, would only require a few hours to accomplish.

The failure of one low voltage transformer with one unit in hot shutdown and the other in an accident situation could drop the voltage to 3714 on the 4160 volt safeguards buses. This is below the degraded grid voltage relay setpoint of 3762 volts and would automatically disconnect the offsite power from the facility for a short period of time. The Power System Branch's (PSP) safety evaluation of the PBNP electrical distribution system voltages, dated March 2, 1983, found this acceptable; however, it should be pointed out that License Amendment Nos. 58 and 62 dated January 6, 1982, increased the degraded grid voltage trip point from 3675 volts, a voltage below that calculated in the above accident case, to 3762 volts, a voltage that would automatically remove all offsite power. The licensee has proposed a further increase in the setpoint to 3875 volts. These actions taken to protect safeguards equipment are contrary to GDC-17 guidance.

The Point Beach Nuclear Plant was designed and built before GDC-17 became effective on May 21, 1971. The facility was designed and constructed under a proposed Criteria 39 which specified that the onsite and offsite power system shall each, independently, provide the capacity to permit the functioning required of the engineering safety features assuming a failure of a single active component in each power system.

Since the transformer performance has been very reliable over the twelve years of operational history and Wisconsin Electric Power Company (WEPCo) is considering plans to expeditiously reestablish A.C. power to the facility in the improbable event of failure of both transformers or associated circuit breakers. The evaluation concludes that no backfitting is necessary.

One hundred fifty-four staff hours were used in this evaluation.

Any questions on this subject should be directed to K. R. Ridgway at 384-2544 (FTS).

R C Knop for

C. E. Norelius, Director
Division of Project and
Resident Programs

Attachment: Safety Evaluation

cc w/attachment:
T. G. Colburn, ORPM
R. A. Clark, ORB-3
G. C. Lainas, AD/OR
W. G. Guldemond, SRI
J. O. Thoma, NRR
P. A. Barrett, RIII

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4/19/83	4/20/83	4/20/83	4/25/83