

**Detroit
Edison**

Wayne H. Jens
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July 13, 1984
EF2-72636

Director of Nuclear Reactor Regulation
Attention: Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

CYGNA Energy Services
Attention: Mr. David A. Ferg
150 North Wacker Drive
Chicago, Illinois 60606

- Reference:
- (1) Fermi 2
NRC Docket No. 50-341
 - (2) NRC letter to Detroit Edison and CYGNA,
"Preliminary Evaluation of the IDVP
Performed by CYGNA Energy Services for the
Fermi 2 Facility", March 27, 1984
 - (3) Detroit Edison letter to CYGNA, "Supplement
to CYGNA IDVP Report", EF2-64581,
July 18, 1983.
 - (4) Detroit Edison letter to NRC, "Design
Deficiency on the RHR Reservoir Freeze
Over - 50.55(e), Item 111", EF2-69272,
July 5, 1984.

Subject: NRC Question to CYGNA on RHR Reservoir Freezing

Enclosure (4) to Reference 2 requested CYGNA to justify its scope of evaluation of the Fermi 2 RHR Complex in light of two reportable deficiencies that were submitted by Detroit Edison to NRC. The deficiencies arose due to the occurrence of freezing in the RHR Complex (i.e., RHR reservoir).

In reviewing our previous comments provided in Reference 3 on CYGNA review Item ST-01-11, Edison has concluded that additional information is required for clarification. Accordingly, attached please find a revised page to Reference (3) concerning Item ST-01-11. Reference (4),

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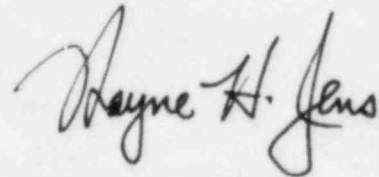
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forwarded to you separately for information, is the formal response to the reportable deficiency concerning RHR reservoir freezing.

With respect to the concern identified in Reference 2 addressing the freezing of the supply line to the Division I Fire Protection System, Edison will provide both CYGNA and NRC-NRR a copy of the final report on the potential design deficiency [10CFR50.55(e)] Item 16.

If you have any questions, please contact Mr. Keener Earle at (313) 586-4211.

Sincerely,

A handwritten signature in dark ink, appearing to read "Wayne H. Jens". The signature is fluid and cursive, with the first name "Wayne" being more prominent.

cc: Mr. P. M. Byron*
Mr. M. D. Lynch*
USNRC, Document Control Desk*
Washington, D. C. 20555

*With attachment

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bcc: F. E. Agosti*
L. P. Bregni
W. F. Colbert*
O. K. Earle
W. R. Holland
R. S. Lenart*
E. Lusic
P. A. Marquardt
T. D. Phillips*
H. Tauber
A. E. Wegele
B. Wehrung*

Approval Control*

O. K. Earle (Bethesda Office)*
M. S. Rager*
NRR Chron File*

*With Attachment

I. Cygn Observation Log

Observation No.: ST-01-11

Description: Ice loading on the interior walls of the pool were not addressed in the calculations for foundation wall loading.

Remarks: Invalid.

II. Detroit Edison Response

Ice loading was not considered in the design of the RHR complex walls. This is in accordance with the Fermi project FSAR Section 9.2.5.3.1.3, which clearly states that the rooms above the reservoir will be kept at a minimum of 60°F. In addition, 80 to 90 percent of the reservoir water is below the frost line, and no freezing or ice formation is anticipated.

The word "invalid" alone in the Observation Log gives the casual reader an uncomfortable feeling for the justification for dropping an apparently serious observation. A shortened form of the Observation Record Review response would have answered any such concerns.

Additional Detroit Edison Response

Detroit Edison response to Observation No. ST-01-11 was not completely clear. Due to the freezing of the RHR reservoirs this winter, we would like to provide a more complete response and clarify our position by offering the following:

The RHR Complex is designed to operate as the ultimate heat sink for the plant. Once the plant becomes operational, the RHR reservoirs are not expected to be affected by ice for the following reasons:

- o The RHR building is designed to protect the reservoirs from winter weather conditions. The floors of the RHR building are designed to cover and help protect a large part of the reservoir, with the rooms in the building heated to a nominal 60°F. The remaining part of the reservoirs are covered by floor gratings and tower baffles, and protected by high walls around them.
- o During unit outages, the RHR reservoirs are designed to receive core decay heat which will prevent freezing.
- o During unit operation, the RHR reservoirs are expected to receive heat from surveillance testing of the EDG, HPCI, and RCIC systems and other plant activities (such as operating

the Torus Water Management System). This heat will go directly to the RHR Complex or the torus. Heat sent to the torus will be removed by sending it to the RHR Complex. Because of these activities, no icing problems were anticipated during the winter months.

- o The RHR Complex is designed to have cold weather bypasses around the cooling towers which will direct service water to the reservoirs instead of the cooling towers. This will help retain the heat sent to the reservoir.
- o Study calculations on ice formation and its potential effects on the structure were made early in the design process. Because of the heat which would be received by the ultimate heat sink, ice formation was not a major consideration. However, the design of the Complex did not account for the period between the end of construction and initial plant operation. For this period the reservoirs were full of water, but no heat was added to them.

After Detroit Edison supplied the original response, the following actions were taken:

- o As a contingency plan for cold weather spells, the plant has an operating procedure to add heat to the reservoir to help maintain the temperature of the water in the reservoirs above a minimum temperature. The source of this heat is from existing plant equipment.
- o As a result of the CYGNA audit, a design calculation was performed which determined that the walls of the reservoirs would not be damaged by ice 18 inches thick in the reservoir.