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Detroit Edison
2000 Second Avenue
Detroit, Michigan 48226
(313) 237-8000

October 8, 1984
EF2-70025

Mr. James G. Keppler
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

Reference: (1) Fermi 2
NRC Docket No. 50-341

(2) Letter, D. A. Wells to J. G. Keppler, March 7, 1984, QA-84-0087

(3) Letter, W. H. Jens to J. G. Keppler, September 5, 1984, EF2-68328

Subject: Amended Report of 10CFR50.55(e) Item 114 "Possible Overpressurization of North RHR Heat Exchanger"

This letter amends Detroit Edison's final report of Item 114 "Possible Overpressurization of North RHR Heat Exchanger." Item 114 was originally reported as a potential deficiency on January 24, 1984 and was subsequently documented in References (2) and (3).

As described in Reference (3), on January 22, 1984, the north RHR heat exchanger may have been subjected to a fluid pressure on the shell side which exceeded the 450 psi maximum working pressure.

An investigation of the event by Detroit Edison Engineering included the following test, inspections and observations:

- On January 27, 1984, Detroit Edison requested General Electric, the vendor of the heat exchanger, to have Fromson Heat Transfer Ltd., the designer and the fabricator of the heat exchanger, review the capability of the heat exchanger to withstand the maximum postulated pressure of 1330 psig. The N-4 nozzle area was singled out in the

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Fromson review as the weakest portion of the shell. Therefore, insulation was removed from the area and a visual examination of the painted area was conducted. There was no evidence of yielding (paint cracking). The paint was then removed from designated areas and hardness readings were taken. These readings indicated nothing which would indicate overstressing of the area. Subsequently an ultrasonic preservice inspection of the N-4 nozzle was performed by Southwest Research Institute personnel. In addition an ultrasonic surface wave examination was conducted by Detroit Edison's Engineering Research laboratory. These tests indicated no surface connected defects. The Fromson report also indicated that if the heat exchanger had been overpressurized to the maximum postulated value, damage may have occurred in the channel on the cooling water side. Specifically, the pass partition plate might be deformed by the flexing of the tube sheet. Therefore, this area was examined by means of a boroscope which was inserted through a relief valve connection and through a drain connection. There was no indication that the pass partition plate was deformed.

- To check for tube damage, Detroit Edison determined that there was no leakage and no reduction in flow. Tube leakage was checked by performing a hydrostatic test of the shell side of the north RHR heat exchanger at the maximum working pressure of 450 psi. There was no indication of any leakage either at the flange area or from the shell side through the tubes. To check for a reduction in flow, differential pressure measurements were taken across the tube side of both RHR heat exchangers under actual flow conditions. These tests revealed that the differential pressure drop across the tube side of both RHR heat exchangers were comparable and within design limits indicating that there is no reduction in flow through the north RHR heat exchanger as a result of this incident.

Although Detroit Edison can not conclusively state that the north RHR heat exchanger was not overpressurized, the investigation and analysis described above demonstrate that the heat exchanger meets design requirements and is therefore acceptable for its intended function.

If you have questions concerning this matter, please contact Mr. Lewis P. Bregni, (313) 586-5083.

Sincerely,

Wayne H. Jens.

cc: Mr. P. M. Byron
Mr. R. C. DeYoung
Mr. R. C. Knop