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AUTH.NAME AUTHOR AFFILIATION
FITZPATRICK,E. Indiana Michigan Power Co. (formerly Indiana & Michigan Ele
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SUBJECT: Forwards justification to remove from svc screenhouse fire pumps 1-PP-75 & 2-PP-75 re 940127 application for amend to Licenses DPR-58 & DPR-74.

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Indiana Michigan
Power Company
P.O. Box 16631
Columbus, OH 43216

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AEP:NRC:0692CW

Donald C. Cook Nuclear Plant Units 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
REVISION OF INFORMATION REGARDING
THE BACKUP FIRE WATER SUPPLY

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Attn: W. T. Russell

March 16, 1994

Dear Mr. Russell:

The purpose of this letter is to revise previous information submitted January 27, 1993, in AEP:NRC:0692CL which requested changes to the Technical Specifications to reflect installation of two new redundant fire water storage tanks, fire pumps, and associated components and controls. The limiting conditions for operation (LCO) noted in AEP:NRC:0692CL are consistent with the Standard Technical Specification (STS), NUREG-0452, with one exception. A deviation from one of the STS LCO time limits was justified by taking credit for the availability of a fixed backup fire suppression water system. Specifically, pumps 1-PP-75 and 2-PP-75 (screenhouse fire pumps) were identified as the backup system. The deviation, which was subsequently approved on March 31, 1993, in the NRC Safety Evaluation Report (SER), involves the extension of the STS limiting condition for operation (LCO) time for one storage tank out of service from 7 days to a 30 day outage time limit.

The screenhouse fire pumps, which take direct suction from the forebay structure, have been experiencing recurrent operational problems due to zebra mussel infestation despite periodic chemical treatments. As a result, they are no longer considered a reliable and economically viable backup source of fire suppression water. After extensive review, we have determined that other available fire suppression water sources provide qualified backup such that abandonment of the screenhouse fire pumps will not significantly increase plant fire risk. The attachment to this letter provides

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detailed justification to support the use of alternate backup water supplies in lieu of the screenhouse fire pumps. To reflect this change, the Technical Specification bases which currently reference the screenhouse fire pumps as a backup fire suppression water supply, will be revised in a subsequent submittal letter.

Sincerely,

W. G. Smith Jr.

for E. E. Fitzpatrick
Vice President

dr

Attachment

cc: A. A. Blind
G. Charnoff
J. B. Martin
NFEM Section Chief
NRC Resident Inspector - Bridgman
J. R. Padgett

ATTACHMENT TO AEP:NRC:0692CW

JUSTIFICATION TO REMOVE FROM SERVICE
SCREENHOUSE FIRE PUMPS 1-PP-75 & 2-PP-75

On February 12, 1992, we submitted AEP:NRC:0692CC to request a Technical Specification change to accommodate our proposed new fire water system. The system was to include two 100% capacity storage tanks, three new 50% capacity fire pumps, associated equipment, and screenhouse fire pumps. This change was prompted by the appearance of zebra mussels within the forebay structure. In the submittal, our justification for the proposed Technical Specification change included reliance on the existing screenhouse fire pumps and a commitment to maintain them in an operable status. The original submittal was structured such that both the screenhouse fire pumps and the proposed new pumps were incorporated into the LCO.

On May 22, 1992, the NRC SER granted relief from surveillance testing of the existing fire suppression water system to prevent zebra mussel infestation into the fire water system. This relief was intended to allow time for installation of the new fire suppression water supply system which we now have in place. The SER noted the sensitivity of the existing fire water system to zebra mussel infestation.

In later conversations, NRR staff indicated they preferred that our proposed Technical Specification change follow the STS format and, as such, not include the screenhouse pumps in the LCO. The NRC preferred that only the new fire pumps be included in the LCO. It was decided that the screenhouse fire pumps would be administratively controlled backups. At that time, it was believed that the screenhouse fire pumps could be easily maintained operational. Therefore, we submitted revised Technical Specification pages on January 27, 1993 in AEP:NRC:0692CL which reflected our present fire protection Technical Specifications. The revised Technical Specification pages mention the screenhouse fire pumps as backups only in the bases section.

On March 31, 1993, the NRC forwarded their final SER to approve the proposed Technical Specification amendments and the new fire water system (license amendments 165 and 150). In section 2.0 of the SER, it was noted that the screenhouse fire pumps "will be maintained operational in order to facilitate the capability of obtaining fire water from [the Lake]." However, it was understood that potential operational problems associated with these pumps could exist as a result of zebra mussel infestation and, therefore, it was noted in the SER that the screenhouse fire pumps would, under normal circumstances, "be isolated from the rest of the fire suppression water system to preclude the possibility of zebra mussel infestation."

The UFSAR was updated in July 1993 to reflect installation of the new fire water storage tanks, fire pumps, and associated components and controls, and to identify the screenhouse fire pumps as backups.

As we noted on October 12, 1993, in AEP:NRC:0692CQ, recent inspection results revealed no zebra mussel contamination in the isolated portion of the fire protection system piping. However, the screenhouse fire pumps, which were subjected to continued surveillance testing, had become contaminated.

Screenhouse fire pump operational problems, which began early in the summer of 1993, have continued to escalate. Despite periodic chemical treatments, continued surveillance tests of the screenhouse fire pumps have repeatedly resulted in pluggage of the engine heat exchanger, pump cooling lines, and discharge strainers caused by dead zebra mussel shells which were drawn into the components during pump operation. It has become apparent that continued attempts to maintain the screenhouse fire pumps are impractical considering their inherent susceptibility to zebra mussel contamination.

To address the unreliability of the screenhouse fire pumps, technical reviews have been conducted and have demonstrated the availability of acceptable alternate backup fire suppression water supply capability using the Lake Township water supply. Furthermore, administrative guidelines for the use of this water supply have been completed to ensure that Cook Nuclear Plant will continue to have a reliable backup source of fire suppression water which is independent from the storage tanks and associated primary fire suppression water pumps. This alternate source can provide a sufficient quantity of water to meet Technical Specification fire suppression water system demands. Additionally, the in-depth fire protection program at Cook Nuclear Plant includes other forms of fire suppression such as carbon dioxide hose stations and wheeled or portable hand fire extinguishers. Finally, additional fire suppression capability will be provided by plant and local fire department personnel who are qualified to respond to fire emergencies at Cook Nuclear Plant. The local fire department personnel regularly participate in training exercises with our fire brigade to maximize coordination and minimize response time.

It should be noted that the screenhouse fire pumps were credited in Attachment 1 to AEP:NRC:0692CC for being capable of refilling one of the storage tanks within an eight hour period. Alternative connections, utilizing the Lake Township water supply which is normally used as a make-up water source to the tanks, have been investigated and found to be capable of refilling a storage tank within the recommended eight hour period.

Finally, we have reviewed the results of the Individual Plant Examination of External Events (IPEEE) Fire Analysis completed in April 1992. Credit was primarily taken for manual fire fighting capability and for the availability of fire suppression and detection systems. The availability of suppression water and equipment did not include specific consideration for the existence of any backup fire suppression water system but, rather, used a conservative fire suppression failure probability of 0.5 for manual suppression efforts and 0.04 for water sprinklers. The failure of automatic sprinkler systems is based on recommendations in section 4.7 of NUREG/CR-4840 which are based on the operating experience fire data base developed by Sandia National Laboratories (NUREG/CR-4586). The comprehensive fire Probabilistic Risk Assessment (PRA) analysis determined that the total fire induced contribution to core damage frequency for Cook Nuclear Plant was 1.61E-07 per reactor year. This represents 0.26% of the internal events core damage frequency for the Cook Nuclear Plant. Therefore, internal fires are clearly not considered dominant contributors to core damage frequency at the Cook Nuclear Plant.

In accordance with 10CFR50.59 and the guidance provided in NSAC-125, an unreviewed safety question determination was performed. It was concluded, therein, that the substitution of the Lake Township water supply in lieu of the screenhouse fire pumps as the backup source of fire suppression water for the storage tank system does not constitute an unreviewed safety question per 10CFR50.59(a)(2), nor does it constitute a significant hazard to the health and safety of the public.

Based on the results of the 10CFR50.59 evaluation, the results of the fire PRA analysis, and the continued availability of a viable alternate backup fire suppression water supply, the costs for continued surveillance and maintenance activities associated with the screenhouse fire pumps do not have a commensurate nuclear safety benefit. The costs for maintaining the screenhouse fire pumps, based on Nuclear Plant Maintenance (NPM) tracking data, was approximately $100,000 for 1993.

A revision to the bases section of the Technical Specifications will be proposed coincident with the revision to the UFSAR to remove reference to the screenhouse fire pumps.