

**Detroit  
Edison**

Wayne H. Jens  
Vice President  
Nuclear Operations

2000 Second Avenue  
Detroit, Michigan 48226  
(313) 586-4150

June 18, 1984  
EF2-69270

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) Letters, D. A. Wells to J. G. Keppler,  
July 20, 1982, EF2-59378, and  
November 17, 1982, EF2-60511

Subject: Final Report of 10CFR50.55(e) Item 72  
"Loose Holding Stem Nut Keys on Remote  
Operated Powell Valves"

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This is Detroit Edison's final report concerning loose holding stem nut keys on motor operated Powell valves. Item 72 was originally reported as a potential deficiency on July 20, 1982, and subsequently documented in Reference (2).

#### Description of the Deficiency

Two square keys join the motor operated drive to the valve stem drive sleeve on valves V8-2159 and V8-2160 in the Ell-000 system (RHR system). These valves are manufactured by the William C. Powell Company, model 19051-Y-WE with Limitorque operator SMB-5T. The keys are staked to assure that they do not work their way out.

During CAIO testing, it was found that the staking was not sufficient to prevent the keys from falling out. It was determined that the valve operator orientation (downward) in connection with excessive piping vibration, was the cause.

#### Analysis of Safety Implications

Valves V8-2159 and V8-2160 are the LPCI injection valves in the RHR system. The loss of the keys would permit the valve operator drive to function without actually positioning the valve stem. Therefore, a false indication of the valve

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position would be telemetered to the control room. Had these keys fallen out and a loss of coolant accident occurred, the valves would have remained closed. The only flow path to the vessel would have been through the bypass lines around the valves. Under these conditions, the capability of the RHR system in the LPCI Mode might have been compromised.

Corrective Action

The William C. Powell Company designed and fabricated a retaining plate secured to the valve stem drive sleeve with cap screws and lock washers on each of the two affected valve operators. This retaining plate will prevent the keys from coming free. In addition, the piping configuration has been modified by adding bypasses around the valves. This modification improved valve throttling capability and eliminated excessive pipe vibration during reduced flow operation of the RHR system.

Detroit Edison Engineering determined that there are no similar installations of the Powell valve/limitorque operator combination that has experienced this deficiency. The William C. Powell Company has not indicated that this situation has occurred elsewhere. Therefore, engineering considers the problem to be unique for valves V8-2159 and V8-2160.

This is Detroit Edison's final report on this subject. If you have questions concerning this matter, please contact Mr. Lewis P. Bregni, (313) 586-5083.

Sincerely,

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

