March 19, 1987

MEMORANDUM FOR: Stuart D. Rubin, Chief
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

AEOD/E702

FROM: Earl J. Brown
Engineering Section
Reactor Operations Analysis Branch
Office for Analysis and Evaluation
of Operational Data

SUBJECT: MOV FAILURE DUE TO HYDRAULIC LOCKUP FROM EXCESSIVE GREASE IN SPRING PACK

An engineering evaluation report on operational data involving motor operated valve (MOV) failure due to hydraulic lockup from excessive grease in the spring pack area of the motor operator is enclosed. The available event data is applicable to Limitorque SMB motor operators. The evidence demonstrates that hydraulic lockup has occurred and is a potential common mode failure mechanism for SMB motor operators. Although the parameters and conditions that cause hydraulic lockup are not fully defined or understood, the phenomenon appears related to use of EXXON NEBULA EP-0 grease. This grease is a recommended environmentally qualified lubricant that is less viscous than the only other qualified grease.

The report illustrates that different designs of SMB motor operators are adversely affected, that different corrective actions may be needed to prevent hydraulic lockup, and that industry communication procedures have resulted in inaccurate or misleading guidance to licensees concerning this issue. Therefore, it is recommended that IE issue an information notice to alert licensees about the phenomenon and provide a description of the hydraulic lockup events. The report should also be distributed to NRR for information and consideration in the effort on Generic Issue II.D.6.1. In addition, the report recommends immediate industry effort to (1) identify conditions, sequences, or procedures that result in hydraulic lockup; (2) develop solutions for all types of motor operators currently in use (modification kits, design changes, etc.); and (3) disseminate the corrective actions to are users. It is suggested that this effort be coordinated through NUMARC as part of the overall program for industry action on MOVs.

The report should also be forwarded to INPO separately, rather than the AEOD batch distribution, because it identifies possible inaccurate information provided by the industry communications procedures.

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Enclosure:
As stated

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