UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

September 30, 1991

NRC INFORMATION NOTICE 91-61: PRELIMINARY RESULTS OF VALIDATION TESTING OF MOTOR-OPERATED VALVE DIAGNOSTIC EQUIPMENT

Addressees

All holders of operating licenses or construction permits for nuclear power reactors and motor-operated valve (MOV) diagnostic equipment vendors identified herein.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this information notice to alert addressees to the preliminary results of the validation testing of MOV diagnostic equipment conducted by the MOV user's group (MUG) of nuclear power plant licensees. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid operability problems with MOVs. However, suggestions contained in this information notice are not NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances

In 1990, the MUG initiated a program to conduct tests of MOV diagnostic equipment to validate the accuracy of the equipment asserted by the diagnostic equipment vendors. The MUG requested the Idaho National Engineering Laboratory (INEL) to provide a test stand for the program and to collect test data. The NRC Office of Nuclear Regulatory Research (RES) provided funds for INEL to participate, with the stipulation that the results of the testing would be made available to the NRC and the public.

The diagnostic equipment vendors participating in the MUG test program were ASEA-Brown Boveri (ABB) Impell, ITI-MOVATS, Liberty Technologies, Siemens/KWU, Teledyne, and Wyle Laboratories.

The INEL test stand included a Limitorque motor operator which drives a valve stem into a water reservoir with a compressed air overcharge. INEL obtained accurate measurements of actuator torque and thrust using a torque arm and a stem-mounted load cell, respectively. Each diagnostic equipment vendor installed and operated its own equipment to obtain measurements of torque, thrust, and various other parameters.

Several diagnostic system vendors did not meet all of their stated claims of accuracy. Differences in the time response of the INEL test stand equipment and the diagnostic systems being tested may have contributed to deviations in

the observed thrust measurements. Further, some of the diagnostic equipment exhibited problems and anomalies, such as failed sensors or difficulties in calibration, during the testing program. Of particular concern to the NRC is that these time inaccuracies, problems, and anomalies may not have been detected during normal use of the diagnostic equipment at a nuclear facility.

The MUG is comparing the data collected by INEL with the data collected by each of the diagnostic equipment vendors. At a meeting in Richmond, Virginia, on July 30, 1991, the MUG released a progress report of the validation testing. The NRC has placed this report, "MOV User's Group - Progress Report of the Validation Committee," in the NRC Public Document Room (PDR), 2120 L Street, N.W., Washington, D.C. 20555 (telephone (202) 634-3273). The MUG is continuing to review the test data and intends to release a final report in January 1992. The NRC will place the final MUG report in the PDR.

During its July meeting, the MUG stated that licensees and diagnostic equipment vendors should review the progress report for its applicability to the MOVs installed in nuclear power plants. The MUG also alerted licensees and diagnostic equipment vendors to their responsibilities under "Reporting of Defects and Noncompliance," Part 21 of Title 10 of the Code of Federal Regulations.

Discussion of Safety Significance

In NRC Bulletin 85-03, "Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings," and its supplement, the NRC recommended that licensees develop and implement a program to ensure that motor-operator switch settings for MOVs in several specified systems are selected, set, and maintained so that the MOVs will operate under design-basis conditions for the life of the plant. In NRC Generic Letter 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance," and its supplements, the NRC recommended that the program to verify switch settings be extended to ensure MOVs operate properly in all safety-related fluid systems.

To meet the recommendations of the bulletin and the generic letter, licensees have placed increasing reliance on diagnostic equipment to set the motor operator switches and to ensure the operability of MOVs. The accuracy of the diagnostic equipment has a direct impact on the operability of entire safety systems because the same diagnostic equipment is generally used to set the motor operator switches of the valves in all trains of a safety system.

This concern for the effect that the use of diagnostic equipment can have on overall system operability prompted NRC to participate in the MUG validation testing. The NRC will continue to monitor the activities of licensees and diagnostic equipment vendors in evaluating the results of the MUG test program.

This information notice requires no specific action or written response. If you have any questions about the information in this notice, please contact one of the technical contacts listed below or the appropriate Office of Nuclear Reactor Regulation project manager.

Charles E. Rossi, Director
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Technical contacts: Thomas G. Scarbrough, NRR
(301) 492-0794

Owen O. Rothberg, RES
(301) 492-3924

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED
NRC INFORMATION NOTICES

Information Notice No.	Subject	Date of Issuance	Issued to
91-60	False Alarms of Alarm Ratemeters Because of Radiofrequency Interference	09/24/91	All Nuclear Regulatory Commission (NRC) licensees authorized to use sealed sources for industrial radiography.
91-59	Problems with Access Authorization Programs	09/23/91	All holders of OLs or CPs for nuclear power reactors.
91-58	Dependency of Offset Disc Butterfly Valve's Operation on Orientation with Respect to Flow	09/20/91	All holders of OLs or CPs for nuclear power reactors.
91-57	Operational Experience on Bus Transfers	09/19/91	All holders of OLs or CPs for nuclear power reactors.
91-56	Potential Radioactive Leakage to Tank Vented to Atmosphere	09/19/91	All holders of OLs or CPs for nuclear power reactors.
91-55	Failures Caused by An Improperly Adjusted Test Link in 4.16 KV General Electric Switchgear	09/16/91	All holders of OLs or CPs for nuclear power reactors.
85-18, Supp. 1	Failures of Undervoltage Output Circuit Boards in the Westinghouse-Designed Solid State Protection System	09/10/91	All holders of OLs or CPs for Westinghouse (W)-designed nuclear power reactors.
91-54	Foreign Experience Regarding Boron Dilution	09/06/91	All holders of OLs or CPs for pressurized water reactors (PWRs).
89-90, Supp. 2	Pressurizer Safety Valve Lift Setpoint Shift	09/05/91	All holders of OLs or CPs for nuclear power reactors.

OL = Operating License
CP = Construction Permit

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Endorse Rothberg's insert

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Document Name: MUG VALIDATION TESTING IN

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