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UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
WASHINGTON, D. C. 20555

October 31 , 1980

IE INFORMATION NOTICE NO. 80-39 : MALFUNCTION OF SOLENOID VALVES MANUFACTURED
BY VALCOR ENGINEERING CORPORATION

PURPOSE:

The intent of this Information Notice is to alert holders of construction permits and operating licenses for nuclear power plants of a potentially generic problem involving the malfunctioning of certain solenoid valves manufactured by the Valcor Engineering Corporation (Valcor). The solenoid valves so involved are designated as Valcor Valve Model No. V52600-554-1. Valcor has informed us that these valves have only been supplied to the McGuire facility; however, since these valves were substituted for solenoid valves of another manufacturer that did not meet the requirements of IE Bulletin No. 79-01 and its amendments, licensees and holders of construction permits should take into account the problem identified in this Information Notice prior to making any similar substitution.

BACKGROUND:

By TWX dated June 27, 1980, Valcor submitted a preliminary 10 CFR Part 21 Report addressing the malfunctioning of Valcor solenoid valves at the McGuire facility. The malfunctioning valves have been identified as Valcor Valve Model No. 52600-554-1. This TWX was subsequently followed by a letter dated July 3, 1980, transmitting a more detailed Part 21 Report entitled, "Quality Assurance Report", a copy of which is attached hereto as Enclosure No. 1.

In brief, the malfunction appears to be an intermittent type wherein the valve fails to cycle from OPEN to CLOSE to OPEN immediately after a sustained period of operation in the energized (OPEN) mode. Although the valves are rated for "continuous operation", Valcor contends that the valves were not designed to meet the operating conditions requiring the immediate cycling from OPEN to CLOSE to OPEN after a sustained period of continuous energization. A major source of the problem, therefore, may be a misunderstanding of the term "continuous operation". By letter dated July 14, 1980 to Duke Power Company, Valcor transmitted its recommendations in this matter entitled, "Outline - Suggested Modification Procedures", a copy of which is attached hereto as Enclosure No. 2.

Enclosures:

1. Quality Assurance Report
2. Outline - Suggested Modification Procedures.



VALCOR ENGINEERING CORPORATION

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TWX 710-896-8976 • CABLE VALCOR

QUALITY ASSURANCE REPORT

SUBJECT: NRC 10CFR21 Reporting

Reference: Valcor TWX to NRC dated 6/27/80

1. On June 27, 1980, the Duke Power Company advised that a failure to actuate valve Part No. V52600-554-1 affects a safety-related system. It was reported that this valve failed to cycle immediately following a sustained period of continuous energization. Valcor advised Duke that the valve was not designed to meet this operating condition.
2. The Duke Power Company indicated that the above part was installed in McGuire Nuclear Station Nos. 1 and 2 as part of the Diesel Generator Control Air Solenoid Valve System providing instrument air to the Diesel System. Eight valves are involved, reference 3b below. Valve failure to actuate could impair function of the Diesel Generator which provides power to safety-related electrical components.
3. Valcor has reviewed its records and determined that this potential problem is isolated to the following valves shipped to the Duke Power Company for McGuire Nuclear Station Nos. 1 and 2:

	<u>Customer P.O. No.</u>	<u>Customer List Part No.</u>	<u>Quantity</u>	<u>Serial No.</u>	<u>Date Completed</u>
a.	C45389 (N12145)	04D-050 (V52600-570-1)	22	1 to 22	10-76
b.	C45389 (N12145)	04D-052 (V52600-554-1)	8	1 to 8	10-76
c.	C45389 (N13163D)	04D-053 (V52600-555-2)	3	10, 11, 12	5-78
d.	C45389 (N12145)	04D-053 (V52600-555-2)	8	1 to 8	10-76
e.	C45389 (N13163)	04D-054 (V52600-5542-1)	6	1 to 6	2-78
f.	C45389 (N13163C)	04D-055 (V52600-5542-2)	4	1 to 4	3-78
g.	C45389 (N13163C)	04D-056 (V52600-5551-1)	6	1,7,8,12,13	5-79
h.	C45389 (N13163C)	04D-057 (V5730C-5220-1)	17	1 to 17	5-79

Quality Assurance Report

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4. Subject to a requirement for immediate cycling following continuous energization, valcor recommends that valves be upgraded by replacement of internal bonnet assembly parts. Installed valves will require pressure shutdown. Valcor has commenced preparation of modification instructions and will report to Duke Power by July 14, 1980.



VALCOR ENGINEERING CORPORATION

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TWX 710-996-5976 • CABLE: VALCOR

OUTLINE - SUGGESTED MODIFICATION PROCEDURES

REFERENCE: Valcor NRC 10CFR21 Report dated 7-3-80.

NOTE: A new Solenoid Assembly that will meet the new criteria without affecting the valve Cv is not readily available.

1. All valves noted in the above referenced report can be modified in the field or at Valcor, by replacement of the Bonnet Assembly. The valves are to be re-identified by adding a revision letter to Valcor valve Part No. on nameplate. The modification to be coordinated with the Authorized Nuclear Inspector.
2. Installed valves will require pressure shutdown.
3. Modification by list Part Numbers as noted in the referenced report.
 - a. List P/N 04D-050 (V52600-570-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-570-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Estimated valve Cv change from 25 to 18.
 - b. List P/N 04D-052 (V52600-554-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-554-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 2.5 to 1.2.
 - c. List P/N 04D-053 (V52600-555-2).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-5551-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
Valve similar to 04D-222.

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OUTLINE - SUGGESTED MODIFICATION PROCEDURES

- d. List P/N 04D-053 (V52600-555-2).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-5551-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
Valve will be similar to 04D-222.
- e. List P/N 04D-054 (V52600-5542-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-554-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
- f. List P/N 04D-055 (V52600-5542-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-554-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
- g. List P/N 04D-056 (V52600-5551-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V52661-5551-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
Valve will be similar to 04D-222.
- h. List P/N 04D-057 (V57300-5220-1).
Dis-assemble valve.
Replace Bonnet Ass'y with Bonnet Ass'y P/N V573661-5220-1-1.
Re-assemble valve and perform Hydro & Operational tests.
Valve Cv will change from 3 to 2.
Valve will be similar to 04D-223.

IN 80-39
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RECENTLY ISSUED
IE INFORMATION NOTICES

Information Notice No.	Subject	Date of Issue	Issued to
80-36	Failure of steam generator support bolting	10/10/80	All nuclear power reactor facilities holding OLs or CPs
80-35	Leaking and dislodged Iodine-124 implant seeds	10/10/80	All categories G and G1 medical licensees
80-34	Boron dilution of reactor coolant during steam generator decontamination	9/26/80	All pressurized water reactor facilities holding power reactor OLs
80-33	Determination of teletherapy timer accuracy	9/15/80	All teletherapy (G3) licensees
80-32	Clarification of certain requirements for Exclusive-use shipments of radioactive materials	8/12/80	All NRC and agreement state licensees
80-31	Maloperation of Gould-Brown Boveri Type 480 volt type K-600S and K-DON 600S circuit breakers	8/27/80	All light water reactor facilities holding OLs or CPs
80-30	Potential for unacceptable interaction between the control rod drive scram function and non-essential control air at certain GE BWR facilities	8/19/80	All boiling water reactor facilities holding power reactor OLs or CPs.
80-29	Broken studs on Terry turbine steam inlet flange	8/7/80	All light water reactor facilities holding power reactor OLs or CPs*
Supplement to 80-06	Notification of significant events at operating power reactor facilities	7/29/80	All holders of reactor and near-term OL applicants
80-28	Prompt reporting of required information to NRC	6/13/80	All applicants for and holders of nuclear power reactor CPs

* Operating Licenses or Construction Permits