

Fax Cover Sheet

To: 3018165151 **From:** Valcor

Pages: 6 **Date:** Mon Jul 18 11:56:02 AM EDT 2022

Re: 60-Day Interim Report Notification for Potential Part 21

Comments:

Regards,

Michael Swirad
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FACSIMILE MESSAGE

DATE: 7/18/2022 TOTAL NUMBER OF PAGES 5

TO: --- **FROM:** Mike Swirad

NAME --- NAME Mike Swirad

COMPANY NRC Operation Center DEPT Quality Assurance

CITY/STATE -----

FACSIMILE 301-816-5151

MESSAGE:

Attached please find 60-Day Interim Report Notification for Potential Part 21

If you do not receive all pages, please call (973) 467-8403

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Nuclear Business Group

July 15, 2022

Valcor/NRC 2110-2022-QA1

U.S. Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, D.C. 20555-0001

Subject: Part 21 60-Day Interim Report Notification
Premature failures of Valcor Coil Shell Assemblies V52653-6040-7

Reference: Duke Energy Notification dated 5/19/2022 (RA-22-0167)

This letter provides Valcor Engineering Corporation (VEC) interim report regarding a 10 CFR Part 21 evaluation of premature failures of Valcor Coil Shell assemblies Part Number V52653-6040-7. Valcor was notified by Duke Energy via letter dated 5/19/2022 about this discovery at Catawba Nuclear Station. Two failed Coil Shell Assemblies removed from V70900-39-3-1 Solenoid Valves were returned to Valcor for evaluation. As stated herein, VEC has not concluded that this is a reportable condition in accordance with requirements of 10CFR 21.21(d) and needs additional time to complete testing and evaluation to determine root cause of this failure.

The information required for this VEC 60-Day Interim Report Notification per §21.21(a)(2) is attached.

VEC will complete the evaluation and provide determination of reportability in accordance with 10 CFR Part 21 no later than September 12, 2022.

Please contact me if you have any questions or require any additional information.

Sincerely,

Mike Swirad
Quality Assurance Director
mikeswirad@valcor.com

Enclosures:
Enclosure 1 (3 pages)

60-Day Interim Report Notification per §21.21(a)(2)

(i) Name and Address of the individual or individuals informing the Commission.

Mike Swirad
QA Director
Valcor Engineering Corporation
2 Lawrence Road
Springfield, NJ 07081

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Coil Shell Assembly, Valcor PN V52653-6040-7 (supplied as "spare part" or as part of Valcor Solenoid Valve)

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Valcor Engineering Corporation
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Springfield, NJ 07081

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

On May 19, 2022, Duke Energy reported two (2) Coil Shell Assembly failures of Valcor Engineering Dwg. No. V52653-6040-7, on two different, recently installed 3-Way Solenoid Valves, Dwg. No. V70900-39-3-1, located at their Catawba Nuclear Power Station. The customer indicated that both coils caused "blown fuses in their system", exhibited "loss of resistance", and were in service for less than six (6) months "after initial installation and functional testing". These units were categorized as being Safety Related.

Duke cited violations of the requirements of CNS-1210.04-00-0022 Rev.003, MR70900-39-3-1 (40-Year Life Expectancy) and requested a 10 CFR Part 21 Reporting Evaluation (Ref. NFR 39, RMA 2400, E.O. 9018, RA-22-0167, and NCR 2426351).

Valcor solenoid valve V70900-39-3-1 is a balanced, direct acting, three-way solenoid operated valve. Electrical power (105 to 140 VDC) to operate the valve is applied to the coil of the solenoid through a terminal block located in the top of the solenoid housing. Energizing the coil causes the plunger to pull in, transferring the piston-seal assembly from the upper seat to the lower seat, causing port 1 to be sealed off and opening port 2, allowing 115 psig facility air to flow from port 2 to port 3.

To create the required magnetic force, this solenoid coil is made up of 7400 turns (minimum) of 25 gauge insulated magnet wire, wrapped around a NEMA grade G7 bobbin, and covered with Kapton Tape outer wrap insulation. The magnet wire is connected to the 18-gauge leadwire through a brazed solder joint which is additionally insulated with 3M #27 glass tape and Kapton tape. This solenoid coil assembly design has been in existence at Valcor since 1978.

This solenoid coil assembly is then inserted into a metallic coil shell and is then potted to allow coil heat to dissipate as well as to maintain the coil assembly fixed. This assembly is identified by VEC as V52653-6040-7. The coil shell assembly is then assembled onto the valve sub-assembly to finish the process of manufacturing a solenoid valve.

Internal short in Coil Shell Assembly will prevent Solenoid Valve to perform its Safety Function.

(v) The date on which the information of such defect or failure to comply was obtained.

May 19, 2022

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

QTY:	VEC LOT #	End Customer	Sales Order	Part #	Customer PO	Location of Installation
1	A129620	Duke	E181385	V70900-39-3-1	3118384	Catawba
2	A2	Duke	E181385	V70900-39-3-1	3118384	Catawba
3	293551	Duke	E181385	V70900-39-3-1	3118384	Catawba
1	A2	Duke	E161269	143170003 V526-5891-39	3075236	Brunswick
2	A2	Union Electric	N179481	218140101 V526-6040-7	855003 SR Rev 3	Callaway Energy Center
6	A2	Duke	E179908	V70900-39-3-1	3107229	Catawba
1	A2	Duke	E179029	103170009 V526-5295-65	3104608	Oconee
1	A2	Exelon	N180619	218135101 V526-6043-5-1	00795079 Rev 2	Braidwood
1	A2	Duke	E179181	V105-200	3105656	Catawba
1	A2	Exelon	E177893	V52653-6040-7	685770	Fitzpatrick
2	A2	Exelon	N161878	218135101 V526-6043-5-1	668648	Braidwood
5	A2	Duke	E178326	V70900-39-3-1	3100560	Catawba

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

All Coil Shell Assemblies (including sub-component Coil Assembly PN V52605-501) have been quarantined until root cause and corrective action is identified and corrected.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

Valcor is in a process of notifying all affected customers.

(ix) In the case of an early site permit, the entities to whom an early site permit was transferred.

Not applicable