



Tennessee Valley Authority, Power Service Shop  
P.O. Box 1010 Reservation Road, Muscle Shoals Al. 35662

January 18, 2013

10 CFR 21

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

**Subject: Belden EPDM Lead Wire Used in Rewind of Environmentally Qualified (EQ) Form-wound Motors Is Not Fully Qualified**

In accordance with Title 10 of the Code of Federal Regulations (10 CFR) 21, "Reporting of Defects and Noncompliance," the Tennessee Valley Authority is providing the required written notification of a defect in a basic component, i.e., Tennessee Valley Authority (TVA) Power Support Services (PSS) was recently advised by the Electric Power Research Institute (EPRI) that Belden EPDM lead wire utilized in EQ form-wound motors was not exposed to the entire EPRI EQ qualification process. As a result, the Belden EPDM lead wire cannot be considered qualified based exclusively on EPRI Technical Report (TR) 1003481 and TR 1001036. The enclosure to this letter provides the information required by 10 CFR 21.21(d)(4).

Should you have any questions concerning this submittal, please contact R. W. Girnus, Manager PSS Engineering, at (256) 314-7561.

Respectfully,

Randy W. Weatherington  
TVA Power Support Services General Manager

Enclosure: Notification of Part 21 Defect, Belden EPDM Lead Wire Used in Rewind of Environmentally Qualified (EQ) Form-wound Motors Is Not Fully Qualified

cc (w/Enclosure):

NRC Regional Administrator - Region II

JE19  
MRR

**10 CFR Part 21 Notification  
Enclosure**

## ENCLOSURE

### Tennessee Valley Authority Power Service Shop

#### Notification of Part 21 Defect, Belden EPDM Lead Wire Used in Rewind of Environmentally Qualified (EQ) Form-Wound Motors Is Not Fully Qualified

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The following written report is provided by TVA Power Support Services (PSS) in accordance with 10 CFR 21.21(d)(4).

- (i) *Name and address of the individual or individuals informing the Commission.*

Mr. Randy Weatherington  
General Manager  
TVA Power Support Services  
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- (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.*

Safety Related Environmentally Qualified (EQ) form-wound motors rewound by PSS utilizing Electric Power Research Institute (EPRI) Technical Report (TR) 1003481, "Procedure for Rewinding AC Form-Wound Stators for Environmentally Qualified Motors" and Belden lead wire in the period October 2006 through December 2012.

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

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- (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.*

EPRI informed the PSS that Belden lead wire utilized in rewind of EQ form-wound motors cannot be qualified based solely in accordance with EPRI TR 1001036, "Test Report on Testing of Form-Wound Medium-Voltage(<7 kV) Motor Insulating Systems" and 1003481. The EQ form-wound motors rewound by the PSS may not meet the individual site's EQ profile.

Rockbestos lead wire material is no longer available to the industry. EPRI manual TR1003481 has inconsistencies and conflicting information related to the Belden wire. This latent condition resulted in the EPRI Project Manager, TVAN Engineering, and PSS Motor Engineer failing to recognize that Belden lead wire was not fully qualified. As a result, the PSS procedure for rewinding EQ form-wound motors was developed specifying the Belden lead wire as an approved material for EQ form-wound motor rewinds utilizing EPRI TR 1003481.

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

- 11/27/12 - EPRI notified the PSS of a potential issue.
- 12/03/12 - EPRI issued a formal letter of a potential issue to the PSS
- 12/05/12 - The PSS issued to Notification of a Potential Part 21 Condition to affected TVA sites
- 12/18/12 - The PSS requested assistance from Florida Power & Light
- 12/19/12 - The PSS requested assistance from Progress Energy
- 12/20/12 - Site EQ Data from Progress Energy received by the PSS indicating the Belden wire could not be qualified
- 12/21/12 - The PSS made 2 day Part 21 NRC notification

(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 the part.*

Customer	Purchase Document	Serial Number	ID	PSS WO	UNID
Progress Energy (Crystal River)	PO-00478768	70F98026	HP Fan Motor	10-079730	Unknown
Florida Power And Light (St. Lucie)	PO-00084048	1S-70	LPSI Motor	05-077755	Unknown
TVA Browns Ferry	PO-177475-7	CEJ326010	RHR Pump Motor	111587236	3-MTR-074-0016 3C
TVA Browns Ferry	CKF433J	EEJ528004	RHR Pump Motor	09-077529	3-MTR-074-0028 3B
TVA Browns Ferry	CKF433J	DEJ409001	RHR Pump Motor	09-077530	3-MTR-074-0039 3D
TVA Browns Ferry	CGM629L	EEJ528012	Core Spray Motor	09-077527	3-MTR-075-0033 3B
TVA Browns Ferry	CGM629L	LEJ1105014	Core Spray Motor	09-077528	3-MTR-075-0042 3D
TVA Browns Ferry	PO-177475-7	LEJ1126018	Core Spray Motor	111661005	2-MTR-075-0005 2A
TVA Browns Ferry	PO-177475-7	LEJ1112014	Core Spray Motor	111660816	2-MTR-075-0014 2C
TVA Browns Ferry	PO-177475-7	DEJ402003	RHR Motor	111587427	2-MTR-074-0016 2C
TVA Browns Ferry	PO-322481-2	FEJ604013	Core Spray Motor	112634215	3-MTR-075-0014 3C
TVA Browns Ferry	PO-322481-2	FEJ604012	Core Spray Motor	112634099	3-MTR-075-0005 3A
TVA Watts Bar	PSS-WBN2-2010- 003	4S-77	Containment Spray Motor	110750095	Unknown

(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.*

This issue is documented within PSS Problem Evaluation Report (PER) number 650071.

	Action	Date Due	Responsible Organization	Status
Action 1 (Interim)	Perform a hybrid qualification evaluation for Belden lead wire utilizing Wyle report 18070-1	1/24/13	PSS	Complete
Action 2 (Interim)	Notify affected customers and request their assistance as needed. Provide customers EQ parameters of the Wyle report 18070-1	1/24/13	PSS	Complete
Action 3	Revise PSS-JI-RA.GEN.03.40.1 to include the Hybrid Qualification Evaluation and direction for taking exceptions on future EQ rewinds utilizing Belden lead wire	3/21/13	PSS	Waiting Assignment
Action 4	Revise PSS-JI-RA.GEN.03.40.1 based on EPRI's issuance of revised procedure for EQ form-wound motor rewinds	6/20/13	PSS	Waiting Assignment
Action 5	Review this PER and analysis with TVAN Corporate and PSS Engineering	05/16/13	PSS	Waiting Assignment
Action 6	Define in PSS Quality Assurance Plan (QAP) the roles, responsibilities and interface associated with TVAN Corporate Engineering, TVAN Site Engineering and PSS on process development and concurrences on component non conformances	05/16/13	PSS	Waiting Assignment

- (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.*

TVA Browns Ferry, TVA Watts Bar, FP&L St. Lucie, and Progress Energy Crystal River were notified of the condition with the Belden wire on EQ form-wound motors. Each site has entered this condition into their corrective action program for evaluation and have been supplied the WYLE 18070-1, "Nuclear Environmental Qualification Test Program on Random-Wound and Form-Wound Motor Insulation Systems and Other Motor Components" EQ profiles for evaluation of the applicable site's EQ profile.

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

Not applicable