

150 Lincoln Avenue  
Grove City, PA 16127-1898  
Tel 412 458 8000  
Fax 412 458 3574

Ajax®  
Coberra®  
Cooper Bessemer®  
Enterprise™  
En-Tronic®  
Penn™  
Superior®

May 14, 1996

Our Ref: QCG-10273

Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Comment Letter - 10CFR21 Report by MKW Power Systems; NEI Peebles (Portec) Voltage Regulators - Voltage Adjust Potentiometer

Dear Sir:

In response to the above referenced 10CFR21 Report, Cooper Bessemer Reciprocating Products, a division of Cooper Cameron Corporation, has issued this letter to define utilities/plants containing similar equipment as supplied on Cooper Bessemer® KSV and Enterprise® DSR and DSRV Emergency Diesel Generators (EDG's).

Affected Utilities: COOPER-BESSEMER KSV EDG'S

Pennsylvania Power and Light (Susquehanna)  
Entergy Operations (LP&L, Waterford III SES)  
Commonwealth Edison Co. (Byron)  
Commonwealth Edison Co. (Braidwood)  
Arizona Public Service (Palo Verde)  
Niagara Mohawk Power Co. (Nine Mile Point 2)  
Houston Lighting and Power Co. (South Texas)

Affected Utilities: ENTERPRISE DSR AND DSRV EDG'S

Entergy Operations (Grand Gulf)  
Entergy Operations (River Bend)  
Carolina Power and Light (Shearon Harris)  
Taiwan Power Co. (Kuosheng)  
Duke Power (Catawba)  
Texas Utilities (Comanche Fork)  
Georgia Power (Vogtle)

9605210284 960514  
PDR ADDCK 05000220  
S PDR

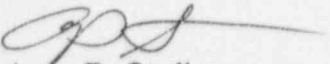
IF19  
11

Page 2  
May 14, 1996  
QCG-10273

For your convenience, a copy of the MKW Power System's Report is attached. If you have any questions, I may be contacted at 412-458-3455.

Sincerely,

COOPER CAMERON CORPORATION

  
Andrew P. Steffan  
Supervisor, Quality Engineering

Attachment

APS:kll

cc: D. T. Blizzard - CES/GC  
J. M. Horne - CES/GC  
A. D. Gillette - CES/GC  
B. C. Guntrum - CES/Alameda  
R. G. Billig - CES/GC  
File: K5fa38

Page 3  
May 14, 1996  
QCG-10273

Copies to:

Mr. Walter Haass  
**U.S. Nuclear Regulatory Commission**  
One White Flint North  
Washington, DC 20555

Mr. Gary Hunt  
**Houston Lighting and Power**  
South Texas Project  
Wadsworth, TX 77483

Mr. James Kenny  
Licensing Group Supervisor  
**Pennsylvania Power and Light**  
Two North Ninth Street Annex 2  
Allentown, PA 18101

Mr. Matthew Heidorn  
**Pennsylvania Power and Light**  
Susquehanna Steam Electric Station  
P. O. Box 467  
Berwick, PA 18603

Mr. Terence Bannon  
Nuclear Regulatory Affairs A2-4  
**Pennsylvania Power and Light**  
2 North Ninth Street  
Allentown, PA 18101

Mr. David Baran  
**Commonwealth Edison Co.**  
**Byron Nuclear Power Station**  
4450 North German Church Rd.  
Byron, IL 61010

Mr. Michael Kneble  
**EnTergy Associates**  
Louisiana Power and Light  
Waterford 3 SES  
Highway 18  
Taft, LA 70006

Mr. Dave Gustafson  
**Commonwealth Edison Co.**  
**Braidwood Nuclear Power Station**  
Tech Staff Electrical Group  
Route 1, Box 84  
Braceville, IL 60407

Mr. Doug Mullen  
**Nebraska Public Power District**  
Cooper Nuclear Station  
P. O. Box 98  
Brownville, Nebraska 68321

Mr. Terry O'Brien  
**Commonwealth Edison Co.**  
1400 Opus Place  
Downers Grove, IL 60515

Mr. Lenny Schiavone  
**Niagara Mohawk Power Corp.**  
301 Plainfield Road  
North Syracuse, NY 13212

Ms. Kathleen Russo  
**Niagara Mohawk Power Corp.**  
Nine Mile Road - Unit 2  
P. O. Box 63  
Lycoming, NY 13093

Mr. Neil Thibodaux  
**Arizona Public Service**  
Palo Verde Nuclear Generating Station  
P. O. Box 52034 Mail Station 7566  
Phoenix, AZ 85072-2034

Mr. Thomas Bradish  
**Manager, Nuclear Regulatory Affairs**  
Arizona Public Service  
P. O. Box 52034 Mail Station 7636  
Phoenix, AZ 85072-2034

Mr. Terry Vandevoort  
**Commonwealth Edison**  
**Zion Generating Station**  
101 Shiloh Blvd.  
Zion, IL 60099

Mr. Arthur G. Killinger  
**MPR Associates, Inc.**  
320 King Street  
Alexandria, VA 22314-3238

**Carolina Power and Light Co.**  
Harris Nuclear Project  
P. O. Box 165  
New Hill, NC 27562  
Attn: William Robinson  
Vice President

**Carolina Power and Light Co.**  
P. O. Box 1551  
Raleigh, NC 27602  
Attn: W. S. Orser  
Executive Vice President

**Carolina Power and Light Co.**  
Harris Nuclear Plant  
P. O. Box 165  
New Hill, NC 27562  
Attn: Mickey Hamby

**Carolina Power and Light Co.**  
Brunswick Nuclear Plant  
NC Hwy. 87, 2-1/2 Mi. North  
Box 10429  
Southport, NC 28461  
Attn: Roy A. Anderson  
Vice President

**Carolina Power and Light Co.**  
Robinson Nuclear Plant  
SC Hwy. 151 and 23, Box 790  
Hartsville, SC 29550  
Attn: C. S. Hinnant  
Vice President

**Cleveland Electric Illuminating**  
Perry Nuclear Power Plant  
P. O. Box 97  
Perry, OH 44081  
Attn: M. Lister

**Cleveland Electric Illuminating**  
Perry Nuclear Power Plant  
P. O. Box 97  
Perry, OH 44081  
Attn: Russell J. Tadych  
Manager, Quality Control

**Cleveland Electric Illuminating**  
Perry Nuclear Power Plant  
P. O. Box 97  
Perry, OH 44081  
Attn: Harold M. Coon

**Cooper-Enterprise Clearinghouse**  
Duke Engineering & Service  
230 South Tryon St.  
P.O. Box 1004  
Charlotte, NC 28201-1004  
Attn: G. A. Harrison

**Duke Power Co.**  
Nuclear Generation Dept.  
P. O. Box 1007  
Charlotte, NC 28201-1007  
Attn: Mgr., Nuclear Safety

**Duke Power Co.**  
Nuclear Generation Dept.  
P. O. Box 1007  
Charlotte, NC 28201-1007  
Attn: W. T. Robertson  
Vice President, Procurement

**Entergy**  
P. O. Box 429  
Echelon One  
1340 Echelon Parkway  
Jackson, MS 39286-1995  
Attn: F. W. Titus (Fred)  
Vice President, Engineering

**Entergy**  
P. O. Box 756  
Port Gibson, MS 39150  
Attn: C. R. Hutchinson (Randy)  
Vice Pres., Operations-GGNS

**Entergy**  
P. O. Box 756  
Port Gibson, MS 39150  
Attn: D. L. Pace, Director  
Design Engineering-GGNS

**Entergy**  
P. O. Box 756  
Port Gibson, MS 39150  
Attn: M. J. Meisner  
Director, NS&RA

Manager, Quality Services  
**Entergy Operations**  
Box 756  
Port Gibson, MS 39150

**Southern Nuclear Operating Company**  
Vogtle Project  
P. O. Box 1295  
Birmingham, AL 35201  
Attn: Mgr., Nuclear Engineering  
and Licensing

**Georgia Power Co.**  
Plant Vogtle  
P. O. Box 1600  
Waynesboro, GA 30830  
Attn: Mr. W. B. Shipman  
General Manager

Page 5  
May 14, 1996  
QCG-10273

**Gulf States Utilities**  
P. O. Box 220  
St. Francisville, LA 70775  
Attn: L. A. England  
Director Nuclear Licensing

**Long Island Power Authority**  
Shoreham Nuclear Power Station  
Box 628  
North Country Rd.  
Wading River, NY 11792  
Attn: Mgr. Licensing & Regulatory  
Compliance Department

**Southern California Edison**  
San Onofre Nuclear Generating Station  
P. O. Box 128  
San Clemente, CA 92672-0128  
Attn: Manager, Nuclear Oversight Div.

**Southern California Edison**  
San Onofre Nuclear Generating Station  
P. O. Box 128  
San Clemente, CA 92672  
Attn: ISEG Supervisor

**Sacramento Municipal Utility District**  
Rancho Seco Nuclear Power Plant  
14440 Twin Cities Road  
Herald, CA 95638  
Attn: Vice Pres. & Gen. Manager

**Tennessee Valley Authority**  
1101 Market Street, LP 4A-C  
Chattanooga, TN 37402  
Attn: Mr. M. J. Fecht  
Mgr. Nuclear Experience Review

**TU Electric - Production Division**  
Group Vice President - Nuclear  
Skyway Tower  
400 North Olive Street, L.B. 81  
Dallas, TX 75201  
Attn: C. L. Terry

**Washington Public Power Supply**  
P. O. Box 460  
Richland, WA 99352  
Attn: Mr. L. C. Oakes  
Manager, WNP-1 Engineer

T. R. Ho, Superintendent  
**Taiwan Power Company**  
Kuosheng Nuclear Power Station  
60 Pa-Tou Yeh-Liu Village  
Wan Li Hsiang, Taipei Hsien  
(20703), Taiwan, R.O.C.

Mr. S. J. Tsuei  
Director, Nuclear Safety Dept.  
**Taiwan Power Company**  
242 Roosevelt Road, Sec. 3  
Taipei, Republic of China

**MKW POWER SYSTEMS, Inc.**



Report No. 10CFR21-0073  
FEBRUARY 27, 1996

10CFR21 REPORTING OF DEFECTS  
AND NON-COMPLIANCE

COMPONENT: Chicago Telephone Supply (CTS), p/n 115R251A  
Voltage Adjust Potentiometer

SYSTEM: Diesel Generator control systems with NEI Peebles  
(Portec) Voltage Regulators

CONCLUSION: Defect is Reportable in Accordance with 10CFR21

PREPARED BY:

*Donald D. Galeazzi*  
Donald D. Galeazzi  
Engineering Manager

DATE: 2/28/96

REVIEWED BY:

*Michael Nuding*  
Michael Nuding  
General Manager, Quality Assurance

DATE: Feb 28 1996

SUMMARY

MKW Power Systems witnessed repair and testing of a voltage regulator for FP&L Turkey Point at NEI Peebles on 2/10/96 and 2/11/96. NEI manufactured many of the voltage regulators utilized in MKW's safety related diesel generators. Voltage instability was observed and was determined to be caused by foreign material on the stationary wiper portion of the R4 voltage adjust potentiometer. The potentiometer is 250 ohm, 2w, manufactured by Chicago Telephone Supply (CTS), p/n 115R251A and had been used by NEI for over twenty years for this application. Because of availability problems, NEI replaced the CTS potentiometer with Maury Instrument Corporation p/n 50-M123-251 (in 8/94). This is an enclosed precision wirewound potentiometer, 250 ohm, 1.5w, with a shaft locking nut. According to NEI, applied burden is 0.06w. When compared to the CTS component, the Maury is an upgrade in quality and appears to be less susceptible to contamination on the wiper surface. The FP&L regulator had the R4 potentiometer replaced with the Maury part while at NEI and the voltage instability was corrected.

The purpose of the R4 potentiometer is to adjust generator voltage to rated value after installation of the remote voltage adjust motor operated potentiometer. This is normally a one-time adjustment which occurs during initial installation/startup of the EDG and is applicable to the automatic and manual (if used) voltage regulators.

MKW has been supplying NEI voltage regulators for safety related EDG control systems since 1972. This incident and one prior in 1994 (FP&L EDG 4A and 4B respectively) are the only reported problems of this type; therefore, it is difficult to interpret this occurrence as a defect. In addition, because R4 is normally a one-time adjustment, any foreign material which develops/accumulates on the wiper surface will not affect voltage regulator operation because it will not interfere with the wiper surface to wiper arm interface. It is recognized that this could cause problems if field adjustment of R4 is required; therefore, MKW Power Systems will notify all customers with NEI voltage regulators about this potential condition.

COMPONENT

Chicago Telephone Supply (CTS), p/n 115R251A (NEI p/n 01068).



CUSTOMERS AFFECTEDAUTO VOLT REGMANUAL VOLT REG

## U.S.

Duke Power - Oconee	#72-13000-100	
FP&L - St. Lucie #2	#72-05000-100	#72-05100-100
FP&L - Turkey Point	#72-13000-100	#72-13200-100
Grand Gulf	#72-03200-100	#72-03100-100
Knolls Atomic - Kesselring	#72-05000-100	#72-05100-100
Portland G.E. - Trogan	#72-00101-100	
PP&L - Susquehanna	#72-08300-100	#72-08400-100
SMUD	#72-05000-100	#72-05100-100
TVA - Watts Bar	#72-06204-100	#72-05100-100
TVA - Watts Bar/Sequoyah	#72-06204-100	#72-05100-100
Wisconsin Elec - Pt Beach	#72-05000-100	#72-05100-100

## Foreign

Almaraz - Spain	#72-05000-100	#72-05100-100
CNV/G.E. - Spain	#72-05000-100	#72-05100-100
Cofrentes/G.E. - Spain	#72-05000-100	#72-05100-100
Korea Elec - Kori II	#72-05000-100	#72-05100-100
KRSKO - Slovenia	#72-05000-100	
Kuo Sheng/G.E.	#72-05000-100	#72-05100-100
Laguna Verde (HPCS)	#72-01200-201S	#72-01200-101
Laguna Verde - Units 1&2	#72-05000-100	#72-05100-100
Phillippines	#72-05000-100	#72-05100-100
Zorita - Spain	#72-05000-100	#72-05100-100

DEFECT

Microscopic examination of the potentiometer showed foreign material on the surface and edge of the stationary slip-ring under the wiper arm collar. The material on the edge was translucent/white-ish and appeared to be a lubricant. The material on the surface was blackish with some white flakes. It is postulated that the lubricate accumulated contaminants and/or dried on the surface. The total amount of foreign material is very small.



CORRECTIVE ACTION

- 1) FP&L is in the process of updating their voltage regulators with the Maury potentiometer. Other users should be aware of this possible problem and monitor their EDG output voltage for unstable output during routine testing. Replacement of the potentiometer is dependent upon monitoring/testing. Immediate response to this notification does not appear to be necessary as the majority of the in-service voltage regulators have been operating without incident for approximately 15-20 years.
- 2) The potentiometer is soldered to a circuit board within the voltage regulator assembly; therefore, field modification is not recommended. For replacement of the potentiometer, it is recommended that the regulator be returned to NEI (either directly or through MKW Power Systems) where proper testing can be performed before the regulator is returned to the customer. Contact MKW Parts Department for assistance.

If a regulator is to be upgraded, we would also recommend replacement of the R5 (stability) potentiometer which is the same type as the R4 potentiometer except it is 100 ohms. This is strictly optional, no voltage regulator operability problems exist with the R5 potentiometer. The R5 potentiometer is CTS p/n 115R101A (NEI p/n 01070) and its replacement is Maury p/n 50-M123-101.

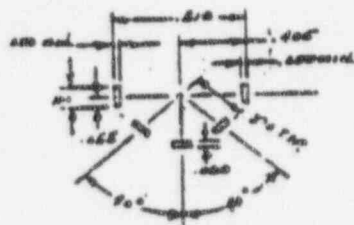
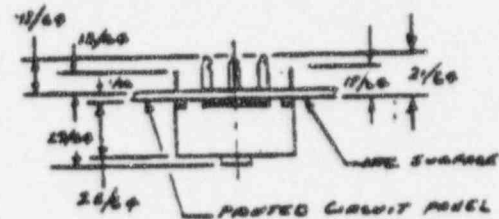
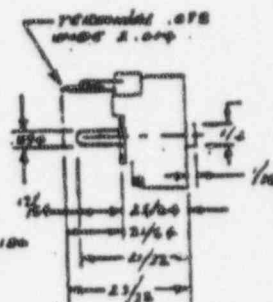
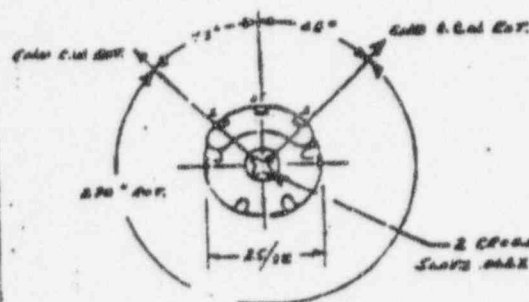
Apr-01-96 11:58

REPORT NO. 10CFR21-0073

PAGE: 4 OF 5

EXHIBIT 1  
(1 page attached)

VOLTAGE ADJUST POTENTIOMETER "R4"  
NEI DRAWING A-01068  
CHICAGO TELEPHONE COMPANY POTENTIOMETER #115R251A



NOTES:

1. WATTAGE RATING: 150W ± 20% 2 WATT
2. APPROVED PART:  
CHICAGO TELEPHONE SUPPLY  
P/N 115R21A
3. FULLY ENCLOSED CONSTRUCTION
4. LINEAR TAPER

(WIRE 0.2 OUNCE)

"A" IN FIG. DESIGNATES ±10% ACCURACY  
(NOT 50%)

TITLE RESISTOR, VARIABLE, WIREWOUND, 250Ω			
DATE			
DESIGNED BY	DATE	ENGINEER BY	DATE
J.S.	11-21-73		
CHECKED BY		DATE	SCALE
DRAWN BY		DATE	SCALE
DATE		BY	

DO NOT SCALE. ALL DIMENSIONS ARE IN INCHES.  
TOLERANCE UNLESS OTHERWISE SPECIFIED.

**EP PORTEC inc**  
Electric Products Controls Div.

A 01068

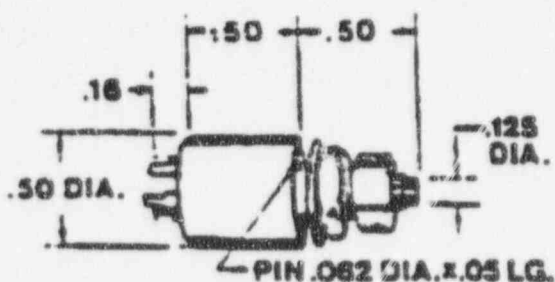
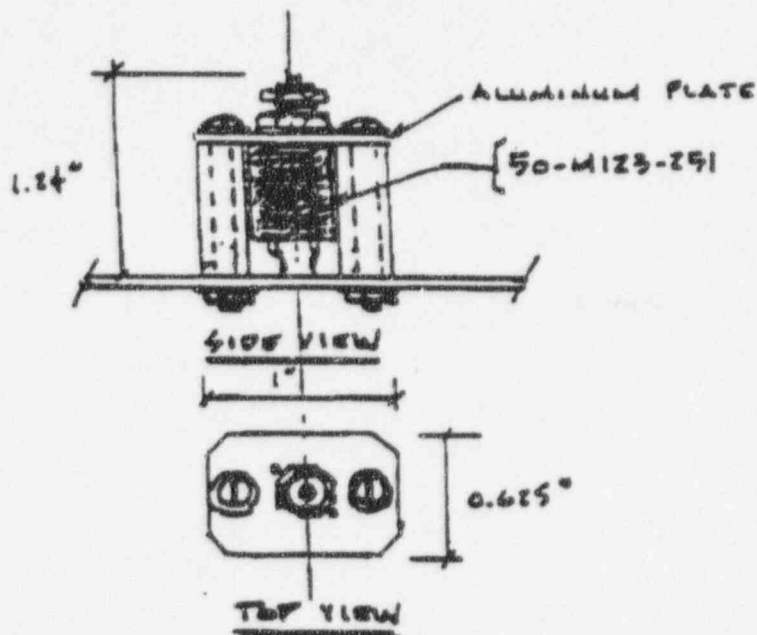
Apr-01-96 11:59

REPORT NO. 10CFR21-0073  
PAGE: 5 OF 5

EXHIBIT 2  
(1 page attached)

"R4" REPLACEMENT  
MAURY #50-M-123-251

REPLACEMENT FOR 115K251A USED IN VOLTAGE  
REGULATOR 72-13000-100 AS RESISTOR R4.



**50-M123  
WIREWOUND**

**MIL-TRIMMER  
WT = 0.2 OUNCE**

Rugged instrumentation trimmer potentiometer with shaft locking nut meets MIL-R-12934C. Extensively used in critical military aircraft applications where small size and reliability are essential. 1.5 Watts at 85 degree C; special 0.5 Watt at 150 degree C.