

Part 21 (PAR)

Event # 52756

Rep Org: CURTISS WRIGHT FLOW CONTROL CO.	Notification Date / Time: 05/15/2017 18:55 (EDT)
Supplier: CURTISS-WRIGHT	Event Date / Time: 03/16/2017 (CDT)
	Last Modification: 06/09/2017
Region: 1	Docket #:
City: HUNTSVILLE	Agreement State: Yes
County:	License #: N/A
State: AL	
NRC Notified by: TONY GILL	Notifications: MIKE ERNSTES R2DO
HQ Ops Officer: JEFF HERRERA	PART 21/50.55 REACTORS EMAIL
Emergency Class: NON EMERGENCY	
10 CFR Section:	
21.21(a)(2) INTERIM EVAL OF DEVIATION	

PART 21 - POTENTIAL DEFECT IN GRAYBOOT SOCKET CONTACTS

The following information was received via email:

"This letter is issued to provide an interim notification of a potential defect in certain lots of Grayboot socket contacts supplied with EQ qualified Grayboot Connector Kits. On March 16, 2017, Curtiss-Wright, Nuclear Division, Huntsville Operations was contacted by Georgia Power Vogtle Nuclear Power Plant concerning a potential defect where the socket contact tines were in a relaxed state.

"Although we have completed some testing and verification activities, additional testing is in progress now and will provide necessary information to complete our evaluation. Current testing will be completed and final conclusions made by May 31, 2017.

"At this time, based on test results, evaluations and operating experience, Curtiss Wright is confident that any potentially affected Grayboot Assemblies will continue to perform their intended safety functions. As such, if the final recommendation is to replace the potentially defective socket contact, this can be accomplished during subsequent routine maintenance activities.

"This notification is being made to comply with 60 day interim reporting requirements as defined in 10 CFR 21.21(a)(2).

"For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558)."

*** UPDATE PROVIDED BY TONY GILL TO JEFF ROTTON AT 1813 EDT ON 05/31/2017 ***

1E19
NRR

The following information was provided via email:

"This letter is issued to provide final findings associated with a potential defect concerning GRAYBOOT socket contacts. This issue was initially identified in an interim report dated May 15, 2017. As documented previously, Curtiss-Wright, Nuclear Division, Huntsville Operations was contacted by Georgia Power Vogtle Nuclear Power Plant on March 16, 2017 concerning a potential defect wherein GRAYBOOT socket contact tines were in a relaxed state. This notification of a potential defect concerns model GB-1 GRAYBOOT kits supplied with two-tined, silver-plated, 12-14 AWG socket contacts.

"Based upon this scope, potentially affected kits/parts are: 1. GB-1(12-14) GRAYBOOT kits, 2. GB-1 (12-14/ 16-18) GRAYBOOT kits, and 3. GB-1-6 GRAYBOOT 12-14 AWG socket contacts.

"This issue does not affect the following: 1. Any GRAYBOOT 'A' kits/parts, 2. Any model GB-2 or GB-3 GRAYBOOT kits/parts, or 3. Any model GB-1 GRAYBOOT kits/parts with 16-18 AWG socket contacts.

"Our evaluation is documented in Report No. EGS-TR-880708-15 and is available for review at our facility in Huntsville, AL. The results identify the most likely root cause is improper heat treating of the socket contacts during manufacturing. Additional testing and analysis was performed to confirm that any affected GRAYBOOT assemblies can still perform their safety-related function and do not present a substantial safety hazard .

"The findings outlined in Report No. EGS-TR-880708-15 provide a high level of confidence that affected GRAYBOOT assemblies do not present a substantial safety hazard. This position is further validated by the lack of negative operating experience over the last 20 plus years from properly installed GRAYBOOT assemblies. However, this condition causes the contact to be more susceptible to damage from handling during connection and disconnection, and therefore the following actions are recommended:

"1. Any affected sockets in inventory should be replaced. Affected sockets in service should be replaced during routine maintenance activities.

OR

"2. In lieu of replacement, it is acceptable to perform the following [steps 1-3] to confirm a separation force greater than 0.19 lbs. This is consistent with existing Curtiss-Wright dedication acceptance criteria. It is recommended that any contacts not meeting this criteria be replaced. 1. Crimp a spare pin contact to an appropriate piece of wire. 2. Connect a force gage or 0.19 lbs. of static weight to the opposite end of the wire. 3. Insert the pin into the socket and confirm that the pin does not separate from the socket under a minimum load of 0.19 lbs.

"To confirm this deviation is not present in existing inventory or in future purchased lots, the following corrective actions have been or will be implemented by Curtiss-Wright: 1. Micro hardness testing was performed on all socket contact lots in inventory to verify their acceptability. Results confirmed that all lots were acceptable. 2. Acceptance criteria for dedication of socket contacts will be revised to include verification of acceptable contact hardness. This corrective action will be completed by June 9, 2017. No dedication of socket contacts will be performed until this corrective action is complete.

"A list of affected utilities and associated purchase orders is being developed and will be complete and submitted by June 9, 2017.

"For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558)."

Notified R1DO (Bower), R2DO (Shaeffer), R3DO (Daley), R4DO (O'Keefe) and Part 21 Operating Reactors Group via email.

*** UPDATE AT 1859 EDT ON 06/09/17 FROM TONY GILL TO JEFF HERRERA ***

The following update was received via email:

"On May 31, 2017, Curtiss-Wright, Nuclear Division, Huntsville Operations issued a letter documenting final findings regarding a potential defect concerning model GB-1 GRAYBOOT kits supplied with two-tined, silver-plated, 12-14 AWG contacts. Please find that letter attached.

"Pursuant to the attached letter, please find attached a list of affected purchase orders.

"For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558).

List of Sites Affected:

Arkansas Nuclear 1

Bruce Nuclear Power Development

Brunswick

Callaway

Calvert Cliffs

Clinton

Columbia

Cooper

CTEAM/CRIT

Davis-Besse

Diablo Canyon

Duane Arnold

Farley

FMM

Fort Calhoun

Gentilly

Ginna

Haddam Neck

Harris

Indian Point

Kewaunee

La Salle

Limerick

Millstone

Nine Mile Point

North Anna

Oconee

Oyster Creek

Peach Bottom

Pilgrim

Point Beach

Prairie Island

Quad Cities

River Bend

Saint Lucie

San Onofre

Sizewell B

South Texas

Summer

Turkey Point

Vermont Yankee

Vogtle

Waterford

Wolsong

Zion

Notified R1DO(Welling), R2DO(Suggs), R3DO(Orlikowski), R4DO(Rollins), Part-21 Reactors (via email).



Nuclear Division
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(File No.: CWNHuntsville10CFR21-2017-01)

June 9, 2017

To whom it may concern:

On May 31, 2017, Curtiss-Wright, Nuclear Division, Huntsville Operations issued a letter documenting final findings regarding a potential defect concerning model GB-1 GRAYBOOT kits supplied with two-tined, silver-plated, 12-14 AWG contacts. Please find that letter attached.

Pursuant to the attached letter, please find attached a list of affected purchase orders.

For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558).

Sincerely,

Samuel Bledsoe
Engineering Manager, EGS Products
Curtiss-Wright Nuclear Division
125 West Park Loop NW, Huntsville, AL 35806
sbledsoe@curtisswright.com

Tony Gill
Quality Assurance Manager, EGS and Trentec
Curtiss-Wright Nuclear Division
125 West Park Loop NW, Huntsville, AL 35806
tgill@curtisswright.com

Customer	Plant	Customer PO	P.O. Line Item	Part Number	QTY	Date Shipped
Entergy Operation Inc	Arkansas Nuclear 1	971676	1	GB-1 (12-14) (16-18)	25	5/13/1997
Entergy Operation Inc	Arkansas Nuclear 1	P0971977	1	GB-1 (12-14) (16-18)	80	5/20/1997
Entergy Operation Inc	Arkansas Nuclear 1	973316	2	GB-1 (12-14)	89	12/18/1997
Entergy Operation Inc	Arkansas Nuclear 1	980809	1	GB-1 (12-14)	2	3/17/1998
Entergy Operation Inc	Arkansas Nuclear 1	982118	2	GB-1 (12-14) (16-18)	13	8/6/1998
Entergy Operation Inc	Arkansas Nuclear 1	982118	1	GB-1 (12-14)	75	8/9/1998
Entergy Operation Inc	Arkansas Nuclear 1	983003	1	GB-1 (12-14) (16-18)	9	11/10/1998
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	10	GB-1(12-14)	32	1/26/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	22	GB-1(12-14/16-18)	100	1/26/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	10	GB-1(12-14)	146	2/24/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	12	GB-1-6	20	2/24/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	22	GB-1(12-14/16-18)	50	2/24/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO951943	3	GB-1-6	28	4/27/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO951943	4	GB-1(12-14)	18	4/27/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO951943	5	GB-1(12-14/16-18)	3	4/27/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO951943	3	GB-1-6	1	5/3/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO946758	25	GB-1(12-14/16-18)	52	6/27/1995
Entergy Operation Inc	Arkansas Nuclear 1	PO53675	1	GB-1(12-14)	12	8/16/1995
Entergy Operation Inc	Arkansas Nuclear 1	991735	2	GB-1 (12-14)	11	9/1/1999
Entergy Operation Inc	Arkansas Nuclear 1	991728	1	GB-1 (12-14) (16-18)	30	9/1/1999
Entergy Operation Inc	Arkansas Nuclear 1	991735401	2	GB-1 (12-14)	12	9/14/1999
Entergy Operation Inc	Arkansas Nuclear 1	992180	1	GB-1 (12-14)	3	9/21/1999
Entergy Operation Inc	Arkansas Nuclear 1	933700	2	GB-1(12-14/16-18)	6	8/26/1993
Entergy Operation Inc	Arkansas Nuclear 1	941819	5	GB-1-6	100	3/23/1994
Ontario Hydro	Bruce Nuclear Power Development	00016226	1	GB-1 (12-14)	90	3/24/1999
OPG	Bruce Nuclear Power Development	00034012	1	GB-1 (12-14)	35	9/29/1999
OPG	Bruce Nuclear Power Development	00036194	1	GB-1 (12-14)	80	11/4/1999
Carolina Power & Light	Brunswick	1026686	1	GB-1 (12-14) (16-18)	22	3/1/2000
Carolina Power & Light	Brunswick	1010252	1	GB-1 (12-14) (16-18)	69	9/8/1999
Union Electric Co.	Callaway	095250	1	GB-1 (12-14)	10	10/29/1998
Union Electric Co.	Callaway	095467401	2	GB-1 (12-14)	20	5/11/1999
Union Electric Co.	Callaway	092163	1	GB-1(12-14/16-18)	10	8/20/1993
Baltimore Gas & Electric	Calvert Cliffs	93888GX	1	GB-1(12-14/16-18)	100	10/25/1994
Baltimore Gas & Electric	Calvert Cliffs	97431GX	1	GB-1(12-14)	40	1/18/1995
Baltimore Gas & Electric	Calvert Cliffs	10458GX	1	GB-1(12-14/16-18)	50	3/31/1995
Baltimore Gas & Electric	Calvert Cliffs	8013LNP	1	GB-1-6	7	7/7/1995
Baltimore Gas & Electric	Calvert Cliffs	13435GX	1	GB-1(12-14)	40	1/26/1996
Baltimore Gas & Electric	Calvert Cliffs	13487GX	1	GB-1(12-14/16-18)	200	3/14/1996
Illinois Power	Clinton	708304 R1	1	GB-1-6	3	8/31/2000
Washington Public Power	Columbia	00303429	1	GB-1 (12-14)	76	1/5/1999
Nebraska Public Power District	Cooper	001283	1	GB-1 (12-14)	200	4/25/2000
Nebraska Public Power District	Cooper	001283	1	GB-1 (12-14)	194	4/26/2000
Nebraska Public Power District	Cooper	001283	1	GB-1 (12-14)	6	5/5/2000
Commonwealth Edison	CTEAM/CRIT	49C586	1	GB-1 (12-14) (16-18)	68	3/25/1997

Commonwealth Edison	CTEAM/CRIT	43D501	1	GB-1 (12-14)	75	5/16/1997
Commonwealth Edison	CTEAM/CRIT	44E330	1	GB-1 (12-14) (16-18)	100	9/23/1997
Commonwealth Edison	CTEAM/CRIT	44E846	1	GB-1 (12-14) (16-18)	120	9/30/1997
Commonwealth Edison	CTEAM/CRIT	45E513	1	GB-1-6	11	10/14/1997
Commonwealth Edison	CTEAM/CRIT	45E082	2	GB-1 (12-14)	45	11/19/1997
Commonwealth Edison	CTEAM/CRIT	49E479	2	GB-1-6	7	12/5/1997
Commonwealth Edison	CTEAM/CRIT	46F747	1	GB-1 (12-14) (16-18)	50	2/5/1998
Commonwealth Edison	CTEAM/CRIT	44G211	1	GB-1-6	12	5/6/1998
Commonwealth Edison	CTEAM/CRIT	46E072	2	GB-1-6	15	11/6/1997
Commonwealth Edison	CTEAM/CRIT	352419xx25	1	GB-1(12-14/16-18)	30	1/19/1995
Commonwealth Edison	CTEAM/CRIT	352419xx25	1	GB-1(12-14/16-18)	19	1/24/1995
Commonwealth Edison	CTEAM/CRIT	352419xx26	1	GB-1(12-14/16-18)	34	2/2/1995
Commonwealth Edison	CTEAM/CRIT	448886	1	GB-1(12-14)	44	10/19/1995
Commonwealth Edison	CTEAM/CRIT	4Z0584	1	GB-1(12-14)	50	12/5/1995
Commonwealth Edison	CTEAM/CRIT	NZ2604	1	GB-1(12-14/16-18)	50	12/19/1995
Commonwealth Edison	CTEAM/CRIT	4Z5476	1	GB-1(12-14/16-18)	50	1/24/1996
Commonwealth Edison	CTEAM/CRIT	4Z8411	1	GB-1(12-14)	30	2/28/1996
Toledo Edison Co.	Davis-Besse	S083521D98	1	GB-1 (12-14) (16-18)	12	2/13/1998
Toledo Edison Co.	Davis-Besse	5087398098	1	GB-1 (12-14)	10	12/26/1998
First Energy	Davis-Besse	7004672	2	GB-1 (12-14) (16-18)	13	4/8/1999
Toledo Edison Co.	Davis-Besse	S083836D98	2	GB-1 (12-14)	8	3/2/1998
Toledo Edison Co.	Davis-Besse	S082579097	4	GB-1 (12-14)	28	11/26/1997
Toledo Edison Co.	Davis-Besse	7034385	1	GB-1 (12-14)	29	7/6/2000
Toledo Edison Co.	Davis-Besse	7017255	2	GB-1 (12-14)	26	10/12/1999
Pacific Gas & Electric Company	Diablo Canyon	073636	3	GB-1(12-14/16-18)	67	10/28/1994
Pacific Gas & Electric Company	Diablo Canyon	073636	1	GB-1(12-14)	47	10/28/1994
Pacific Gas & Electric Company	Diablo Canyon	101884	1	GB-1 (12-14)	13	1/10/2000
Pacific Gas & Electric Company	Diablo Canyon	063063	1	GB-1(12-14)	15	5/13/1993
Pacific Gas & Electric Company	Diablo Canyon	063615	1	GB-1(12-14)	20	6/15/1993
IES Utilities	Duane Arnold	T28725	3	GB-1 (12-14)	7	3/30/1998
IES Utilities	Duane Arnold	T27781	1	GB-1 (12-14)	10	5/4/1998
IES Utilities	Duane Arnold	T28269	1	GB-1 (12-14) (16-18)	4	5/29/1998
IES Utilities	Duane Arnold	T28842	1	GB-1 (12-14) (16-18)	6	6/4/1998
IES Utilities	Duane Arnold	T01038	1	GB-1(12-14/16-18)	3	2/13/1995
IES Utilities	Duane Arnold	T01989	1	GB-1(12-14)	10	3/22/1995
IES Utilities	Duane Arnold	T02663	1	GB-1(12-14/16-18)	6	3/31/1995
IES Utilities	Duane Arnold	T03388	1	GB-1(12-14/16-18)	10	5/3/1995
IES Utilities	Duane Arnold	T44924	1	GB-1 (12-14) (16-18)	7	12/28/1999
Iowa Electric Light & Power	Duane Arnold	S86521	1	GB-1(12-14/16-18)	7	4/11/1994
Alabama Power	Farley	QP950421	2	GB-1(12-14)	200	5/8/1995
Alabama Power	Farley	QP950816	6	GB-1-6	30	9/29/1995
Alabama power	Farley	QP000254	1	GB-1 (12-14)	8	3/16/2000
Alabama power	Farley	QP000442	1	GB-1 (12-14)	6	4/5/2000
Detroit Edison	FMM	NR-326249	4	GB-1-6	30	12/4/1997
OPPD	Fort Calhoun	C323134	1	GB-1 (12-14)	4	10/27/1997
OPPD	Fort Calhoun	C189480Q	1	GB-1(12-14)	6	3/9/1995
Hydro Quebec	Gentilly	65362-98-137	2	GB-1 (12-14)	10	5/22/1998

Rochester Gas & Electric Co.	GINNA	NQ14581AJW	1	GB-1(12-14/16-18)	6	4/20/1995
Connecticut Yankee	Haddam Neck	960436	1	GB-1(12-14/16-18)	6	4/28/1994
Carolina Power & Light	Harris	1029907	1	GB-1 (12-14) (16-18)	8	4/13/2000
Carolina Power & Light	Harris	7M4198AP	2	GB-1(12-14)	160	4/26/1994
Carolina Power & Light	Harris	7M4198AP	4	GB-1(12-14/16-18)	160	4/26/1994
Consolidated Edison	Indian Point	0513887	1	GB-1 (12-14)	20	5/5/2000
Consolidated Edison	Indian Point	0513887	2	GB-1 (12-14) (16-18)	55	5/5/2000
Con Edison	Indian Point	7521628	1	GB-1 (12-14) (16-18)	50	5/29/1997
Consolidated Edison	Indian Point	4550059	2	GB-1(12-14/16-18)	250	11/10/1994
Wisconsin Public Service	Kewaunee	241104	1	GB-1 (12-14) (16-18)	10	10/9/1998
Wisconsin Public Service	Kewaunee	258414	1	GB-1 (12-14)	15	2/25/2000
Wisconsin Public Service	Kewaunee	259443	5	GB-1-6	10	2/29/2000
Commonwealth Edison	La Salle	45H618	1	GB-1 (12-14) (16-18)	6	10/29/1998
Commonwealth Edison	La Salle	46H608	1	GB-1 (12-14) (16-18)	6	11/9/1998
Commonwealth Edison	La Salle	42H119	1	GB-1 (12-14) (16-18)	4	2/5/1999
Commonwealth Edison	La Salle	45I562	1	GB-1 (12-14)	5	4/1/1999
Commonwealth Edison	La Salle	00012030	1	GB-1 (12-14)	27	5/22/2000
Commonwealth Edison	La Salle	48I919	1	GB-1 (12-14) (16-18)	50	6/9/1999
Commonwealth Edison	La Salle	40J722	1	GB-1 (12-14)	4	7/6/1999
Commonwealth Edison	La Salle	41J382	1	GB-1 (12-14)	13	7/14/1999
Commonwealth Edison	La Salle	42J020	1	GB-1 (12-14) (16-18)	2	8/12/1999
Commonwealth Edison	La Salle	42J554	1	GB-1 (12-14)	18	8/19/1999
Commonwealth Edison	La Salle	42J668	1	GB-1 (12-14)	4	8/23/1999
Commonwealth Edison	La Salle	42J553	1	GB-1 (12-14)	10	8/24/1999
Commonwealth Edison	La Salle	42J553	2	GB-1 (12-14) (16-18)	18	8/24/1999
Commonwealth Edison	La Salle	42J663	1	GB-1 (12-14) (16-18)	140	9/1/1999
Commonwealth Edison	La Salle	00001590	1	GB-1 (12-14)	48	9/2/1999
Commonwealth Edison	La Salle	4Q7910	1	GB-1(12-14/16-18)	60	7/9/1993
Commonwealth Edison	La Salle	352419XX16	1	GB-1(12-14/16-18)	70	4/27/1994
Commonwealth Edison	La Salle	352419XX21	1	GB-1(12-14/16-18)	20	8/17/1994
PECO Energy	Limerick	90 265228 (R348048)	1	GB-1 (12-14)	40	1/14/1998
PECO Energy	Limerick	90265228 (R348081)	2	GB-1 (12-14) (16-18)	3	2/11/1999
PECO Energy	Limerick	90 265228 (R348089)	4	GB-1 (12-14) (16-18)	3	5/25/1999
PECO Energy	Limerick	LS697867	1	GB-1(12-14)	60	1/20/1995
PECO Energy	Limerick	LS604365	1	GB-1(12-14)	25	10/25/1995
PECO Energy	Limerick	LS604247	2	GB-1(12-14/16-18)	3	10/26/1995
PECO Energy	Limerick	90 265228 (R348089)	5	GB-1 (12-14)	25	5/25/1999
PECO Energy	Limerick	90 177509 (R348024)	1	GB-1 (12-14) (16-18)	5	8/7/2000
PECO Energy	Limerick	90 177509 (R348002)	6	GB-1 (12-14) (16-18)	4	2/23/2000
Northeastern Utilities	Millstone	02023930	1	GB-1 (12-14) (16-18)	7	5/1/1997
Northeastern Utilities	Millstone	02027419	1	GB-1 (12-14) (16-18)	5	6/2/1997
Northeastern Utilities	Millstone	020088035	1	GB-1 (12-14) (16-18)	101	12/3/1998
Northeastern Utilities	Millstone	02093147	3	GB-1 (12-14) (16-18)	50	2/10/1999
Northeastern Utilities	Millstone	953973	1	GB-1(12-14/16-18)	9	1/27/1995
Northeastern Utilities	Millstone	953762	1	GB-1(12-14/16-18)	10	1/27/1995
Northeastern Utilities	Millstone	952322	3	GB-1(12-14/16-18)	15	12/9/1993
Niagra Mohawk	Nine Mile Point	99-22657	1	GB-1 (12-14) (16-18)	100	4/10/1999

Niagra Mohawk	Nine Mile Point	00-29422	1	GB-1 (12-14) (16-18)	100	5/22/2000
PP&L	North Anna	7-17581-1	3	GB-1-6	34	4/21/1997
Virginia Power	North Anna	CNT566889	1	GB-1 (12-14)	30	3/12/1998
Virginia Power	North Anna	CNT566889	2	GB-1 (12-14) (16-18)	60	3/12/1998
Virginia Power	North Anna	CNT572991	1	GB-1 (12-14) (16-18)	45	8/3/1998
Virginia Power	North Anna	CNT574182	6	GB-1-6	10	8/14/1998
Virginia Power	North Anna	CNT577217	1	GB-1 (12-14) (16-18)	4	11/10/1998
Virginia Power	North Anna	45024036	1	GB-1 (12-14) (16-18)	60	9/10/1999
Virginia Power	North Anna	45025273	1	GB-1 (12-14) (16-18)	10	9/30/1999
Duke Power	Oconee	ON26968	1	GB-1 (12-14) (16-18)	150	9/3/1998
Duke Power	Oconee	ON31220	1	GB-1 (12-14) (16-18)	150	4/23/1999
Duke Power	Oconee	ON31878	1	GB-1 (12-14) (16-18)	17	5/26/1999
Duke Power	Oconee	ON6662	1	GB-1(12-14)	30	12/19/1995
Duke Power	Oconee	ON31878	1	GB-1 (12-14) (16-18)	133	5/26/1999
Duke Power	Oconee	F13268-K3	2	GB-1(12-14/16-18)	12	3/25/1994
Duke Power	Oconee	F13268-K3	2	GB-1(12-14/16-18)	38	4/6/1994
Duke Power	Oconee	F23187-K3	1	GB-1(12-14)	20	5/19/1994
Duke Power	Oconee	F23505-K3	1	GB-1(12-14/16-18)	20	5/24/1994
Duke Power	Oconee	F23187-K3	1	GB-1(12-14)	20	5/31/1994
Duke Power	Oconee	F23187-K3	1	GB-1(12-14)	35	6/15/1994
Duke Power	Oconee	F31204-K3	1	GB-1(12-14/16-18)	70	8/22/1994
Duke Power	Oconee	F31204-K3	2	GB-1(12-14/16-18)	20	8/22/1994
GPU Nuclear	Oyster Creek	0754626	1	GB-1 (12-14)	3	10/21/1999
Phildephia Electric Co.	Peach Bottom	PL21.5228 (R387025)	1	GB-1 (12-14)	75	5/2/1997
Phildephia Electric Co.	Peach Bottom	PL265228 (R387041)	4	GB-1 (12-14) (16-18)	35	7/30/1997
Phildephia Electric Co.	Peach Bottom	PL265228 (R387043)	1	GB-1 (12-14)	100	9/11/1997
Phildephia Electric Co.	Peach Bottom	PL265228	1	GB-1 (12-14)	35	10/29/1997
Phildephia Electric Co.	Peach Bottom	90265228 (R387050)	1	GB-1 (12-14) (16-18)	60	2/26/1998
Phildephia Electric Co.	Peach Bottom	90265228 (R387050)	2	GB-1 (12-14)	30	2/26/1998
Phildephia Electric Co.	Peach Bottom	90265228 (R387072)	1	GB-1 (12-14) (16-18)	40	8/14/1998
Phildephia Electric Co.	Peach Bottom	90 265228 (R387075)	1	GB-1 (12-14) (16-18)	50	9/22/1998
Phildephia Electric Co.	Peach Bottom	90 265228 (R387084)	1	GB-1 (12-14) (16-18)	25	3/30/1999
Phildephia Electric Co.	Peach Bottom	90 265228 (R387086 Rev 1)	1	GB-1 (12-14)	75	5/11/1999
Phildephia Electric Co.	Peach Bottom	90 265228 (R387086 Rev 1)	3	GB-1 (12-14) (16-18)	20	5/11/1999
Phildephia Electric Co.	Peach Bottom	BW695498	1	GB-1(12-14/16-18)	10	11/7/1994
Phildephia Electric Co.	Peach Bottom	BW695882	1	GB-1(12-14)	10	12/7/1994
Phildephia Electric Co.	Peach Bottom	BW697356	1	GB-1(12-14/16-18)	20	1/18/1995
Phildephia Electric Co.	Peach Bottom	BW697587	3	GB-1(12-14/16-18)	8	1/25/1995
Phildephia Electric Co.	Peach Bottom	BW697990	1	GB-1(12-14)	20	3/1/1995
Phildephia Electric Co.	Peach Bottom	BW697990	2	GB-1(12-14/16-18)	40	3/1/1995
Phildephia Electric Co.	Peach Bottom	BW699130-NO	11	GB-1(12-14/16-18)	26	4/5/1995
Phildephia Electric Co.	Peach Bottom	BW698581	2	GB-1(12-14)	40	4/25/1995
Phildephia Electric Co.	Peach Bottom	BW600213	9	GB-1-6	20	6/12/1995
Phildephia Electric Co.	Peach Bottom	CABW602002	1	GB-1(12-14)	53	8/2/1995
Phildephia Electric Co.	Peach Bottom	BW603626	2	GB-1(12-14/16-18)	48	10/11/1995
Phildephia Electric Co.	Peach Bottom	BW605227	5	GB-1(12-14)	27	1/24/1996
Phildephia Electric Co.	Peach Bottom	BW606146	5	GB-1(12-14/16-18)	78	2/23/1996

Phildephia Electic Co.	Peach Bottom	90265228 (R387086 Rev 1)	1	GB-1 (12-14)	75	5/13/1999
Phildephia Electic Co.	Peach Bottom	90265228 (R387086 Rev 1)	3	GB-1 (12-14) (16-18)	20	5/13/1999
Phildephia Electic Co.	Peach Bottom	90265228 (R387110)	1	GB-1 (12-14)	75	12/28/1999
Phildephia Electic Co.	Peach Bottom	90265228 (R387110)	2	GB-1 (12-14) (16-18)	100	12/28/1999
Phildephia Electic Co.	Peach Bottom	90 177509 (R387004)	1	GB-1 (12-14) (16-18)	100	4/5/2000
Phildephia Electic Co.	Peach Bottom	90 265228 (R387090)	1	GB-1 (12-14) (16-18)	50	6/23/1999
Phildephia Electic Co.	Peach Bottom	BW234815	1	GB-1(12-14)	30	10/15/1993
Phildephia Electic Co.	Peach Bottom	BW237486	1	GB-1(12-14/16-18)	30	6/29/1994
Phildephia Electic Co.	Peach Bottom	BW693640	1	GB-1(12-14/16-18)	20	8/24/1994
Phildephia Electic Co.	Peach Bottom	BW694332	1	GB-1(12-14/16-18)	40	9/15/1994
Boston Edison	Pilgrim	STR141835	2	GB-1 (12-14) (16-18)	3	5/23/1997
Wisconsin Electric	Point Beach	4500166585	4	GB-1-6	10	5/6/1998
Wisconsin Electric	Point Beach	4500232423	6	GB-1-6	10	5/11/1999
Wisconsin Electric	Point Beach	4500271870	2	GB-1-6	12	10/18/1999
Northern States Power	Prairie Island	PJ233650	4	GB-1-6	60	10/11/1995
Northern States Power Company	Prairie Island	PF9679SQ	11	GB-1-6	40	5/13/1994
Commonwealth Edison	Quad Cities	00014458	1	GB-1-6	54	7/10/2000
Commonwealth Edison	Quad Cities	41J116	1	GB-1 (12-14) (16-18)	3	7/15/1999
Commonwealth Edison	Quad Cities	352419XX20	1	GB-1(12-14/16-18)	3	8/18/1994
Entergy operations	River Bend	RB990881	1	GB-1 (12-14)	20	4/26/1999
Entergy operations	River Bend	HQY00321	1	GB-1 (12-14) (16-18)	5	3/1/2000
Entergy operations	River Bend	HQY00552	1	GB-1 (12-14) (16-18)	19	3/8/2000
Entergy operations	River Bend	HQY00825	1	GB-1 (12-14) (16-18)	24	4/5/2000
Entergy operations	River Bend	RB991637	1	GB-1 (12-14) (16-18)	25	10/19/1999
Entergy operations	River Bend	HQ990185	1	GB-1 (12-14)	10	11/9/1999
Florida Power & Light	Saint Lucie	00028028	2	GB-1 (12-14)	4	11/14/1997
Florida Power & Light	Saint Lucie	00028028	3	GB-1 (12-14) (16-18)	4	11/14/1997
Florida Power & Light	Saint Lucie	28412	1	GB-1 (12-14) (16-18)	8	11/25/1997
Florida Power & Light	Saint Lucie	28354	2	GB-1 (12-14)	2	11/25/1997
Florida Power & Light	Saint Lucie	00030867	1	GB-1 (12-14)	6	4/9/1998
Florida Power & Light	Saint Lucie	00032301	1	GB-1 (12-14) (16-18)	10	7/8/1998
Florida Power & Light	Saint Lucie	00032301	2	GB-1 (12-14)	6	7/8/1998
Florida Power & Light	Saint Lucie	00032955	1	GB-1 (12-14)	2	8/14/1998
Florida Power & Light	Saint Lucie	00032955	2	GB-1 (12-14) (16-18)	19	8/14/1998
Florida Power & Light	Saint Lucie	00038286	1	GB-1 (12-14) (16-18)	14	6/29/1999
Florida Power & Light	Saint Lucie	00039920	1	GB-1 (12-14)	4	9/20/1999
Florida Power & Light	Saint Lucie	00039676	1	GB-1 (12-14) (16-18)	23	9/27/1999
Florida Power & Light	Saint Lucie	00040230	1	GB-1 (12-14) (16-18)	5	9/30/1999
Southern California Edison	San Ofore	6E237013	2	GB-1 (12-14) (16-18)	9	4/23/1997
Southern California Edison	San Ofore	6J219021 C/O 1	4	GB-1 (12-14) (16-18)	20	2/2/1999
Southern California Edison	San Ofore	6L230024	4	GB-1 (12-14) (16-18)	5	4/11/2000
Nuclear Electric	Sizewell B	LT028731B00	1	GB-1 (12-14)	25	2/2/1999
Houston Lighting & Power	South Texas	QS0008518	1	GB-1 (12-14) (16-18)	50	6/3/1997
Houston Lighting & Power	South Texas	QS0010308	1	GB-1 (12-14) (16-18)	55	11/18/1998
Houston Lighting & Power	South Texas	QS0010535	1	GB-1 (12-14) (16-18)	10	2/9/1999
Houston Lighting & Power	South Texas	QS0010817	1	GB-1 (12-14)	36	3/19/1999
Houston Lighting & Power	South Texas	QS0010891	1	GB-1 (12-14) (16-18)	50	4/6/1999

Houston Lighting & Power	South Texas	QS0006105	1	GB-1(12-14)	18	4/28/1995
Houston Lighting & Power	South Texas	QS0006105	3	GB-1(12-14/16-18)	18	4/28/1995
Houston Lighting & Power	South Texas	QS0006750	1	GB-1(12-14)	50	10/9/1995
Houston Lighting & Power	South Texas	QS0010982	1	GB-1 (12-14) (16-18)	6	5/28/1999
Houston Lighting & Power	South Texas	11092	1	GB-1 (12-14) (16-18)	40	5/31/2000
Houston Lighting & Power	South Texas	QS0010982	1	GB-1 (12-14) (16-18)	34	5/28/1999
Houston Lighting & Power	South Texas	03836	1	GB-1 (12-14)	24	9/28/1999
Houston Lighting & Power	South Texas	05784	1	GB-1 (12-14)	25	11/23/1999
SCANA	Summer	SR70192	4	GB-1 (12-14) (16-18)	20	11/21/1997
South Carolina Elec & Gas	Summer	A659599	7	GB-1-6	10	11/4/1994
South Carolina Elec & Gas	Summer	A659599	10	GB-1(12-14/16-18)	10	11/4/1994
SCANA	Summer	NN706875	1	GB-1 (12-14) (16-18)	30	6/28/1999
South Carolina Elec & Gas	Summer	Q654209	4	GB-1(12-14/16-18)	140	8/15/1994
Florida Power & Light	Turkey Point	00023674	2	GB-1 (12-14)	5	7/7/1997
Florida Power & Light	Turkey Point	C94679 90572	1	GB-1(12-14/16-18)	14	11/21/1994
Florida Power & Light	Turkey Point	00039639	3	GB-1 (12-14)	4	9/27/1999
Florida Power & Light	Turkey Point	00039639	4	GB-1 (12-14) (16-18)	10	9/27/1999
Florida Power & Light	Turkey Point	00040524	1	GB-1 (12-14) (16-18)	9	10/1/1999
Florida Power & Light	Turkey Point	C9467990125	2	GB-1(12-14)	25	4/5/1994
Florida Power & Light	Turkey Point	C9467990125	3	GB-1(12-14/16-18)	25	4/5/1994
Florida Power & Light	Turkey Point	C9467990125	12	GB-1(12-14/16-18)	5	4/5/1994
Florida Power & Light	Turkey Point	C9467990210	2	GB-1-6	2	6/15/1994
Florida Power & Light	Turkey Point	C9467990210	7	GB-1(12-14/16-18)	12	6/15/1994
	Vermont Yankee	97-16345-00	1	GB-1 (12-14) (16-18)	30	8/8/1997
	Vermont Yankee	98-17258-03	1	GB-1 (12-14) (16-18)	10	6/2/1998
	Vermont Yankee	98-17258-03	3	GB-1-6	10	6/2/1998
	Vermont Yankee	94-10555-000	2	GB-1(12-14/16-18)	8	1/18/1995
	Vermont Yankee	95-12470-00	1	GB-1(12-14/16-18)	10	7/12/1995
Georgia Power	Vogtle	70315930000	5	GB-1-6	50	9/10/1997
Georgia Power	Vogtle	70321560000	6	GB-1-6	20	10/21/1997
Georgia Power	Vogtle	7033766	1	GB-1 (12-14)	50	1/23/1998
Georgia Power	Vogtle	7033766	2	GB-1 (12-14) (16-18)	50	1/23/1998
Georgia Power	Vogtle	7034866	1	GB-1 (12-14)	20	3/30/1998
Georgia Power	Vogtle	7037560	2	GB-1 (12-14)	60	10/12/1998
Georgia Power	Vogtle	70235510000	1	GB-1(12-14/16-18)	17	8/29/1995
Georgia Power	Vogtle	70245540000	4	GB-1(12-14/16-18)	50	12/27/1995
Georgia Power	Vogtle	70254540000	2	GB-1-6	20	3/14/1996
Georgia Power	Vogtle	7040389	2	GB-1 (12-14)	90	5/13/1999
Georgia Power	Vogtle	7043800	1	GB-1 (12-14)	58	12/28/1999
Georgia Power	Vogtle	7043492	1	GB-1-6	10	1/21/2000
Georgia Power	Vogtle	7045848	1	GB-1 (12-14) (16-18)	29	7/31/2000
Georgia Power	Vogtle	7045848	2	GB-1 (12-14)	51	7/31/2000
Georgia Power	Vogtle	70156150000	1	GB-1(12-14/16-18)	50	8/4/1993
Georgia Power	Vogtle	70181300000	1	GB-1(12-14/16-18)	34	5/16/1994
Georgia Power	Vogtle	7042934	1	GB-1 (12-14)	29	11/4/1999
Entergy Operations	Waterford	WPO67677	1	GB-1 (12-14) (16-18)	50	4/3/1997
Entergy Operations	Waterford	WP981191	1	GB-1 (12-14) (16-18)	64	9/15/1998

Entergy Operations	Waterford	WP990088	1	GB-1 (12-14) (16-18)	44	2/23/1999
Entergy Operations	Waterford	WAY02014	2	GB-1 (12-14) (16-18)	5	5/5/2000
KEPCO	Wolsong	86PN60400-005	3052	GB-1 (12-14)	6	1/15/1998
KEPCO	Wolsong	86PN60400-005	156	GB-1-6	6	1/15/1998
KEPCO	Wolsong	86PN60400-005	4052	GB-1 (12-14)	6	1/15/1998
Commonwealth Edison	Zion	4Q2319	1	GB-1(12-14)	36	6/11/1993
Commonwealth Edison	Zion	4Q8334	1	GB-1(12-14)	12	7/2/1993
Commonwealth Edison	Zion	4R0088	1	GB-1(12-14)	12	7/27/1993
Commonwealth Edison	Zion	352419	1	GB-1(12-14)	19	10/1/1993
Ralph Hiller		S2169N C/O 1	2	GB-1 (12-14)	96	8/21/1998
AECL		810511	1	GB-1 (12-14) (16-18)	50	3/10/1999
Consolidated Edison		5525282	1	GB-1(12-14)	30	6/14/1995
Consolidated Edison		5525282	2	GB-1(12-14/16-18)	150	6/14/1995
Ralph Hiller		S23886N	2	GB-1 (12-14)	20	7/23/1999
Ralph Hiller		S23886N	2	GB-1 (12-14)	120	8/3/1999
Ralph Hiller		0000177	1	GB-1 (12-14)	24	12/1/1999



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(File No.: CWNHuntsville10CFR21-2017-01)

May 31, 2017

To whom it may concern:

This letter is issued to provide final findings associated with a potential defect concerning GRAYBOOT socket contacts. This issue was initially identified in an interim report dated May 15, 2017 (see attached). As documented previously, Curtiss-Wright, Nuclear Division, Huntsville Operations was contacted by Georgia Power Vogtle Nuclear Power Plant on March 16, 2017 concerning a potential defect wherein GRAYBOOT socket contact tines were in a relaxed state. This notification of a potential defect concerns model GB-1 GRAYBOOT kits supplied with two-tined, silver-plated, 12-14 AWG socket contacts.

Based upon this scope, potentially affected kits/parts are:

1. GB-1(12-14) GRAYBOOT kits
2. GB-1(12-14/16-18) GRAYBOOT kits
3. GB-1-6 GRAYBOOT 12-14 AWG socket contacts

This issue does **not** affect the following:

1. Any GRAYBOOT "A" kits/parts
2. Any model GB-2 or GB-3 GRAYBOOT kits/parts
3. Any model GB-1 GRAYBOOT kits/parts with 16-18 AWG socket contacts

Our evaluation is documented in Report No. EGS-TR-880708-15 and is available for review at our facility in Huntsville, AL. The results identify the most likely root cause is improper heat treating of the socket contacts during manufacturing. Additional testing and analysis was performed to confirm that any affected GRAYBOOT assemblies can still perform their safety-related function and do not present a substantial safety hazard.

The findings outlined in Report No. EGS-TR-880708-15 provide a high level of confidence that affected GRAYBOOT assemblies do not present a substantial safety hazard. This position is further validated by the lack of negative operating experience over the last 20+ years from properly installed GRAYBOOT assemblies. However, this condition causes the contact to be more susceptible to damage from handling during connection and disconnection, and therefore the following actions are recommended.

1. Any affected sockets in inventory should be replaced. Affected sockets in service should be replaced during routine maintenance activities.

OR

2. In lieu of replacement, it is acceptable to perform the following to confirm a separation force greater than 0.19 lbs. This is consistent with existing Curtiss-Wright dedication acceptance criteria. It is recommended that any contacts not meeting this criteria be replaced.
 - Crimp a spare pin contact to an appropriate piece of wire
 - Connect a force gage or 0.19 lbs. of static weight to the opposite end of the wire
 - Insert the pin into the socket and confirm that the pin does not separate from the socket under a minimum load of 0.19 lbs.



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May 31, 2017

(Continued)

To confirm this deviation is not present in existing inventory or in future purchased lots, the following corrective actions have been or will be implemented by Curtiss-Wright:

1. Microhardness testing was performed on all socket contact lots in inventory to verify their acceptability. Results confirmed that all lots were acceptable.
2. Acceptance criteria for dedication of socket contacts will be revised to include verification of acceptable contact hardness. This corrective action will be completed by June 9, 2017. No dedication of socket contacts will be performed until this corrective action is complete.

A list of affected utilities and associated purchase orders is being developed and will be complete and submitted by June 9, 2017.

For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558).

Sincerely,

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(File No.: CWNHuntsville10CFR21-2017-01)

May 15, 2017

To whom it may concern:

This letter is issued to provide an interim notification of a potential defect in certain lots of Grayboot socket contacts supplied with EQ qualified Grayboot Connector Kits. On March 16, 2017, Curtiss-Wright, Nuclear Division, Huntsville Operations was contacted by Georgia Power Vogtle Nuclear Power Plant concerning a potential defect where the socket contact tines were in a relaxed state.

Although we have completed some testing and verification activities, additional testing is in progress now and will provide necessary information to complete our evaluation. Current testing will be completed and final conclusions made by May 31, 2017.

At this time, based on test results, evaluations and operating experience, Curtiss Wright is confident that any potentially affected Grayboot Assemblies will continue to perform their intended safety functions. As such, if the final recommendation is to replace the potentially defective socket contact, this can be accomplished during subsequent routine maintenance activities.

This notification is being made to comply with 60 day interim reporting requirements as defined in 10 CFR 21.21(a)(2).

For additional information, please contact Samuel Bledsoe, EGS Products Engineering Manager (1-256-690-7852) or Tony Gill, EGS and Trentec Quality Assurance Manager (1-256-426-4558).

Sincerely,

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