NORTHEAST UTILITIES
THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

General Offices • Selden Street, Berlin, Connecticut

P.O. BOX 270
HARTFORD, CONNECTICUT 06141-0270
(203) 665-5000

November 27, 1989

Docket Nos. 50-213
A07666

Re: NRC Bulletin No. 88-10

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

References: (1) NRC Bulletin No. 88-10 "Nonconforming Molded Case Circuit Breakers," dated November 22, 1988.

(2) E. J. Mroczka letter to USNRC, "NRC Bulletin No. 88-10, Nonconforming Molded Case Circuit Breakers," dated June 16, 1989.

Gentlemen:

Haddam Neck Plant
NRC Bulletin No. 88-10
Nonconforming Molded Case Circuit Breakers (TAC 71319 and 71320)

Reference (1) requested Licensees to determine if any molded case circuit breakers held as safety-related spares, or, in certain circumstances, installed in safety related systems, could have been potentially refurbished. If documentation is not available tracing the circuit breaker back to the circuit breaker manufacturer (CBM), then the circuit breaker is suspect and must be tested or replaced.

Reference (2) provided our latest update in response to Reference (1). The purpose of this letter is to provide a further update on Haddam Neck's actions which was committed to in Reference (2).

IE21
1/1

Attachment No. 1 to this letter updates Attachment No. 1 of Reference (2) for Haddam Neck. Several in stock breakers were tested in accordance with Reference (1). Three failed some portion of the test. Data sheets on failures are included as Attachment 2. This completes all actions required by Reference (1). If there are any questions, do not hesitate to contact my staff directly.

Very truly yours,

CONNECTICUT YANKEE ATOMIC POWER COMPANY

E. J. Mroczka
Senior Vice President

cc: W. T. Russell, Region I Administrator
A. B. Wang, NRC Project Manager, Haddam Neck Plant
J. T. Shedlosky, Senior Resident Inspector, Haddam Neck Plant

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me, E. J. Mroczka, who being duly sworn, did state that he is Senior Vice President of Connecticut Yankee Atomic Power Company, Licensee herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Licensee herein, and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Notary Public
My Commission Expires March 31, 1993

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ATTACHMENT NO. 1

HADDAM NECK PLANT
RESPONSE
TO
NRC BULLETIN NO. 88-10

DECEMBER 1989

HADDAM NECK

QTY.	SUPPLIER	MFGR.	CHAIN	MODEL NO.	APPLICATION	TRACE-ABILITY
1	Westinghouse	W	--	EB2050	Spare GSU Transformer	N +
1	Westinghouse	W	--	FB3020L	Trash Basket Hoist	N +
1	Westinghouse	W	1	EH2015	DC Panel A CKT 16	N **
1	Westinghouse	W	1	EH2015	DC Panel B CKT19	N **
1	Electric Wholesalers	W	--	FB3040L	DH-MOV-310	N +
1	Electric Wholesalers	W	--	FB3040L	FH-MOV-508	N +
1	Electric Wholesalers	W	--	FA3030	RCP Bearing Lift Pump	N +
1	Electric Wholesalers	W	--	FB3040L	RC-MOV-512	N +
1	Westinghouse	W	--	HFB3040	RC-MOV-510	N +
1	Electric Wholesalers	W	--	FB3040L	DH-MOV-544	N +
1	Westinghouse	W	--	HFD3015	SW-MOV-1	N +
1	Electric Wholesalers	W	--	HFA3040	CD-MOV-10	N +
1	Westinghouse	W	1	EH2015	DC Panel A CKT 17	N **
1	Electric Wholesalers	W	--	FB3015	SS Transformer fans	N +
1	Westinghouse	W	--	MC3800F	MCC3 Tie Breaker	N *
1	Westinghouse	W	--	MC3800F	MCC4 Tie Breaker	N *
1	Westinghouse	W	--	MC3800F	MCC8 Tie Breaker	N *
2	WESCO	W	--	EB2020	DC Panels 1C, 1D	N +
1	WESCO	W	--	HFD3015	SW-MOV-2	N +
1	Electric Wholesalers	W	--	FB3030	Switchgear Room Air Supply Fan	N +

* Determined to be non-safety related.

** Replaced temporarily with a non-traceable breaker which passed the Bulletin 88-10 test program.

\+ Traceable spares are being installed during the ongoing refueling outage.

1 Via Voyten Electric

Docket Nos. 50-213
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ATTACHMENT NO. 2

HADDAM NECK PLANT
RESPONSE
TO
NRC BULLETIN NO. 88-10

DECEMBER 1989

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 1 of 2)

Breaker Supplies the following load: SPARE FROM WAREHOUSE

Breaker Location (Cubicle/Position #): BREAKER DESIGNATED WITH THE LETTER "B." AWO #: C4-89-04236

Breaker Nameplate Data

Size/Rating: 15 A./_____ V. (AC or DC ?) Number of Poles: 2

Breaker Type: EH2015 Manufacturer: WESTINGHOUSE Setting: N/A

INSPECT the breaker per Section 6.2. Comments: NO VOLTAGE RATINGS ATTACHED TO BREAKER.

Inspection results (PASS) or FAIL (Circle one)

VERIFY that the breaker opens and closes per step 6.2.4 Results: PASS or FAIL (Circle one)

TEST CONTACT RESISTANCE:

		Pole A	Pole B	Pole C
	First Close:	195.02 mV Ω (N/A)	115.2 mV Ω (N/A)	N/A Ω
Ambient Temp.	Second Close:	186.65 mV Ω	113.85 mV Ω	Ω
74°F or 23.3 °C	Third Close:	240.10 mV Ω	116.17 mV Ω	Ω
	Pole Averages:	207.26 mV Ω	115.07 mV Ω	Ω

Is this statement true? Highest Pole average. ≤ 1.5 X Lowest Pole average. Pass or (Fail) (circle one)

100% Hold-In Test:

If rated ≤ 50 amps, must hold 100% rated for 1 hour. Pass or Fail (Circle one)

If rated > 50 amps, must hold 100% rated for 2 hours. Pass or Fail (Circle one)

135% Trip Test:

If rated ≤ 50 amps, must trip < 1 hour with 135% rated current applied. Pass or Fail (Circle one)

If rated > 50 amps, must trip < 2 hours with 135% rated current applied. Pass or Fail (Circle one)

PERFORM 600% Cycle Test per Section 6.5: Pass or Fail (Circle one)

INSTANTANEOUS	Minimum	Actual Pole Trip Currents (in amperes)			Maximum
LOW (or Fixed)					
HIGH					

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

In-Service breaker adjustment (if applicable): Apply "As Found" settings. _____(initials or N/A)

300% OVERLOAD Trip Test				
Min. Time_____	A - _____ sec.	B - _____ sec.	C - _____ sec.	Max time _____

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 2 of 2)

Did the breaker withstand the 2500V DC megger tests? (circle either PASS or FAIL)

Line to Load, breaker open PASS or FAIL Line to Line, breaker closed PASS or FAIL

Pole to ground, breaker open PASS or FAIL Pole to ground, breaker closed PASS or FAIL

RECORD the LOWEST insulation resistance measured during the above tests: _____

Test Equipment:	Ductor	DMM				
QA Number	2745	2005				
Due Date	11-3-89	12/9/89				

REMOVE breaker from service; N/A (Wires Marked By:) N/A (Wires Verified By:)

RETURN breaker to service: N/A (per step 6.11.5) (Returned to Service By:) _____ N/A (Wires Verified/Tight By:)

Tested By: Donald A Clay Jr. Initials DC Date 9-18-89

Tested By: Paul J Tuba Jr Initials PJTJ Date 9-18-89

Reviewed By: Roger George Date 9-29-89

Approved By: _____ Date _____

RETESTED BREAKER UNDER REVISED SPL 10.8-9. THE BREAKER FAILED SECTION 6.3 "TEST THE BREAKER CONTACT RESISTANCES."

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 1 of 2)

Breaker Supplies the following load: SPARE FROM WAREHOUSE

Breaker Location (Cubicle/Position #): BREAKER DESIGNATED WITH THE LETTER "SPC" | AWO #: CY-9-09236

Breaker Nameplate Data

Size/Rating: 15 A./ _____ V. (AC or DC ?) Number of Poles: 2

Breaker Type: EH2015 Manufacturer: WESTINGHOUSE Setting: N/A

INSPECT the breaker per Section 6.2. Comments: NO VOLTAGE RATINGS ATTACHED TO BREAKER

Inspection results: PASS or FAIL (Circle one)

VERIFY that the breaker opens and closes per step 6.2.4 Results: PASS or FAIL (Circle one)

TEST CONTACT RESISTANCE:		Pole A	Pole B	Pole C
	First Close:	142.3 mV Ω	356.5 mV Ω	N/A Ω
Ambient Temp.	Second Close:	145.1 mV Ω	296.7 mV Ω	Ω
23.3 °C	Third Close:	139.1 mV Ω	186.9 mV Ω	Ω
	Pole Averages:	140.5 mV Ω	280.0 mV Ω	Ω

Is this statement true? Highest Pole average. ≤ 1.5 X Lowest Pole average. Pass or Fail (circle one)

100% Hold-In Test:

If rated ≤ 50 amps, must hold 100% rated for 1 hour. Pass or Fail (Circle one)

If rated > 50 amps, must hold 100% rated for 2 hours. Pass or Fail (Circle one)

135% Trip Test:

If rated ≤ 50 amps, must trip < 1 hour with 135% rated current applied. Pass or Fail (Circle one)

If rated > 50 amps, must trip < 2 hours with 135% rated current applied. Pass or Fail (Circle one)

PERFORM 600% Cycle Test per Section 6.5: Pass or Fail (Circle one)

INSTANTANEOUS	Minimum	Actual Pole Trip Currents (in amperes)			Maximum
LOW (or Fixed)					
HIGH					

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

In-Service breaker adjustment (if applicable): Apply "As Found" settings. _____(initials or N/A)

300% OVERLOAD Trip Test				
Min. Time_____	A - _____ sec.	B - _____ sec.	C - _____ sec.	Max time _____

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 2 of 2)

Did the breaker withstand the 2500V DC megger tests? (circle either PASS or FAIL)

Line to Load, breaker open PASS or FAIL Line to Line, breaker closed PASS or FAIL

Pole to ground, breaker open PASS or FAIL Pole to ground, breaker closed PASS or FAIL

RECORD the LOWEST insulation resistance measured during the above tests: _____

Test Equipment:	Fluke	DMM				
QA Number	2745	2805				
Due Date	11-30-89	12/9/89				

REMOVE breaker from service: N/A (Wires Marked By:) N/A (Wires Verified By:)

RETURN breaker to service: (per step 6.11.5) N/A (Returned to Service By:) N/A (Wires Verified/Tight By:)

Tested By: Daniel A. Clay Jr. Initials DAC Date 9-18-89

Tested By: Paul J Nebus Jr Initials PJN Date 9-18-89

Reviewed By: Roger George Date 9-29-89

Approved By: _____ Date _____

REJECTED BREAKER UNDER REVISED SPL 10.8-9. THE BREAKER FAILED SECTION 6.3 "TEST THE BREAKER CONTACT RESISTANCES."

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 1 of 2)

Breaker Supplies the following load: SPARE FROM WAREHOUSE

Breaker Location (Cubicle/Position #): BREAKER DESIGNATED WITH THE LETTER "G." AWO #: CY-89-09236

Breaker Nameplate Data

Size/Rating: 15 A./SEE COMMENTS V. (AC or DC ?) Number of Poles: 2

Breaker Type: EH2015 Manufacturer: WESTINGHOUSE Setting: N/A

INSPECT the breaker per Section 6.2. Comments: SEAM WHERE FRONT & BACK PIECES MEET IS CHIPPED AND VERY ROUGH IN 3 PLACES. NO VOLTAGE RATINGS ATTACHED TO THE BREAKER.

Inspection results: (PASS) or FAIL (Circle one)

VERIFY that the breaker opens and closes per step 6.2.4 Results: PASS or FAIL (Circle one)

TEST CONTACT RESISTANCE:

		Pole A	Pole B	Pole C
	First Close:	76mV / 68.7 mΩ	200mV / 14.96 Ω	N/A Ω
Ambient Temp.	Second Close:	116mV / 1.73 Ω	122mV / 29.7 mΩ	Ω
74°F °C	Third Close:	266mV / 2.36 Ω	310mV / 53.7 mΩ	Ω
	Pole Averages:	153mV / 1.386 Ω	262mV / 5.01 Ω	Ω

Is this statement true? Highest Pole average. ≤ 1.5 X Lowest Pole average. Pass or (Fail) (circle one)

SEE NEXT PAGE FOR READINGS TAKEN AFTER STEP 6.3.11.A.2

*100% Hold-In Test:

If rated ≤ 50 amps, must hold 100% rated for 1 hour. Pass or Fail (Circle one)

If rated > 50 amps, must hold 100% rated for 2 hours. Pass or Fail (Circle one)

*135% Trip Test:

If rated ≤ 50 amps, must trip < 1 hour with 135% rated current applied. Pass or Fail (Circle one)

If rated > 50 amps, must trip < 2 hours with 135% rated current applied. Pass or Fail (Circle one)

PERFORM 600% Cycle Test per Section 6.5: Pass or Fail (Circle one)

INSTANTANEOUS	Minimum	Actual Pole Trip Currents (in amperes)			Maximum
LOW (or Fixed)					
HIGH					

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

In-Service breaker adjustment (if applicable): Apply "As Found" settings. _____(initials or N/A)

300% OVERLOAD Trip Test				
Min. Time_____	A - _____ sec.	B - _____ sec.	C - _____ sec.	Max time _____

COMPARE the actual tripping currents to the minimum and maximum allowable currents: Pass or Fail (Circle one)

* UNABLE TO PERFORM CURRENT TEST AS VARYING CONTACT RESISTANCE PROHIBITED THE TEST SET FROM MAINTAINING A STEADY CURRENT OUTPUT.

ATTACHMENT 12.1

AUG 30 1989

Molded Case Circuit Breaker/Motor Circuit Protector Data Sheet (page 2 of 2)

Did the breaker withstand the 2500V DC megger tests? (circle either PASS or FAIL)

Line to Load, breaker open PASS or FAIL — Line to Line, breaker closed PASS or FAIL

Pole to ground, breaker open PASS or FAIL — Pole to ground, breaker closed PASS or FAIL

RECORD the LOWEST insulation resistance measured during the above tests: _____

Test Equipment:	Ductor	DMM				
QA Number	2745	2805				
Due Date	11-30-89	12/9/89				

REMOVE breaker from service: N/A (Wires Marked By:) N/A (Wires Verified By:)

RETURN breaker to service: N/A (per step 6.11.5) (Returned to Service By:) N/A (Wires Verified/Tight By:)

Tested By: Donald A. Clay Jr. Initials DAC Date 9-18-89

Tested By: Paul J Ulm Jr Initials PJU Date 9-18-89

Reviewed By: Roger George Date 9-23-89

Approved By: _____ Date _____

STEP 6.3.11.A.2

	Pole 1	Pole 2
First close	1.23 Ω	.250 Ω
Second Close	.517 Ω	1.02 Ω
Third Close	1.17 Ω	.275 Ω
P.U. Average	.97 Ω	.515 Ω

ABOVE RESULTS CONSTITUTES A FAILURE FOR CONTACT RESISTANCE.