

NORTHEAST UTILITIES



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

NUSCO CALCULATION CHANGE NOTICE (CCN)

PAGE
1 OF 3

OPS837 3-00

1. AFFECTED CALCULATION/PLANT																					
<input checked="" type="checkbox"/> MP1	<input type="checkbox"/> MP2	<input type="checkbox"/> MP3	<input type="checkbox"/> CY <input type="checkbox"/> OTHER																		
2. CALCULATION NO. PA79-126-0742.GG		REVISION NO. 0	CHANGE NO. 2																		
3. CALCULATION TITLE MPI DG loading		CALCULATION ORIGINATED BY: <input checked="" type="checkbox"/> NU <input type="checkbox"/> VENDOR																			
4. REFERENCES																					
5. REASON FOR CHANGE The purpose of this change is to add Drywell Cooler fans to the DG load.																					
6. DESCRIPTION OF CHANGE & TECHNICAL JUSTIFICATION — See attached continuation p. 2 Additional loads: <table border="1"> <thead> <tr> <th></th> <th>HP</th> <th>KW</th> </tr> </thead> <tbody> <tr> <td>HvH-18</td> <td>15</td> <td>14</td> </tr> <tr> <td>HvH-19</td> <td>15</td> <td>14</td> </tr> <tr> <td>HvH-26</td> <td>15</td> <td>14</td> </tr> <tr> <td>HvH-27</td> <td>7 1/2</td> <td>7</td> </tr> <tr> <td>HvH-28</td> <td>7 1/2</td> <td>7</td> </tr> </tbody> </table> <p>Total KW = 56 KW ; Fans motors are loaded to approximately 90% of capacity. (CALC PA83-017-526 GG, two) Load to add = 56 KW x 0.9 = 50.4 KW D.G. Ratings = 2665 KW Present calculated load = 2614 KW (RIH, 5-2-91, stated calculation) New D.G. load 2614 KW + 50.4 KW = 2664.4 KW (has an error see attached.) Additional load is acceptable.</p>					HP	KW	HvH-18	15	14	HvH-19	15	14	HvH-26	15	14	HvH-27	7 1/2	7	HvH-28	7 1/2	7
	HP	KW																			
HvH-18	15	14																			
HvH-19	15	14																			
HvH-26	15	14																			
HvH-27	7 1/2	7																			
HvH-28	7 1/2	7																			
7. NUCLEAR INDICATOR		9110170179 911007 PDR ADOCK 05000245 Q PDR																			
<input checked="" type="checkbox"/> CAT I	<input type="checkbox"/> RWQA	8. AFFECTED CALC. PAGES pp 7089, pp 7099																			
<input type="checkbox"/> FPOA	<input type="checkbox"/> ATWS																				
9. PREPARED BY: (PRINTED NAME) M. Smaga		SIGNATURE <i>Richard J. Haller</i>																			
10. REVIEWED BY: (PRINTED NAME) R. J. Haller		SIGNATURE <i>Richard J. Haller</i>																			
11. APPROVED BY: (PRINTED NAME) J. D. RICHMAN		SIGNATURE <i>J. D. RICHMAN</i>																			
		DATE 5-6-91																			
		DATE 5-7-91																			
		DATE 5/9/91																			

RTH

pp 206-207
ccw

DG Ratings	Time After DG Breaker Closure	Loads	HP Req.	KW Req.	Step KW	Total KW	DG Load	Comments
KVA Rating 3330	0 Sec.	(Connected Load)			219	219	8.2%	Assumes 50% Diversity Factor
p.f. 0.8		Safety Injection MOV's	N/A	112.0				Note 3
KW 2065		Isolation MOV's	N/A	67.0				Notes 4 & 11
Short-time KW 2932		Diesel Auxiliaries	N/A	10.7				Note 1
Constants		480 V Xlmr. 12F Losses	N/A	16.6				Note 2
KW/HP 0.746		Emergency Lights	N/A	70.0				Note 4
Large Mtr. Eff. 93%		Instrument AC	N/A	23.3				Note 5
Small Mtr. Eff. 80%		Stand-By Gas Treatment	N/A	9.7				Note 6
Start Check		Emergency Air Handling	N/A	37.0				Note 7
HP to KW 2.2		Water Cooled Condenser	N/A	63.3				Note 8
Running p.f. 0.86		Reactor Bldg. Elevator	N/A	23.3				Note 9
		Reactor Feed & Seal Water Return	N/A	4.7				Note 10
Starting Check Input	0 Sec.	Start Check	500	1100	401	620	23.3%	OK Start
2nd Emer. Service Water		1st LPCI Pump	500	401		1319	45.0%	Reference 3.6
Load	5 Sec.	Start Check	500	1100	401	1021	38.3%	OK Start
HP.4r 2550		2nd LPCI Pump	500	401		1720	58.7%	Reference 3.6
HP.48r 202	10 Sec.	Start Check	700	1540	521	1542	67.9%	OK Start
KW.48 68		Core Spray Pump	650	521		2561	87.4%	Reference 3.6
	22 Sec.	Start Check	600	1320	401	1943	72.9%	OK Start
		Service Water Pump	500	401		2862	97.6%	Reference 3.6
	32 Sec.	Start Check	150	330	108	2052	77.0%	OK Start
		Turbine Bldg. Sec. Closed Cig. Wtr.	135	108		2273	77.6%	Reference 3.6
	47 Sec.	MOV's Stopped	N/A	-90	-90	1962	73.6%	Valves have Cycled
	5 Min.	Reactor Bldg. Elevator Off	N/A	-12	10	1984	74.3%	Note 13 50% Diversity
		SBLC Heater	N/A	1200		1963		
	10 Min.	Start Check	400	880	321	2302	88.4%	OK Start
		1st Emergency Service Water Pump	400	321		2806	97.6%	Reference 3.5
	10 Min.	Start Check	400	880	321	2023	98.4%	Loading OK
		2nd Emergency Service Water Pump	400	321		2404	108.6%	Check Start
	30 Min.	Battery Charger	N/A	9	9	2000	98.8%	Loading OK

ccw adds
50% diversity
kw for
drywell
cooling

Data for volt.
reg. calc. (later)

2550
202
68
2550
202
68

2664 KW

MILLSTONE 1 DIESEL LOADING STUDY (CONT)

POTENTIAL LOADS

FEED TO REACTOR BLDG MCC3 FS (243) (CONT)

LOAD DESCRIPTION	EFF	HP (kW)	POWER IN (kW)
DRYWELL AIR HANDLING UNIT HVH-18	.8	15 hp	14 kW
DRYWELL AIR HANDLING UNIT HVH-19	.8	15 hp	14 kW
REACTOR BLDG ELEVATOR FEEDER	.8	25 hp	23.3 kW
LGTL XMER FEEDER LPIH		30 kVA	
PRIMARY CONTAINMENT MOVS OPERATED			
DOOR	.8	1 hp	.93 kW
SHUT-DOWN PUMP AIR HANDLING UNIT HVH-4	.8	2 hp	1.9 kW
LGTL XMER FEEDER NEL-2		30 kVA	
CORE SPRAY PUMP AIR HANDLING UNIT HVH-16	.8	5 hp	4.7 kW
REACTOR CLEAN-UP PUMP SECTION 1-2	.8	4 hp	3.7 kW
REACTOR BLDG EXHAUST TRANSFER FAN			
HVT 9B	.8	3 hp	2.8 kW
CR FEED PUMP AIR HANDLING UNIT HVH-17	.8	2 hp	1.9 kW
RTB CL-UP KEGEN HEAT EXCHANGE TOWER	.8	4 hp	3.7 kW
DRYWELL POWER RECEPTACLE FEEDER		30 kVA	
HIGH FLOW BY PASS TO TOWNS	.8	33 hp	31 kW
LGTL/CS PUMP ROOM FUR DRAIN SUMP PUMP	.8	5 hp	4.7 kW
FEED TO MCL F-E3		300A	
EMERGENCY FEED TO MCL F-E3		300A	

NOTES

- * FROM FEAR MPPS-1 TABLE B.3.9-1
- ALL EMER MOTORS ARE ASSUMED TO HAVE AN EFFICIENCY OF .8

HVH 26 15 HP
 HVH 27 7.5 HP
 HVH 28 7.5 HP
 HVH 29 7.5 HP

HVH 26 15 HP
 HVH 27 7.5 HP
 HVH 28 7.5 HP
 HVH 29 7.5 HP

LOADING CONDITIONS, 2 TAKEN FROM
 ONE-LINE DRAWING #25202-30006
 AND VERIFIED ON DETAIL DRAWINGS
 CWD SHEET NUMBER SHOWN.

LOADING CONDITIONS	
TRIPPED + 40' D BY LSA or MSA Load for LNP	
TRIPPED + 40' D BY LSA or MSA Load for LNP	
LOADED IN 1ST MINUTE	
TRIPPED ON LNP	
UV DROP-OUT	EAH
125 V DC CONTROLLED STARTER	EAH
UV DROP-OUT	
125 V DC CONTROLLED STARTER	EAH
125 V DC CONTROLLED STARTER	EAH
TRIPPED (CAN BE OVERRIDDEN)	EAH

COMPOSITE CODES

VLV	M.O. ISOLATION VALVES
EAH	EMERGENCY AIR HANDLING UNIT

Appendix A-SH-4

NORTHEAST UTILITIES SERVICE COMPANY PA-79-126-05 REV. 7/2

SUBJECT MILLSTONE 1
EMERGENCY POWER SYSTEMS LOADING STUDY:
DIESEL GENERATOR LOADING

BY D. ROBERTSON DATE 8/2/84

CHKD. BY _____ DATE _____

W. G. NO. _____

Ua

6. Description - Continuation

This CCN was prepared as a result of PDCR MP1-113-91 which removed the Low Low reactor water level trip of the drywell cooler fans. The high drywell pressure (>2 psig) trip is unaffected. This allows drywell cooling for pipe breaks outside the drywell.

The DG/GT loading calculations involved are for the classical LOCA inside the drywell scenario and represent worst case DG/GT loading. However, for this scenario a High drywell pressure signal is generated and the drywell coolers are tripped. A loading calculation for pipe breaks outside the drywell has not been prepared yet. Therefore, these CCN values:

- (1) Will not be added into the "inside drywell LOCA and LNP" DG/GT loading calculations.
- (2) Are for a worst case pipe break outside drywell check.
- (3) Will be used as an input to future "outside drywell LOCA and LNP" DG/GT loading calculations.
- (4) Confirm that the existing/proposed GT tech spec surveillance test values are still valid.

J. B. Regan
J. B. Regan, Supervisor
Generation Electrical Engineering

5/9/91
Date