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MOD. # PN2Y89MX042

REPLACEMENT OF UPS 2VBB-UPS1C AND 1D

UPS LOAD SHEDDING STUDY

Prepared by: A.Raju — 6-3-91 Date

Reviewed by: N.S.Kabarwal — 6.3.91 Date

Approved by: A.K.Julka — 6/4/91 Date

UV

182 V of 208

Should be 92%

AC OV → 220 Should be 110% of 208

DC UV → 93 Should be 68% of 140 V

D1

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1.0 OBJECTIVE: Modification PN2Y89MX042 replaces existing UPS 2VBB-UPS1C and 1D with new UPS's of the same capacity. Conceptual Engineering for the subject modification recommended that a load study be performed to determine the loads that can be shed from these UPS in order to avoid future overloads on these units. This study is performed to determine the possible existing loads that can be shed from the UPS 2VBB-UPS1C and 1D.

2.0 REFERENCES: Engineering reviewed the following design documents as part of the study. In addition affected UPS loads have been walked down to determine the feasibility of transferring these loads to normal power supply.

1.0 USAR Sections 8 and 9.
2.0 Lighting plan drawings and associated change notices:
    a. EE-65 series, EE-66 series, EE-67 series, EE-68 series, EE-69 series, EE-72 series, EE-74 series, EE-78 series, EE-79 series,
3.0 Communication system drawings:
    a. EE-80 series
4.0 Electrical calculatins:
    a. EC-123
5.0 Existing lighting panel directories (uncontrolled)
6.0 Modification PN2Y87MX038
7.0 Modification PN2Y88MX036
8.0 Modification PN2Y89MX043
9.0 Modification PN2Y90MX019
10.0 Modification Issue Numbers I20429, I20687 and I20756
11.0 IOM from J.Sullivan to M.J.McCormick dated May 6, 1991 (File Code SM2-M091-0294)

3.0 BACKGROUND: UPS 2VBB-UPS1C and 1D feed the plant essential lighting, egress lighting and communication system loads.

Essential lighting provides partial illumination for certain critical areas of the plant such as control room, relay and computer room, standby diesel generator rooms, emergency switchgear rooms, service water pump room, and for passageways to and from areas where safety related equipment is located. The essential lighting system fixtures are constantly energized and will be available for atleast 90 minutes on loss of normal power.

The egress lighting system provides adequate lighting for all egress signs inside the plant, exit doors, hallways, corridors,passageways, stairways and other areas leading to the outside building exits. The egress lighting system is designed to meet the OSHA requirements for building egress during emergency conditions and is required for atleast 90 minutes on loss of normal power supply.

The communication system equipment is required to be powered from UPS in order to provide emergency alarms and evacuation signals.

In addition to essential lighting and egress lighting, the plant is provided with Normal lighting, Emergency lighting and 8-hour Battery Pack Lighting. 8-hour battery pack lighting is provided in all areas of the plant required for operation of any safe shutdown equipment, and in access and egress routes thereto, to meet the requirements of 10CFR50, Appendix R. These battery pack lighting will be energized on loss of Normal power supply. The Emergency lighting provides lighting for operating the safety related equipment during emergency conditions in the Control room, Diesel generator rooms, Emergency switchgear areas, Remote shutdown room and Relay room. The emergency lighting is class 1E and energized all the time. During the loss of offsite power, it receives Emegency diesel generator power. The Normal lighting is provided in all areas of the plant under normal operating conditions and will be de-energized during the loss of onsite and offsite normal power.

4.0 DISCUSSION: The following criteria have been used in determining the loads for possible load shed from UPS units under consideration.

1. Availability of both essential and 8-hour battery pack lighting in the same location:

   The essential lighting system was designed to meet the lighting system requirements prior to the issue and implementation of 10CFR50, Appendix R in November, 1980. Because 10CFR50, Appendix R required 8-hour Battery Pack lighting, all safe shutdown areas of the plant that were provided with Essential Lighting were also provided with 8-hour Battery Pack Lighting. Engineering has determined by review of lighting plan drawings and walkdown of these two lighting systems (Essential and 8-hour battery pack) that wherever both the essential lighting and 8-hour battery pack lighting are provided or duplicated, the essential lighting can be converted to normal lighting without affecting any NRC requirements. Because of the availability of normal power under normal plant operating conditions, adequate illumination will still be provided in these areas. The design of 8-hour battery pack lighting ensures that adequate illumination will be available in these areas during emergency conditions. Therefore Engineering has included essential lighting loads that are duplicated with the 8-hour battery pack lighting as loads that will be shed from UPS 2VBB-UPS1C and 1D.

2. Availability of Emergency lighting:

   Engineering evaluation also indicated that in areas such as Control room, EDG rooms, emergency switchgear rooms, and relay room where emergency lighting is provided, the change of some essential lighting fixtures to normal power supply will not adversely affect the availability of adequate illumination during normal and emergency operating conditions of the plant.

3. Eliminate the receptacles powered from UPS unless justified:

   Engineering review of the lighting drawings and the walkdown performed by Engineering and system engineering on November 13, 1991 also indicated that some of the receptacles located in the following areas are provided with UPS power from subject UPS's units.

   1. Chemistry Lab.
   2. Radiation Protection Office
   3. Telephone Room (EL 277, Control Bldg.)
   4. Control Room

The power to the receptacles from UPS will be deleted wherever possible and changed back to normal power as part of this modification.

4. Replace high wattage fixtures with low wattage fixtures for Egress lighting or change high wattage egress lighting to normal lighting and add low wattage fixtures for egress lighting:

   Engineering review of the lighting plan drawings also indicated that some of the dome lights installed in Turbine building El 306 and Screenwell building are powered from UPS because these lights have been designated for egress lighting in these areas. Lighting fixtures (Types CF, CG, and CH) for these dome lights are rated for more than 250 Watts. Because egress lighting is required for the passageways in these areas, new flourescent fixture essential lighting will be designed and the dome essential lighting fixtures will be converted back to be powered from normal power as part of this modification. The change over of dome lighting to normal power will prevent over loading on UPS units. When this criterion is applied for load shedding, engineering will ensure that OSHA requirements are not violated in the design process.

5. Impact of future modifications on UPS loading:

   1. Modification PN2Y88MX036 requires to provide UPS power for Oscillograph 2SPI-OSC001 to resolve the concern raised by Problem Report PR07279. A temporary modification has been initiated (Temp. Mod. 2256) and Oscillograph 2SPI-OSC001 is provided with UPS power from UPS Panel 2VBB-PNLB111, Breaker 20. Because UPS Panel 2VBB-PNLB111 is not fed from UPS 2VBB-UPS1C or 1D, adding this load to 2VBB-PNLB111 will not impact this load shedding study. However as instructed by Reference 11, Modification PN2Y88MX036 will be cancelled and its scope will be included in Modifcation PN2Y89MX042.

   2. Modification PN2Y89MX043 requires the power for the essential lighting in the stairwells referenced in Problem Report PR08220 be changed from UPS to Normal power that feeds the 8-hour battery pack lihgting (Appendix R) in those stairwells so that in the event of loss of power to the lighting in that area, 8-hour battery pack will be energized to provide continuous illumination. The recommendations of this load shedding study will actually resolve the problem reported in PR 08220 and therefore Mod. No. 89-043 will be cancelled and its scope will be included in Mod. No.89-042 as recommended in Reference 11.

3. Modification PN2Y87MX038 requires UPS power for some of the Communication system equipment being added. As part of this modification 15 strobe lights rated 60 Watt each are added and consume 900 Watts from UPS 2VBB-UPS1D. Engineering suggests that if feasible reduce the rating of strobe lights to 30 watts each so that the loading on the UPS can be reduced. However it should be noted that these strobe lights are not continuously loaded to UPS.

4. Engineering also discussed the future UPS power requirements for modification issues listed in reference 10.0 with system engineering and has determined that these additiins will not adversely affect the future loadings on these UPS.

5.0 STUDY APPROACH: Engineering performed a review of the following as part of the load shedding study:

1. Non-safety UPS sizing calc. EC-123 SH. 27 & 28 (Attachment 1)

2. Essential lighting panel directories provided by System engineering (Attachment 2) for each panel fed from UPS 2VBB-UPS1C and 1D (except Panels 2LAR-PNLU04 and 2LAX-PNLU01 which are located inside containment).

3. Lighting plan drawings in conjuction with the the lighting panel directories.

Based on the above review engineering prepared lighting panel schedules for each essential lighting panel fed from UPS 2VBB-UPS1C and 1D. Attachment 3 provides the as built condition of the lighting panel schedules, which is being finalized for issue as required by the conceptual engineering of this modification. These lighting panel schedules also indicate the actual loads in watts that are connected to each breaker circuit and the total KW load fed from each panel.

Engineering applied the criterion outlined in section 4.0 for load shedding and markedup the loads that can be shed from each essential lighting panel on plant lighting drawings. These markedup drawings are available with electrical design. Based on the markedup lighting drawings, essential lighting panel schedules that will reflect the loads connected to them after the proposed load shed was prepared as shown in Attachment 4. Attachment 5 compares the loadings on each essential lighting panels and UPS units prior to and after the load shedding study.

6.0 RECOMMENDATIONS: The following essential lighting loads are recommended to be shed from UPS units 2VBB-UPS1C and 1D:

Panel No.	Bkr. No.	No. of Fix.	Ltg. Dwg.No.
UPS1D			
2LAC-PNLU01	NONE	NONE	N/A
2LAT-PNLU03	2&4	2	EE-66B
	5&7	2	EE-79B
	10&12	1	EE-66B
2LAC-PNLU03	1	2	EE-65D
	2	2	EE-65D
	3	7(F)&1(R)	EE-65D,E
	5	4	EE-65D
	6	6	EE-65D
	7	3	EE-65D
	8	1	EE-65D
	9	4	EE-65E
	30	1(R)	CR
	32	1(R)	CR
	38	2(R)	CR
	39	2(R)	COUN.RM
	40	1(R)	CR
	41	2(R)	TEL.RM
	42	1(R)	CR
2LAT-PNLU01	1&3	2(DL)	EE-66E
	2&4	3(DL)	EE-66E
	5&7	1(DL)	EE-66F
	9&11	2(DL)	EE-66F
	10&12	2(DL)	EE-66F
	13&15	3(DL)	EE-66G
	17&19	3(DL)	EE-66G
	21&23	2(DL)	EE-66G
	28&30	5(DL)	EE-79E
	31&33	4(DL)	EE-79E
	39	1(?)	EE-66B

Panel No.	Bkr. No.	No. of Fix.	Ltg. Dwg.
UPS1D			
2LAR-PNLU03	6	3	EE-67H
	7	3	EE-67H
	14	3	EE-67E
	15	3	EE-67G,F
	16	6	EE-67E,F,G
	18	4	EE-67H
2LAR-PNLU04	2	1	EE-67J
	6	2	EE-67J
	8	5	EE-67J
2LAC-PNLU02	1	5	EE-65B
	2	4	EE-65B
	3	4	EE-65B
	4	2	EE-65B
	5	2	EE-65B,C
	6	4	EE-65C
	7	4	EE-65C
	8	4	EE-65C
	9	2	EE-65C
	10	2	EE-65C
	11	4	EE-65C
	12	4	EE-65C
	15	5	EE-65C
	17	4	EE-65C
	18	4	EE-66H,78A
	21	5	EE-65D,F
	23	6	EE-65C,D,E
	39	3	EE-68C
	40	3	EE-68C
2LAR-PNLU06	3	3	EE-67K,L
	5	1	EE-67K,L
	7&9	1	EE-67K,L
	11&13	2	EE-67L
	20	FIELD W/D	

Pnl.No.	Bkr.No.	No. of Fix.	Ltg. Dwg.
UPS1C			
2LAR-PNLU02	3	1	EE-67E
	4	1	EE-67F
	5	3	EE-67E,F
	6	4	EE-67F
	10	9	EE-67F
	14,15,16	Pri. Cntmt. (2KW)	Norm. De-energ.
2LAT-PNLU02	N/A	NONE	N/A
2LAX-PNLU01	1	3(DL)	EE-68B
	2	3(DL)	EE-68B
2LAT-PNLU04	7	4	EE-78B,F
	9	4	EE-66H
	11	4	EE-66H
	13	5	EE-66H
	19	4	EE-67P
2LAT-PNLU05	N/A	NONE	N/A
2LAN-PNLU01	34	A/C Load to 2RMS-CAB170	
	39	2(R)	EE-48N
2LAW-PNLU01	1&3	3(DL)	EE-72A,B,C
	2&4	3(DL)	EE-72A,B,C
	5&7	5(DL)	EE-72A,B,C
	6&8	3(DL)	EE-72A,B,C
	13&15	3(DL)	EE-72A,B,C
2LAR-PNLU05	3	6	EE-67K
	5	4	EE-67K
	11	1	EE-67K,L
	12&14	2	EE-67K,L
2LAR-PNLU01	5	1	EE-67C
	19&21	3	EE-67D
	23&25	1	EE-67A
	32&34	1	EE-67C
	36&38	1	EE-67C

7.0 CONCLUSIONS: As required by the conceptual engineering for Mod. 89-042, engineering performed the above load shedding evaluation. This evaluation indicates (Attachment 5) that approximately 30% of the UPS loads that are connected to UPS 2VBB-UPS1C and 1D can be shed. Therefore engineering concludes that Mod. No. 89-042 should be limited to the replacement of existing 75KVA/60KW UPS units and implementing the recommendations of this load shedding study.

8.0 ATTACHMENTS:

1. Non-safety UPS sizing Calc. Sheets. for UPS 1C and 1D
2. Essential Lighting panel directories (uncontrolled)
3. Essential lighting panel schedules (preliminery- as built)
4. Essential lighting panel schedules (after load shed)
5. UPS loading comparision table (loads prior to and after load shed)

PRINTS | ISSUE (2) | ISSUE (4)

APR CARD

STONE & WEBSTER ENGINEERING CORP.
BOSTON, MASS.

ISSUE	DESCRIPTION
1	ORIGINAL ISSUE
2	
3	
4	

CLIENT N.M.P.C. STA NINE MILE-UNIT 2 REF DWGS 1.420-221-071 JO 12177

PNL NO CDP-4 EQPT NO 2LAS-PNL016 LOC ELEC. BAY COL L 6.8 / TAK ELEV 261'

SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP

BR CKTS TYPE HE CKT BRKR, ~~[redacted]~~ - MTG: ~~[redacted]~~, SURF - NEMA TYPE 12 FDR SIZE 1-#6 PER Ø ~~[redacted]~~

~~[redacted]~~ NO SOURCE EQPT NO UPS 1D KVA 75 ADD'L FEATURES 100A -3P MAIN BKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP		AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	2LAC-PNLU01 ✓	9.3KVA		45	1 2	45	8.5KVA		2LAT-PNL U03 ✓	
					3 4					
					5 6					
	2LAC-PNLU03 ✓	12.7KVA		45	7 8	45			SPARE	
					9 10					
					11 12					
	2LAT-PNL U01 ✓	13.7KVA		45	13 14	45	4.8KVA		2LAR-PNLU03 ✓	
					15 16					
					17 18					
	2LAR-PNLU04 ✓	2KVA		45	19 20	45	12.9KVA		2LAC-PNLU02 ✓	
					21 22					
					23 24					
	SPARE			45	25 26	45			SPARE	
					27 28					
					29 30					
	2LAR-PNLU06 ✓	6.2KVA		45	31 32	45			SPARE	
					33 34					
					35 36					
	SPARE			45	37 38	45				
					39 40					
					41 42					

A B C

CONN LOAD: 70.1 KVA

ULT LOAD: _____

TOTAL LOAD _____

DWG. NO. EE-11X

2LAS-PNL016

SEE EE-123

ATTACHMENT 1
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PRINTS | PR CARD | ISSUE (2) | ISSUE (4)

ISSUE | DESCRIPTION | 1 | 2 | 3 | 4

1 ORIGINAL ISSUE

STONE & WEBSTER ENGINEERING CORP. BOSTON, MASS.

CLIENT N.M.P.C. STA NINE MILE - UNIT 2 REF DWGS 1.420-221-071 JO 12177

PNL NO CDP-4 EQPT NO 2LAT-PNL017 LOC TURBINE BLDG COL L/L6 / L/C ELEV 2

SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP

BR CKTS TYPE HE CKT BRKR, ~~BUSSED SW~~ - MTG: ~~SURF~~, SURF - NEMA TYPE 12 FDR SIZE 1-750 MCM / 1-350 AT PANEL

~~UPSTR MAIN NO~~ SOURCE EQPT NO UPS1C KVA 75 ADD'L FEATURES 400A-3P MAIN BRKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
	2LAR-PNL U02	8.8KVA		45
	2LAX-PNLU01 ABB	22KVA		45
	2LAT-PNLU05	7.8KVA		45
	2LAW-PNLU01 SW	8KVA		45
	2LAR-PNL U01	8.8KVA		45
	SPARE			45
				45

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
45	7.7KVA		2LAT-PNLU02	
45	9.9KVA		2LAT-PNLU04	
45	11.4KVA		2LAN-PNLU01 RW	
45	6KVA		2LAR-PNLU05	
45			SPARE	
45				
45				

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42

A B C

CONN LOAD: 70 KVA

ULT LOAD:

TOTAL LOAD

ATTACHMENT 1
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2LAT-PNL017

DWG. NO. EE-11X

FEB 26 19

LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAC-PNLU01
DRAWINGS EE-65A, 65B, 67P, 78C, 78D

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - ELECTRICAL TUNNEL EL 214'
02	LIGHTING - ELECTRICAL TUNNEL EL 214'
03	LIGHTING - ELECTRICAL TUNNEL EL 214'
04	LIGHTING - ELECTRICAL TUNNEL EL 214'
05	LIGHTING - ELECTRICAL TUNNEL EL 214'
06	LIGHTING - ELECTRICAL TUNNEL EL 214'
07	LIGHTING - STAIR NO. 1
08	LIGHTING - STAIR NO. 1
09	LIGHTING - STAIR NO. 3
10	LIGHTING - STAIR NO. 3
11	LIGHTING - STAIR NO. 2
12	LIGHTING - STAIR NO. 2
13	LIGHTING - STAIR NO. 2
14	SPARE
15	EXIT LIGHTS
16	EXIT LIGHTS
17	LIGHTING - STAIR 315 DEGREE AZ.
18	EXIT LIGHTS
19	LIGHTING - EL 214', EL 210'
20	SPARE
21	LIGHTING - EL 214'
22	LIGHTING - EL 214'
23	LIGHTING - EL 214'
24	COMMUNICATION EQUIPMENT
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

ATTACHMENT 2
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PANEL MARK NO. 2LAC-PNLU02

DRAWINGS EE-65B, 65C, 65D, 65F, 66H, 68C, 78A

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - CABLE CHASE, CORRIDOR EL 237'
02	LIGHTING - CABLE ROUTING EL 237'
03	LIGHTING - STAIRS EL 237', 250' (S.W.)
04	LIGHTING - CABLE ROUTING EL 237'
05	LIGHTING - CABLE CHASE, EL 237'
06	LIGHTING - STANDBY SWGR ROOM EL 261'
07	LIGHTING - STANDBY SWGR ROOM EL 261'
08	LIGHTING - STAIRS EL 261', EL 270' (N.E.)
09	LIGHTING - CABLE CHASE, EL 261'
10	LIGHTING - BATTERY ROOMS EL 261'
11	LIGHTING - CORRIDOR EL 261'
12	LIGHTING - CORRIDOR EL 237'
13	EXIT LIGHTS - EL 261'
14	LIGHTING - ELECTRICAL BAY EL 261'
15	LIGHTING - STAIRS EL 261', EL 279' (S.W.)
16	LIGHTING - ELECTRICAL BAY EL 261'
17	LIGHTING - VENT. EQUIP & HPCS SWGR RMS.
18	LIGHTING - ELECTRICAL BAY EL 261'
19	SPARE
20	EXIT LIGHTS - ELECTRICAL BAY EL 261'
21	LIGHTING - STAIRS EL 288', 296'
BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	LIGHTING - STAIRS EL 290' & 296' (N.E.)
24	SPARE
25	LIGHTING - DIESLE GEN. ROOMS EL 261'
26	SPARE
27	LIGHTING - DIESEL GEN. ROOMS EL 261'
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	COMMUNICATION EQUIPMENT
37	COMMUNICATION EQUIPMENT
38	EXIT LIGHTS - DIESEL GEN. BLDG. EL 261'
39	LIGHTING - DIESEL GEN. BLDG EL 261'
40	LIGHTING - DIESEL GEN. BLDG EL 261'
41	SPARE
42	LIGHTING - DIESEL GEN. BLDG EL 261'

LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAC-PNLU03
DRAWINGS EE-65D, 65E, 65F, 66H

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - COMPUTER ROOM EL 288'
02	LIGHTING - INSTRUMENT ROOM EL 288'
03	LIGHTING - RELAY ROOM EL 288'
04	EXIT LIGHTS - EL 288'
05	LIGHTING - CORRIDORS-WEST EL 288'
06	LIGHTING - CABLE CHASE EL 288'
07	LIGHTING - CORRIDORS-WEST EL 306'
08	LIGHTING - SHIFT SUPV. OFFICE EL 306'
09	LIGHTING - CORRIDORS-SOUTH EL 306'
10	EXIT SIGNS - EL 306'
11	LIGHTING - HVAC AND INST. ROOMS EL 306'
12	SPARE
13	SPARE
14	SPARE
15	SPARE
16	SPARE
17	SPARE
18	SPARE
19	COMMUNICATIONS EQUIPMENT
20	LIGHTING - HVAC ROOM EL 288'
21	SPARE
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	RECEPTACLES - TRAINING ROOM EL. 306'
33	SPARE FEED TO 2LAC-PNLU13
34	RECEPTACLES - TRAINING ROOM EL. 306'
35	FEED TO DIMMER PANEL 2LAC-PNLU13
36	SPARE
37	FEED TO DIMMER PANEL 2LAC-PNLU13
38	RECEPTACLES - HEALTH PHYSICS ROOM EL 306'
39	RECEPTACLES - HEALTH PHYSICS ROOM EL 306'
40	RECEPTACLE - HEALTH PHYSICS ROOM EL 306'
41	RECEPTACLES - TELEPHONE ROOM EL 288'
42	RECEPTACLES - CONTROL ROOM EL 306'

ATTACHMENT 2
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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAC-PNLU04

DRAWINGS EE-55H, 65J, 65K, 66H

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - NORM SWGR BLDG EL 237'
02	LIGHTING - NORM SWGR BLDG EL 237'
03	LIGHTING - STAIRS NORM SWGR BLDG
04	LIGHTING - STAIRS NORM SWGR BLDG
05	EXIT LIGHTS - NORM SWGR BLDG
06	LIGHTING - STAIRS NORM SWGR BLDG
07	LIGHTING - NORM SWGR BLDG EL 261'
08	LIGHTING - NORM SWGR BLDG EL 293'
09	SPARE
10	COMMUNICATIONS
11	SPARE
12	SPARE
13	SPARE
14	SPARE
15	SPARE
16	SPARE
17	SPARE
18	SPARE
19	SPARE
20	SPARE
21	SPARE

BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAT-PNLU01
DRAWINGS EE-66E, 66F, 66G, 79E, 66D, 66B

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
02	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
03	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
04	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
05	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
06	SPARE
07	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
08	SPARE
09	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
10	LIGHTING-CONT. INST. RM EL. 386'
11	LIGHTING-TURB. BLDG. OPER. FLOOR EL. 378'
12	LIGHTING-CONT. INST. RM EL. 386'
13	LIGHTING-MOISTURE SEP/REHEATER AREA B
14	SPARE
15	LIGHTING-MOISTUE SEP/REHEATER AREA B
16	SPARE
17	LIGHTING-MOISTURE SEP/REHEATER AREA A
18	SPARE
19	LIGHTING-MOISTURE SEP/REHEATER AREA A
20	SPARE
21	LIGHTING-CLEAN STEAM RBLB AREA

BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	LIGHTING-CLEAN STEAM RBLB AREA
24	SPARE
25	LIGHTING-MOISTURE SEP/REHEATER ENT.
26	EXIT LIGHTS
27	SPARE
28	LIGHTING-VENTILATIN ROOM EL. 288'
29	SPARE
30	LIGHTING-VENTILATION ROOM EL. 288'
31	LIGHTING-VENTILATION ROOM EL. 288'
32	LIGHTING-OFFGAS EL. 319', 288'
33	LIGHTING-VENTILATION ROOM EL. 288'
34	LIGHTING-OFFGAS EL. 319', 288'
35	COMMUNICATIONS EQUIPMENT
36	LIGHTING-CLEAN STEAM RBLB EL. 315'
37	COMM. VENT. EQUIPMENT ROOM
38	LIGHTING-OFFGAS AREA EL. 288', 386'
39	COMMUNICATIONS EQUIPMENT
40	LIGHTING-STAIRS TURB. BLDG. EL. 288'
41	LIGHTING-SPARE TURB. BLDG. EL. 261'
42	SPARE

LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAT-PNLU02
DRAWINGS EE-66A, 66C, 66D, 79C

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
02	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
03	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
04	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
05	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
06	SPARE
07	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
08	SPARE
09	LIGHTING-MEZZ FL. AIR EJECTOR EL.277'
10	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
11	LIGHTING-MEZZ FL. AIR EJECTOR EL.277'
12	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
13	LIGHTING-STAIRS TURB.BLDG. S.E.
14	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
15	LIGHTING-STAIRS TURB. BLDG. S.E.
16	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
17	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
18	SPARE
19	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
20	SPARE
21	SPARE
BKR. NO.	CIRCUIT DESCRIPTION
22	LIGHTING-DEMINERALIZER AREA EL.277'
23	SPARE
24	LIGHTING-DEMINERALIZER AREA EL.277'
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	LIGHTING-SWGR ROOMM EAST EL.277'
31	SPARE
32	LIGHTING-SWGR ROOM EAST EL.277'
33	SPARE
34	SPARE
35	LIGHTING-TURB. BLDG. MEZZ FL. EL.277'
36	COMMUNICATIONS EQUIPMENT
37	LIGHTING-TURB. BLDG. EL. 292'
38	LIGHTING-DEMINERALIZER AREA EL.277'
39	EXIT LIGHTING EL.277', 292'
40	SPARE
41	LIGHTING-DEMINERALIZER AREA EL.277'
42	EXIT LIGHTING EL.277'

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAT-PNLU03
DRAWINGS EE-66A, 66B, 79B, 79D, 78E, 78

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING-TURB. BLDG. GND. FL. EL.258'
02	LIGHTING-TURB. BLDG. GND. FL. EL.258'
03	LIGHTING-TURB. BLDG. GND. FL. EL.258'
04	LIGHTING-TURB. BLDG. GND. FL. EL.258'
05	LIGHTING-ACCESS ROUTE EL.258'
06	SPARE
07	LIGHTING-ACCESS ROUTE EL.258'
08	SPARE
09	SPARE
10	LIGHTING-TURB. BLDG. GND. FL. EL.258'
11	SPARE
12	LIGHTING-TURB. BLDG. GEN. FL. EL.258'
13	SPARE
14	SPARE
15	SPARE
16	SPARE
17	SPARE
18	LIGHTING-HTR BAY "B" EL.258'
19	SPARE
20	LIGHTING-HTR BAY "B" EL.258'
21	LIGHTING-HTR BAY "C" EL.258'

DRAWINGS — EE-66A, 66B, 79B, 79D, 78E, 78

BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	LIGHTING-HTR BAY "C" EL.258'
24	SPARE
25	LIGHTING-HEAT EXCH. RM
26	EXIT LIGHTING EL.258'
27	LIGHTING-PIPE TUNNEL
28	COMMUNICATIONS EQUIPMENT
29	COMMUNICATIONS EQUIPMENT
30	LIGHTING MAINSTEAM CHASE ENT. EL.258'
31	LIGHTING-PIPE TUNNEL
32	LIGHTING-PIPE TUNNEL
33	LIGHTING-PIPE TUNNEL
34	LIGHTING-HTR BAY "B" EL. 258'
35	LIGHTING-HTR BAY "B" EL.277'
36	LIGHTING-PIPE TUNNEL
37	LIGHTING-HTR BAY "B" EL.277'
38	SPARE
39	LIGHTING-HTR BAY "C" EL.277'
40	SPARE
41	LIGHTING-HTR BAY "C" EL.277'
42	SPARE

ATTACHMENT 12
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BROWN BOVERI

Clr. No. 2 LAT - PNL 403

1	GND FL EL. 250'	2	GND FL. EL. 250'
3		4	
5		6	
7		8	
9		10	GND FL. EL. 250'
11		12	" "
13		14	
15		16	
17	REGEN. AREA EL 250'	18	HTR BAY 'B'
19		20	" "
21	HTR. BAY "C"	22	HTR BAY "D" EL 277'6"
23	" "	24	
25	HT EXCHR RM	26	EXIT SIGNS
27	EXIT SIGNS PIPE TUNNEL	28	COMMUNICATIONS
29	COMMUNICATIONS	30	NW STM CHASE ENTRANCE
31	PIPE TUNNEL	32	PIPE TUNNEL
33	PIPE TUNNEL	34	CONTR. RM + HTR BAY
35	HTR BAY "B" EL 277'6"	36	PIPE TUNNEL
37		38	
39	HTR BAY "C" EL 277'6"	40	
41		42	

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAT-PNLU04
DRAWINGS EE-66H, 78B, 78E, 78F, 67P

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING-PIPE TUNNEL (EE78E)
02	LIGHTING-PIPE TUNNEL (EE78B)
03	LIGHTING-PIPE TUNNEL (EE78E)
04	EXIT SIGNS-PIPE TUNNEL (EE78B, 78F)
05	SPARE
06	LIGHTING-PIPE TUNNEL (EE78F)
07	LIGHTING-CLEAN ACCESS AREA EL. 258', 288'
08	LIGHTING-PIPE TUNNEL (EE78F)
09	LIGHTING-CLEAN ACCESS AREA EL.288', 305', 258'
10	LIGHTING-PIPE TUNNEL (EE78F)
11	LIGHTING-CLEAN ACCESS AREA EL.288'
12	LIGHTING-PIPE TUNNEL (EE78F)
13	LIGHTING-CLEAN ACCESS AREA EL.258',261'
14	EXIT LIGHTS-PIPE TUNNEL (EE78F)
15	EXIT LIGHTS-CLEAN ACCESS AREA
16	SPARE
17	LIGHTING-AUX. SERVICE BLDG. SOUTH EL.261'
18	SPARE
19	LIGHTING-AUX. SERVICE BLDG. SOUTH EL.261'
20	COMMUNICATIONS EQUIPMENT
21	LIGHTING-AUX. SERVICE BLDG. SOUTH EL.261'

BKR. NO.	CIRCUIT DESCRIPTION
22	COMMUNICATIONS & ELEVATOR CAB LIGHTS
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	LIGHTING-AUX. SERVICE BLDG. SOUTH EL.261'
40	SPARE
41	LIGHTING-AUX. SERVICE BLDG. SOUTH EL.261'
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAT-PNLU05
DRAWINGS EE-66C, 66A, 66E, 79A, 79C

BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	SPARE
24	LIGHTING, FOAM ROOM
25	SPARE
26	LIGHTING-SERVICE BLDG. CORRIDOR
27	SPARE
28	LIGHTING-SERVICE BLDG./TRUCK AISLE
29	SPARE
30	SPARE
31	SPARE
32	EXIT LIGHTS-OFFGAS/DEMIN./HTR BAY
33	LIGHTING-DEMIN AREA EL. 256'
34	LIGHTING-DEMIN AREA EL. 256'
35	LIGHTING-HTR BAY "A" EL. 277'
36	LIGHTING-TRUCK AISLE (EE68A)
37	LIGHTING-HTR BAY "A" EL. 277'
38	LIGHTING-TRUCK AISLE (EE68A)
39	SPARE
40	SPARE
41	SPARE
42	SPARE

2 LAT - PNEUMO

1 PIPE TUNL VLV STATION	2
3 PIPE TUNL VLV STATION	4
5 STAIR NO 1	6
7 STAIR NO 1	8
9 EXIT SIGNS	10 OFF GAS & R.R. PLATE
11 PASS & STAIRS OFF GAS AREA	12 AREA EL 261' & DEMIN AREA
13 EL. 261 & PASS. 250'	14 HTR BAY "A" EL. 250'
15	16
17	18 ELEV. CAB. LIGHTS
19	20
21	22
23	24 FOAM RM. EL 261'

4810038A

25	26 SERVICE BLDG EL. 261'
27	28 CORRIDOR EL. 261'
29	30 ACCESS PASSAGE STAIRS OFF GAS EL 261' DEMIN
31 CONT. RM & SAMPLE RM	32 HTR BAY A EL 250' CONT. RM. HTR BAY A, B, & C
33 DEMIN AREA	34 SAFETY SHOWER DEMIN AREA
35 HTR BAY EL 277'6"	36 TRUCK AISLE EL 250'
37	38
39	40
41	42

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAR-PNLU01
DRAWINGS EE-67A, 67B, 67C, 67D

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - RX. BLDG. EL 215' EAST
02	LIGHTING - RX. BLDG. EL 175' N.E.
03	LIGHTING - RX. BLDG. EL 215' N.W.
04	LIGHTING - RX. BLDG. EL 175' S.E.
05	LIGHTING - RX. BLDG. EL 215' N.
06	LIGHTING - RX. BLDG. EL 196' EAST
07	LIGHTING - RX. BLDG. EL 196' EAST
08	SPARE RECP. SUPPRESSION POOL 2LCC49885A
09	SPARE
10	EXIT LIGHTS - RX. BLDG. EL 175'
11	EXIT LIGHTS - RX. BLDG. EL 196'
12	EXIT LIGHTS - RX. BLDG. EL 215'
13	SPARE
14	SPARE
15	COMMUNICATIONS
16	SPARE
17	SPARE
18	SPARE
19	LIGHTING - RX. BLDG. EL 240'
20	LIGHTING - RX. BLDG. EL 175'
21	LIGHTING - RX. BLDG. EL 240'

DRAWINGS EE-67A, 67B, 67C, 67D

BKR. NO.	CIRCUIT DESCRIPTION
22	LIGHTING - RX. BLDG. EL 175'
23	LIGHTING - RX. BLDG. EL 240'
24	LIGHTING - RX. BLDG. EL 175'
25	LIGHTING - RX. BLDG. EL 240'
26	LIGHTING - RX. BLDG. EL 175'
27	SPARE
28	LIGHTING - RX. BLDG. EL 196'
29	SPARE
30	LIGHTING - RX. BLDG. EL 196'
31	LIGHTING - RX. BLDG. EL 196'
32	LIGHTING - RX. BLDG. EL 215'
33	LIGHTING - RX. BLDG. EL 196'
34	LIGHTING - RX. BLDG. EL 215'
35	SPARE
36	LIGHTING - RX. BLDG. EL 215'
37	SPARE
38	LIGHTING - RX. BLDG. EL 215'
39	SPARE
40	SPARE
41	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAR-PNLU02
DRAWINGS EE-67D, 67E, 67F

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGTHING - RX. BLDG. EL 261' S.
02	LIGTHING - RX. BLDG. EL 261' S.
03	LIGTHING - RX. BLDG. EL 261' S.
04	LIGTHING - RX. BLDG. EL 261' S.
05	LIGHTING - TRACK BAY & RX. BLDG. EL 261', 289'
06	LIGHTING - TRACK BAY & RX. BLDG. EL 289'
07	COMMUNICATIONS
08	LIGHTING - RX. BLDG. EL 289'
09	COMMUNICATIONS
10	LIGHTING - RX. BLDG. EL 289'
11	SECURITY LIGHITNG - OUTSIDE
12	LIGHTING CONTACTOR - PRI. CONT.
13	SECURITY LIGHTING - OUTSIDE
14	LIGHTING - PRI. CONT. EL 249', 240'
15	LIGHTING - PRI. CONT. EL 289', 305', 261'
16	~~SPARE~~ ESSENTIAL LIGHTING
17	SPARE
18	SPARE
19	SPARE
20	SPARE
21	SPARE
~~BKR. NO.~~	~~CIRCUIT DESCRIPTION~~
22	SPARE
23	LIGHITNG - RX. BLDG. EL 261'
24	SPARE
25	LIGHITNG - RX. BLDG. EL 261'
26	SPARE
27	LIGHTING - RX. BLDG. EL 261'
28	SPARE
29	LIGHTING - RX. BLDG. EL 261'
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAR-PNLU03
DRAWINGS EE-67E, 67F, 67G, 67H, 67J

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - RX. BLDG. EL 386'
02	LIGHTING - RX. BLDG. EL 386'
03	LIGHTING - RX. BLDG. EL 386'
04	LIGHTING - RX. BLDG. EL 386'
05	SPARE
06	LIGHTING - RX. BLDG. EL 328'
07	LIGHTING - RX. BLDG. EL 328'
08	LIGHTING - RX. BLDG. EL 328'
09	LIGHTING - RX. BLDG. EL 328'
10	LIGHTING - RX. BLDG. EL 328'
11	LIGHTING - RX. BLDG. EL 328'
12	COMMUNICATIONS
13	SPARE
14	LIGHTING - RX. BLDG. STAIRS EL 261' S.
15	LIGHTING - RX. BLDG. STAIRS EL 289', 386'
16	LIGHTING - RX. BLDG. STAIRS EL 261',289',386'
17	LIGHTING - RX. BLDG. STAIRS EL 328' S.
18	LIGHTING - RX. BLDG. STAIRS EL 328' S.
19	SPARE
20	LIGHTING - RX. BLDG. STAIRS EL 353' S.
21	SPARE

DRAWINGS EE-67E, 67F, 67G, 67H, 67J

BKR. NO.	CIRCUIT DESCRIPTION
22	LIGHTING - RX. BLDG. STAIRS EL 363',378',394'
23	SPARE
24	LIGHTING - RX. BLDG. STAIRS EL 408',421',427'
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAR-PNLUOS
DRAWINGS EE-67K, 67L

BKR. NO.	CIRCUIT DESCRIPTION
01	EXIT LIGHTS - NORTH AUX. BAY EL 175'
02	LIGHTING - NORTH AUX. BAY EL 175'
03	LIGHTING - NORTH AUX. BAY STAIRWELL
04	LIGHTING - NORTH AUX. BAY EL 175'
05	LIGHTING - NORTH AUX. BAY STAIRWELL
06	EXIT LIGHTS - NORTH AUX. BAY EL 198'
07	LIGHTING - NORTH AUX. BAY EL 198'
08	LIGHTING - NORTH AUX. BAY EL 215'
09	LIGHTING - NORTH AUX. BAY EL 198'
10	LIGHTING - NORTH AUX. BAY EL 215'
11	LIGHTING - NORTH AUX. BAY EL 250'
12	LIGHTING - NORTH AUX. BAY EL 215'
13	EXIT LIGHTS - NORTH AUX. BAY EL 215', 240'
14	LIGHTING - NORTH AUX. BAY EL 215'
15	SPARE
16	SPARE
17	SPARE
18	SPARE
19	COMMUNICATION
20	SPARE
21	SPARE

DRAWINGS-EE-67K, 67L

BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAR-PNLU06
DRAWINGS EE-67K, 67L

BKR. NO.	CIRCUIT DESCRIPTION
01	EXIT LIGHTS - SOUTH AUX. BAY EL 175'
02	LIGHTING - SOUTH AUX. BAY EL 175'
03	LIGHTING - SOUTH AUX. BAY STAIRWELL
04	LIGHTING - SOUTH AUX. BAY EL 175'
05	LIGHTING - SOUTH AUX. BAY STAIRWELL
06	EXIT LIGHTS - SOUTH AUX. BAY EL 198'
07	LIGHTING - SOUTH AUX. BAY EL 198'
08	EXIT LIGHTS - SOUTH AUX. BAY EL 215', 240'
09	LIGHTING - SOUTH AUX. BAY EL 198'
10	LIGHTING - SOUTH AUX. BAY EL 215'
11	LIGHTING - SOUTH AUX. BAY EL 240'
12	LIGHTING - SOUTH AUX. BAY EL 215'
13	LIGHTING - SOUTH AUX. BAY EL 240'
14	LIGHTING - SOUTH AUX. BAY EL 258'
15	SPARE
16	SPARE
17	SPARE
18	SPARE
19	SPARE
20	SPARE
21	COMMUNICATIONS
BKR. NO.	CIRCUIT DESCRIPTION
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	SPARE
31	SPARE
32	SPARE
33	SPARE
34	SPARE
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAN-PNLU01
DRAWINGS EE-69A, 69B, 69C, 69E, 80AJ

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING-RADWASTE BLDG. EL.248'
02	LIGHTING-RADWASTE BLDG. EL.261'
03	LIGHTING-RADWASTE BLDG. EL.248'
04	LIGHTING-RADWASTE BLDG. EL.261',279'
05	LIGHTING-RADWASTE BLDG. EL.261'
06	LIGHTING-RADWASTE BLDG. EL.261'
07	LIGHTING-RADWASTE BLDG. EL.248'
08	LIGHTING-RADWASTE BLDG. EL.261'
09	LIGHTING-RADWASTE BLDG. EL.248'
10	SPARE
11	LIGHTING-RADWASTE BLDG. EL.261'
12	SPARE
13	LIGHTING-RADWASTE BLDG. EL.279'
14	SPARE
15	LIGHTING-RADWASTE BLDG. EL.279',287'
16	COMMUNICATIONS EQUIPMENT
17	LIGHTING-RADWASTE BLDG. EL.279'
18	COMMUNICATIONS EQUIPMENT
19	LIGHTING-RADWASTE STAIRS EL253',269,279,295,301'
20	LIGHTING-RADWASTE BLDG. EL.291'
21	LIGHTING-RADWASTE STAIRS EL.253',269,279,295,301'

BKR. NO.	CIRCUIT DESCRIPTION
22	LIGHTING-RADWASTE BLDG. EL. 291'
23	LIGHTING-RADWASTE STAIRS EL.253',269,279,295,301'
24	LIGHTING-RADWASTE BLDG. EL.291'
25	LIGHTING-RADWASTE STAIRS EL.253',269,279,295,301'
26	LIGHTING-RADWASTE BLDG. EL.309'
27	LIGHTING-RADWASTE BLDG. EL.301'
28	LIGHTING-RADWASTE BLDG. EL.309', 318'
29	SPARE
30	SPARE
31	COMMUNICATIONS EQUIPMENT
32	SPARE
33	COMMUNICATIONS EQUIPMENT
34	SPARE
35	COMMUNICATIONS EQUIPMENT
36	SPARE
37	SPARE
38	LIGHTING-CONDENSATE STORAGE BLDG.
39	~~SPARE~~ REC.'S - NEW CHEM LAB
40	LIGHTING-RADWASTE CONTROL ROOM EL.261',279'
41	~~SPARE~~ LIGHTING - NEW CHEMLAB
42	SPARE

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LIGHTING PANEL DIRECTORY

PANEL MARK NO. 2LAW-PNLU01
DRAWINGS EE-72A, 72B, 72C

BKR. NO.	CIRCUIT DESCRIPTION
01	LIGHTING - SCREENWELL BLDG. (EE-72B)
02	LIGHTING - SCREENWELL BLDG. (EE-72B)
03	LIGHTING - SCREENWELL BLDG. (EE-72B)
04	LIGHTING - SCREENWELL BLDG. (EE-72B)
05	LIGHTING - SCREENWELL BLDG. (EE-72A, 72B)
06	LIGHTING - SCREENWELL BLDG. (EE-72A, 72B)
07	LIGHTING - SCREENWELL BLDG. (EE-72A, 72B)
08	LIGHTING - SCREENWELL BLDG. (EE-72A, 72B)
09	LIGHTING - SCREENWELL BLDG. (EE-72C)
10	LIGHTING - SCREENWELL BLDG. (EE-72C)
11	LIGHTING - SCREENWELL BLDG. (EE-72C)
12	LIGHTING - SCREENWELL BLDG. (EE-72C)
13	LIGHTING - SCREENWELL BLDG. (EE-72A)
14	SPARE
15	LIGHTING - SCREENWELL BLDG. (EE-72A)
16	SPARE
17	SPARE
18	SPARE
19	SPARE
20	SPARE
21	SPARE
22	SPARE
23	SPARE
24	SPARE
25	SPARE
26	SPARE
27	SPARE
28	SPARE
29	SPARE
30	EXIT LIGHT - SCREENWELL BLDG. (EE-72B)
31	SPARE
32	EXIT LIGHT - SCREENWELL BLDG. (EE-72A)
33	SPARE
34	SPARE
35	LIGHTING - SCREENWELL BLDG. (EE-72A, 72B)
36	COMMUNICATIONS EQUIPMENT
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE

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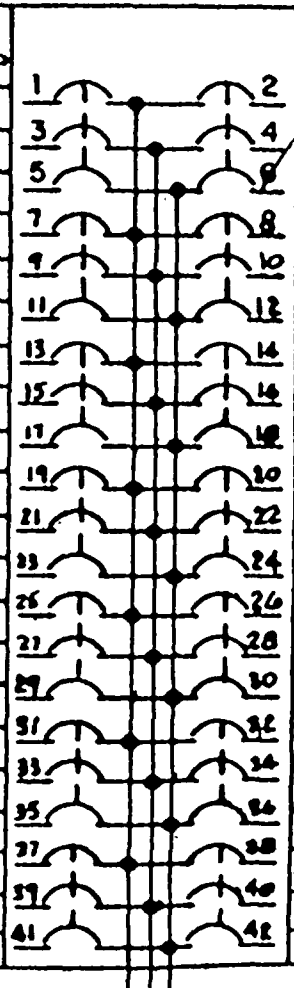
PRINTS / APR CARD — ISSUE (2) — ISSUE (4)

STONE & WEBSTER ENGINEERING CORP.
BOSTON, MASS.

ISSUED | 1 | 2 | 3 | 4
DESCRIPTION | 1 ORIGINAL ISSUE

CLIENT N.M.P.C. STA NINE MILE-UNIT 2 REF DWGS 1.420-221-071 JO 12177
PNL NO CDP-4 EQPT NO 2LAS-PNL016 LOC ELEC. BAY COL L 6.8/AK ELEV 261'
SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP
BR CKTS TYPE HE CKT BRKR, ~~[illegible]~~ - MTG: ~~SF~~, SURF - NEMA TYPE 12 FDR SIZE 1-4/0 PER Ø ~~[illegible]~~
~~[illegible]~~ NO SOURCE EQPT NO UPS 1D KVA 75 ADD'L FEATURES 100A-3P MAIN BKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
	2LAC-PNLU01 ✓	~~9.3KVA~~ 8.06		45
	2LAC-PNLU03 ✓	~~12.7KVA~~ 20.26		45
	2LAT-PNLU01 ✓	~~12.7KVA~~ 11.7		45
	2LAR-PNLU04 ✓	~~2KVA~~ 3.63		45
	SPARE			45
	2LAR-PNLU06 ✓	~~4.8KVA~~ 4.97		45
	SPARE			45



AMP	LOAD CONN	LOAD ULT	SERVICE	NO
45	~~8.5KVA~~ 6.95		2LAT-PNLU03 ✓	
45			SPARE	
45	~~4.8KVA~~ 5.25		2LAR-PNLU03 ✓	
45	~~12.8KVA~~ 11.15		2LAC-PNLU02 ✓	
45			SPARE	
45			SPARE	
45				

CONN LOAD: ~~70.1 KVA~~ 71.97 kW
ULT LOAD:
TOTAL LOAD

DWG. NO. EE-11X

2LAS-PNL016

EC-123
PAGE 27

2LAC-PNLU01

PNL NO _____ EQPT NO _____ MK NO _____ LOC, CONT. BLDG COL _____ ELEV +1-0"

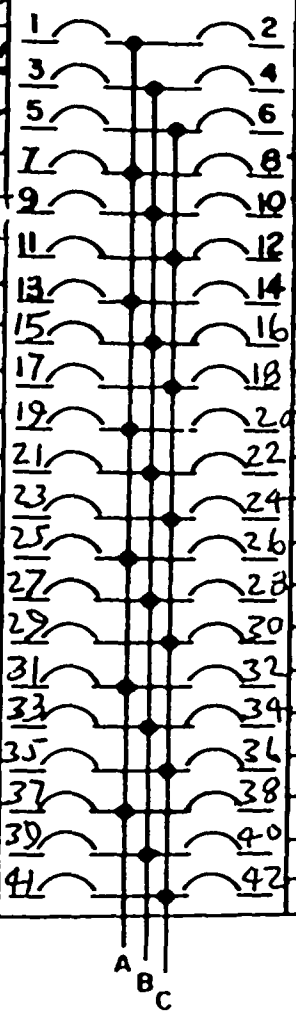
SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAL-PNLU16 KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	ELEC-TUN. 214	240		
2	ELEC. TUN. 214	160		
4	ELEC. TUN. 214	280		
5	ET 214 - STAIR #1	400		
4	ET 214 - STAIR #3	320		
3	STAIR #2	240		
3	STAIR #2	240		
8	AB/C ET. EXIT SIGNS	320		
12	AB/C ET. STAIRS	960		
10	CB EL 214	800		
5	CB EL 214 STAIRS	400		
8	CB 214. BATT-RM	640		
	SPARE			

SN



AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	80		ELEC. TUN. 214	1
	160		ELEC. TUN. 214	2
	160		ELEC. TUN. 214	2
	240		ET 214 STAIR #1	3
	400		ET 214 - STAIR #3	5
	160		STAIR #2	2
			SPARE	
	600		CB 214 EXIT SIGNS	15
	600		CB237 EXIT SIGNS	15
			SPARE	
	160		CB214 - BATT. RM	2
	500		COMM. ET, AB/C, CB 214	11
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 8.06 KW

LIGHTING PANELBOARD SCHEDULE

1 ORIGINAL ISSUE

DESCRIPTION

CHKD

CORR

ATTACHMENT 5

PAGE 2 OF 11

ISSUE	DESCRIPTION	CHKD	CODE	APPD	DATE
1	ORIGINAL ISSUE				
2					
4					

LIGHTING PANELBOARD SCHEDULE

PNL NO ______ EQPT NO 2LAT-PNL 13 MK NO ______ LOC TB COL ______ ELEV [illegible]

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, ~~CIR BRKR~~, ~~FUSED SW~~ - CONN: TOP

BR CKTS ______ CKT BRKR, ~~FUSED SW~~ - MTG: ~~FL~~, SURF - NEMA TYPE ____ FDR SIZE ______

XFMR MK NO ______ EQPT NO 2LAS-PNL016 KVA ______ ADD'L FEATURES ______

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
6	TB 250 (WE)	670			1	2		650		TB 250 (EE)	6
	↓				3	4				↓	
2	HTR BAY B&C	300			5	6				SPARE	
	↓				7	8				SPARE	
	SPARE				9	10		500		TB 250 (EE)	5
	SPARE				11	12				↓	
	SPARE				13	14				SPARE	
	SPARE				15	16				SPARE	
	SPARE				17	18		500		HTR BAY B 250	5
	SPARE				19	20				↓	
4	HTR BAY C-250	400			21	22				SPARE	
	↓				23	24				SPARE	
1	TB250 HTX RM	80			25	26		120		TB250 EXIT SIGNS	3
7	PIPE TUNNEL EXIT	280			27	28		210		Comm/TB ATR BAY	7
40	Comm/TB 250	1200			29	30		160		TB 250 (EE)	2
3	PIPE TUNNEL	240			31	32		400		PIPE TUNNEL	5
3	PIPE TUNNEL	240			33	34		160		HTR BAY B&C	2
3	HTR BAY B	300			35	36		240		PIPE TUNNEL 93/4	3
	↓				37	38				SPARE	
3	HTR BAY C	300			39	40				SPARE	
	↓				41	42				SPARE	

A B C

CONN LOAD ______

ULT LOAD ______

TOTAL LOAD 6.95 KW

ATTACHMENT 5

ISSUE	DESCRIPTION
1	ORIGINAL ISSUE
2	
3	
4	

PNL NO _____ EQPT NO 2LAC-PNL 3 M. 30 LOC, CONT BLDG COL ____ ELEV 361'-3"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL 316 KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
2	COMP. RM 238-6"	320			1 2		480		INST. RM. 238	2
7	RELAY RM 233	480			3 4		280		RELAY RM. EDIT/LIGHT	7.
8	RELAY RM 233/CORRID	640			5 6		320		RELAY RM. 233/CA CHARGE	7.
4	CB 306 - CORRIDOR	640			7 8		160		CR 306/ SUPV. OFFICE	1
5	CB 306 - CORRIDOR	800			9 10		200		CB 306 EDIT LIGHTS	5
4	CR 306 - HVAC/INST	640			11 12				SPARE	
	SPARE				13 14				SPARE	
	SPARE				15 16				SPARE	
	~~COMM/CR~~ SPARE				17 18				SPARE	
18	COMM/CR	540			19 20		240		CR 306	3
	SPARE				21 22				SPARE	
	SPARE				23 24				SPARE	
	SPARE				25 26				SPARE	
	SPARE				27 28				SPARE	
	SPARE				29 30		1000		RECEPTACLE	1
	SPARE				31 32		1000		RECEPTACLE/CB	1
	SPARE				33 34				SPARE	
	FEED TO DIMMER RM	1520			35 36				SPARE	
	↓				37 38					
2	CONST. RM/RECEPT.	2000			39 40		2000		CONST. RM/RECEPT.	2
	TELE. RM/RECEPT	3000			41 42		1000		COUNT. RM/RECEPT.	1
					A B C		2000		CR 306/RECEPT.	2

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 20.26 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT -

PAGE 4 OF 10

ISSUE | DESCRIPTION | CHKD | CORR APPR | DATE

1 ORIGINAL ISSUE

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAT-PNL M. NO _____ LOC _____ COL TB ELEV 06

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL016 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	TB 306 (WE)	1050		
	↓			
1	TB 306 (WE)	400		
	↓			
2	TB 306 (EE)	809		
	↓			
3	TB 306/mS-RHTR	750		
	↓			
3	TB 306/mS-RHTR	750		
	↓			
2	TB 306-CL.STR.RBLR	500		
	↓			
4	TB 306-mS-RHTR	320		
	SPARE			
	SPARE			
4	HVAC 306	1000		
	↓			
12	Comm/TB 261,289,306	360		
9	Comm/TB-HTR BOX	270		
	#3 ELEV. TB 250	500		
6	TB-NE STAIRS	480		

SN

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15	16		
17	18		
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23	24		
25	26		
27	28		
29	30		
31	32		
33	34		
35	36		
37	38		
39	40		
41	42		

A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	1200		TB 306 (WE)	3
			↓	
			SPARE	
			SPARE	
	650		TB 306 (NEE)	2
			↓	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
	320		TB 306-EXIT SIGN	8
	1250		HVAC 288	5
			↓	
	300		OG RM 283	2
			↓	
	240		CONT. INST. RM/CORR	3
	320		OG RM 284, 306	4
	240		TB-NE STAIRS	3
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 11.7 KW

ATTACHMENT 2
PAGE 5 OF 19

ISSUE	1	2	4
DESCRIPTION	ORIGINAL ISSUE		
CHKD			
CORR APPR			
DATE			

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAR-PNL 13 MK NO _____ LOC Rx 13 COL _____ ELEV 61-6"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL016 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
9	Rx 306	315			1 2		245		Rx-306	7
3	Rx 306 (EXIT-SIGNS)	180			3 4		70		Rx 306	1
	SPARE				5 6		195		Rx 328	3
6	Rx 328	210			7 8		210		Rx 328	6
3	Rx 328 (EXIT-SIGNS)	120			9 10		140		Rx 328	4
3	Rx 328	105			11 12		750		COMM-RB	25
21	COMM-RB	630			13 14		320		Rx 261 SOUTH STAIR	4
5	Rx SOUTH STAIRS	400			15 16		560		Rx (NORTH STAIRS)	7
6	Rx SOUTH STAIRS	480			17 18		320		RB (NORTH STAIRS)	4
	SPARE				19 20				SPARE	
	SPARE				21 22				SPARE	
	SPARE				23 24				SPARE	
	SPARE				25 26				SPARE	
	SPARE				27 28				SPARE	
	SPARE				29 30				SPARE	
	SPARE				31 32				SPARE	
	SPARE				33 34				SPARE	
	SPARE				35 36				SPARE	
	SPARE				37 38				SPARE	
	SPARE				39 40				SPARE	
	SPARE				41 42				SPARE	

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.25 KW

ATTACHMENT 2

SHEET 6 OF 10

NO	DESCRIPTION	DATE
1		
2	ORIGINAL ISSUE	
4		

PNL NO _____ EQPT NO 2LAR-PNL 09 MK NO _____ LOC Rx. BLDG COL _____ ELEV -1'-10"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL 016 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
5	Rx. SOUTH STAIRS	440			1 2		200		RB 353 1-10"	3
6	Rx SOUTH STAIRS	480			3 4		245		RB 353	7
6	Rx SOUTH STAIRS	440			5 6		210		RB 353	6
	SPARE				7 8		175		RB 353	5
	SPARE				9 10				SPARE	
	SPARE				11 12				SPARE	
	SPARE				13 14				SPARE	
	SPARE				15 16				SPARE	
	SPARE				17 18				SPARE	
	SPARE				19 20				SPARE	
	SPARE				21 22				SPARE	
6	RB 353 1-10"	480			23 24		420		RB 353	6
	↓				25 26				↓	
	SPARE				27 28		540		RB 353	3
	SPARE				29 30				↓	
	SPARE				31 32				SPARE	
	SPARE				33 34				SPARE	
	SPARE				35 36				SPARE	
	SPARE				37 38				SPARE	
	SPARE				39 40				SPARE	
	SPARE				41 42				SPARE	
	SPARE				A B C				SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 3.63 KW.

LIGHTING PANELBOARD SCHEDULE

CIRCUIT APPLICATION

ATTACHMENT 3
PAGE 7 of 10

2LAR-PNL1

PNL NO _____ EQPT NO _____ MK NO _____ LOC CONT. BLDG COL _____ ELEV 2'-1'-0"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

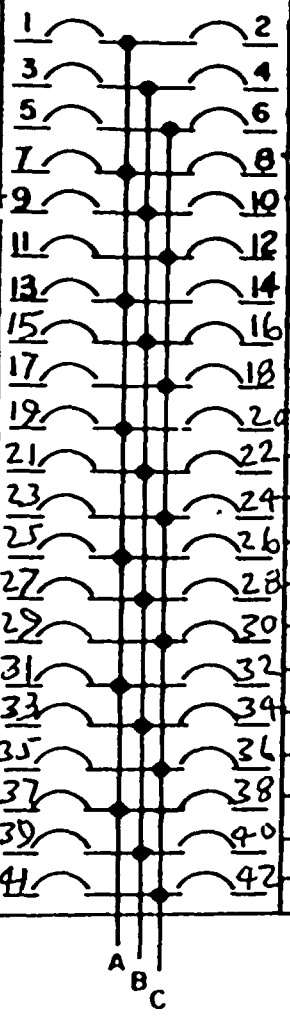
BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

2LAS-PNL016

XFMR MK NO _____ EQPT NO _____ KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
9	CB 237, CA-CHASE	720		
7	CB 237 STAIRS	560		
10	CB 237/DGB 244	680		
4	STBY SWGR RM 261	320		
4	STBY SWGR, CA-CHASE	160		
4	STBY SWGR - CORRIDOR	320		
8	STBY SWGR - EXIT SIGNS	320		
5	STBY SWGR - STAIRS	400		
5	HPC.S SWGR 261	400		
	SPARE			
5	CB 261, 264, 306 STAIRS	400		
6	CB 261, 264, 306 STAIRS	480		
3	DG. BLDG 261	750		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
16	Comm/CB. HVAC	480		
3	DGB CR 261	240		
	SPARE			

SN



AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	480		CB 237, CA. ROOT	5
	480		CB 237, CA. ROOT	6
	560		STBY SWGR RM 261	7
	320		STBY SWGR RM-STAIRS	4
	320		STBY BATT RM 261	4
	320		STBY SWGR - CORRIDOR	4
	160		ELEC. BAY 261	2
	320		ELEC. BAY 261	4
	400		ELEC. BAY/EXTERIOR	5
	200		ELEC. BAY 261/EXIT SIGN	5
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
	900		Comm/DGB, CB, NSY	30
	280		DGB 261 EXIT SIGNS	7
	240		DGB 261 CORRIDOR	3
	340		DGB 261	4

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 11.55 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 5
PAGE 4 OF 16

ISSUE | DESCRIPTION
1 | ORIGINAL ISSUE
2 |
3 |
4 |

CHKD COR APPR DATE

LIGHTING PANELBOARD SCHEDULE

2LAR-PNL( )

PNL NO _____ EQPT NO _____ MK _____ LOC Rx-AUX-BAY SOUTH COL _____ ELEV ± 51-011

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

2LAS-PNL016

XFMR MK NO _____ EQPT NO _____ KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
4	Rx ABS 175 (EXIT)	160		
10	Rx ABS (STAIR)	800		
2	Rx ABS (STAIR)	720		
7	Rx ABS 193 & 240	700		
4	Rx ABS 240	400		
	SPARE			
	SPARE			
	SPARE ?			
13	COMM - [redacted]	390		
	SPARE			

SN

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41	42

A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	700		Rx ABS 175 & 215	7
	120		Rx ABS 198 EXIT	3
	240		Rx ABS 215 261 (EXIT)	6
	500		Rx ABS 245	5
	80		Rx ABS 240	1
			SPARE	
			SPARE	
	160		MEC CTG ?	E
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 4.27 KW

ATTACHMENT 2
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PRINTS / IPR CARD — ISSUE (2) — ISSUE (4)

ISSUE 1 — ORIGINAL ISSUE — DESCRIPTION

STONE & WEBSTER ENGINEERING CORP. BOSTON, MASS.

CLIENT N.M.P.C. STA NINE MILE - UNIT 2 REF DWGS 1.420-221-071 JO 12177

PNL NO CDP-4 EQPT NO 2LAT-PNL017 LOC TURBINE BLDG COL ML6/C ELEV 2

SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP

BR CKTS TYPE HE CKT BRKR, ~~BUSSED SW~~ - MTG: ~~SURF~~, SURF - NEMA TYPE 12 FDR SIZE 1-750 MCM ~~3000~~ 1-350 AT PANEL

~~MAIN LUG NO~~ SOURCE EQPT NO UPSIC KVA 75 ADD'L FEATURES 400A-3P MAIN BRKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP		AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	2LAR-PNL U02	~~88KVA~~ 7.64		45	1 2	45	~~77KVA~~ 5.95		2LAT-PNLU02	
	2LAX-PNLU01 ABB	~~22KVA~~ 2.3		45	3 4 5 6 7 8 9 10 11 12	45	~~77KVA~~ 7.35		2LAT-PNLU04	
	2LAT-PNLU05	~~88KVA~~ 6.1		45	13 14 15 16 17 18	45	~~114KVA~~ 17.17		2LAN-PNLU01 RW	
	2LAW-PNLU01 SW	~~8KVA~~ 8.14		45	19 20 21 22 23 24	45	~~6KVA~~ 5.9		2LAR-PNLU05	
	2LAR-PNL U01	~~88KVA~~ 7.5		45	25 26 27 28 29 30	45			SPARE	
	SPARE			45	31 32 33 34 35 36	46				
				45	37 38 39 40 41 42	45				

A B C

CONN LOAD: ~~70 KVA~~ 67.05 KW

ULT LOAD:

TOTAL LOAD

ATTACHMENT 5
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EE-123
PAGE 28

2LAT-PNL017

FEEDS FROM:

DWG NO. EE-11X

ITEMS	1	2	4
DESCRIPTION	ORIGINAL ISSUE		
CHKD	CORR APPD		
DATE			

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAR-PNL 2 MK NO _____ LOC Rx B COL _____ ELEV 2'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL-17 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	Rx 261	450		
2	RX 261	160		
12	RX 261 & 239	475		
21	Comm.	630		
	SPARE ?			
	SPARE ?			
	SPARE ?			
3	PRI. CNTMT. 261	600		
3	Comm.	90		
	SPARE			
	SPARE			
4	RX 261	390		
	↓			
5	RX 261	540		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			

SN

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15			16
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19			20
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25			26
27			28
29			30
31			32
33			34
35			36
37			38
39			40
41			42

A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	120		RX 261 EXIT SIGNS	3
	455		RX 289	13
	720		RX 289	17
	35		RX 289 ELEV-STR	1
	455		RX 289	13
	120		LTG. CONT/CONT	3
	1200		PRI. CNTMT 289	6
	1200		PRI. CNTMT 289	6
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 7.64 KW

CKT # 14, 15, 16 DE-ENERGIZED DURING NORMAL OPERATION.

ATTACHMENT 3
PAGE 11 OF

ISSUE	DESCRIPTION	DATE	BY
1	ORIGINAL ISSUE		
2			
3			
4			

2LAT-PNLC

PNL NO _____ EQPT NO _____ MK NO _____ LOC TB COL _____ ELEV 2'-6"

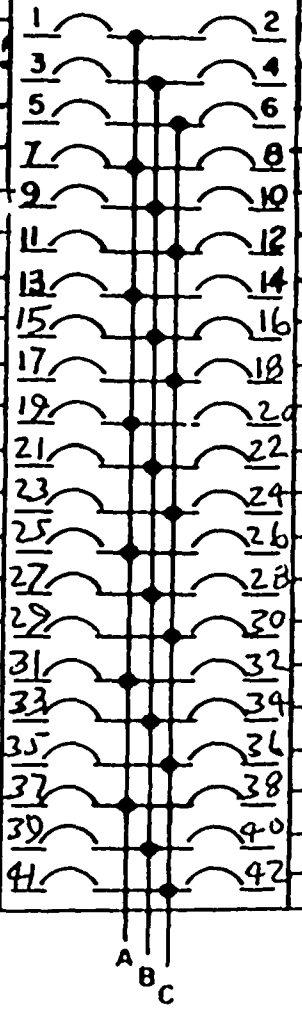
SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
5	TB 277 (SWE)	500		
	↓			
6	TB 277 (NWE)	700		
	↓			
2	TB 277 AIR EJ. RM	209		
	↓			
4	TB 277 - SW STAIRS	370		
	↓			
2	TB 277	250		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
5	TB 277 (WE)	400		
2	TB 277 (EE)	160		
6	TB 277 EXIT SIGNS	240		
3	DEMIN. AREA	240		

SN



AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	500		TB 277 (NEE)	5
			↓	
			SPARE	
			SPARE	
	300		TB 277 (SEE)	3
			↓	
	200		TB 277 (SEE)	2
			↓	
			SPARE	
			SPARE	
	550		DEMIN. AREA	7
			↓	
			SPARE	
			SPARE	
	100		TB 277 (NEE)	1
			↓	
			SPARE	
	420		COMM.	14
	160		DEMIN. AREA	2
			SPARE	
	160		TB277 EXIT SIGNS	4

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.45 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT

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ISSUE | DESCRIPTION | CHKD | DATE | APP'D | DATE
1 | ORIGINAL ISSUE

PNL NO _____ EQPT NO 2LAX-PNL 31 MK NO _____ LOC AVX-BOILER HOUSE COL _____ ELEV 61

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL 317 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
3	AB 261	350			1 2		350		AB-261	3
	↓				3 4				↓	
3	AB 2791-3	300			5 6		240		AB 261	2
	↓				7 8				↓	
	SPARE				9 10				SPARE	
	SPARE				11 12					
	SPARE				13 14					
	SPARE				15 16					
1	AB261 EXIT SIGNS	50			17 18					
	SPARE				19 20					
	SPARE				21 22					
	SPARE				23 24					
	SPARE				25 26					
E	Comm - RW	500			27 28		500		Comm - RW	E
	SPARE				29 30				SPARE	
	↓				31 32				↓	
					33 34					
					35 36					
					37 38					
					39 40					
					41 42					

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 2.29 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 2
PAGE 13 OF 40

2LAT-PNL 4

PNL NO _____ EQPT NO _____ MK NO _____ LOC TB COL _____ ELEV 2'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2LAT-PNL.017

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	SVCE WTR VLV-PIT	240		
1	↓	80		
	SPARE			
5	CLEAN ACCESS. AR	480		
5	CLEAN ACCESS. AR	560		
6	CLEAN ACCESS AR	480		
7	CAA - [redacted]	560		
3	CAA - EXIT SIGNS	120		
4	AUX-SVCE BLDG-SOUTH	640		
5	261 ↓	720		
3	AUX-SERV. BLDG(S) EXIT	120		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
5	AUX-SERV-BG-S 261	440		
	↓			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	480		PIPE TUNNEL	6
	200		PIPE TUNN-EXIT	5
	480		PIPE TUNNEL	6
	560		PIPE TUNNEL	7
	480		PIPE TUNNEL	6
	400		PIPE TUNNEL	5
	160		PIPE TUNNEL-EXIT	4
			SPARE	
			SPARE	
	150		COMMUNICATIONS	5
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 7.35 KW

LIGHTING PANELBOARD SCHEDULE

ISSUE | DESCRIPTION | 1 | 2 | 3 | 4

ORIGINAL ISSUE

ENDICOTT AREA EXIT

ATTACHMENT 2

PAGE 14 OF 16

ISSUE | DESCRIPTION | CHKD | CODE | APPR | DATE
1 | ORIGINAL ISSUE

LIGHTING PANELBOARD SCHEDULE

2L.AT-PNL 05

PNL NO _____ EQPT NO: _____ MK. _____ LOC: TB COL _____ ELEV 3'-3"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

2L.AT-PNL 017.

XFMR MK NO _____ EQPT NO _____ KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	SPARE - ?				1 2				- ?	
	SPARE ?				3 4				?	
7	TB - NW STAIRS	560			5 6				SPARE	
7	TB - NW STAIRS	720			7 8				SPARE	
3	TB - EXIT SIGNS	120			9 10		720		OG 261 @ RAILROAD	9
9	OG @ DEMIN. AREA	720			11 12				↓	
	↓				13 14		500		HTR BAY A	5
	SPARE				15 16				↓	
	SPARE				17 18				SPARE ?	
	SPARE				19 20				SPARE	
	SPARE				21 22				SPARE	
	SPARE				23 24		480		SVCE, FOAM RM, TRUCK	7
	DEMIN. AREA ?				25 26		360		SVCE, FOAM RM, TR.	5
	SPARE				27 28		600		SVCE, FOAM RM, TR	6
	SPARE				29 30				SPARE ?	
	SPARE				31 32		240		DEMIN. HTR BAY	6
2	DEMIN. AREA	240			33 34		350		DEMIN. HTR BAY	4
2	HTR BAY	200			35 36		280		TRUCK AISLE	4
	↓				37 38				↓	
	SPARE				39 40				SPARE	
	SPARE				41 42				SPARE	

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.09 KW

ATTACHMENT 3
PAGE 15 of 19

ISSUE	1	2	3	4
DESCRIPTION	ORIGINAL ISSUE			
CHKD				
CORR APPR				
DATE				

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAN-PNL MK _____ LOC RW BLDG COL _____ ELEV 2 1-0"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
4	RW 240	320		
10	RW240 EXIT SIGN	450		
13	RW261 EXIT SIGN	625		
11	RW240	385		
11	RW240	385		
9	RW261	315		
5	RW279 EXIT SIGN	250		
13	RW279	455		
7	RW279	560		
5	RW STAIRS	500		
	↓			
5	RW STAIRS	470		
	↓			
3	RW237 & 301	240		
	SPARE			
E	Comm-2COP-PNL VA	1500		
	↓			
	SPARE			
2	RECEPT-CHEM LAB	2000		
3	CHEM LAB	240		

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	640		RW261	8
	400		RW NORTH STAIRS	5
	400		RW NORTH STAIRS	5
	315		RW 261	9
			SPARE	
			SPARE	
			SPARE	
	500		Comm.	E
	500		Comm	E
	250		RW291 EXIT SIGN	5
	385		RW291	11
	560		RW291	7
	100		RW309 EXIT SIGN	2
	245		RW309	7
			SPARE	
			SPARE	
	2880		2RMS-CAB170	E
			SPARE	
	400		COND. STO-BLDG	11
	900		RW COURT-RM	
			SPARE.	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 17.17 KW

ATTACHMENT 3

PAGE 16 OF 17

ITEM | 1 | 2 | 3 | 4

ORIGINAL ISSUE

DESCRIPTION

CHKD & APPROVED

PNL NO _____ EQPT NO 2LAW-PNL 01 MK NO _____ LOC SCREENWELL 13 CDG COL _____ ELEV 2.1

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
5	SW PUMP BAY	900		
5	SW HIGH BAY	2000		
5	SW BLDG	600		
3	SW BLDG	750		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	COMM - ?			
	SPARE			
	SPARE			
	SPARE			
4	SW BLDG	140		
	SPARE			
	SPARE			
	SPARE			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	700		SW BLDG	3
	1200		SW BLDG HIGH BAY	3
	750		SW - CIRC. WTR	6
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE ?	
	40		SW - EXIT SIGNS.	1
	160		SW - EXIT SIGNS	4
			SPARE	
	900		COMM	6
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 8.14 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 3
PAGE 17 OF 19

ITEM 1 2 3 4

DESCRIPTION: ORIGINAL ISSUE

CHKD COR APPR EXPT

PNL NO _____ EQPT NO 2LAR-PNL01 MK _____ LOC, RX AUX BAY NORTH COL _____ ELEV 2'-3"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
4	RX ABN 175 (EXIT)	160		
12	RX ABN - STAIRS	960		
12	RX ABN - STAIRS	960		
5	RX ABN 195	470		
	↓			
1	RX ABN 290	80		
7	ABN - EXIT SIGNS	280		
	SPARE			
	SPARE			
14	COMM.	420		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	500	-	RX ABN 175	5
			↓	
	160		RX ABN 195 (EXIT)	4
	500		RX ABN 215	5
			↓	
	400		RX ABN 290	4
			↓	
			SPARE	
			SPARE	
	500		MCC UTG 7	E
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.39 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 3.

PAGE 14 OF 16

ISSUES: 1 ORIGINAL ISSUE; 2; 3; 4

DESCRIPTION

CHKD CORR APPR DATE

2LAR-PNL1

PNL NO _____ EQPT NO _____ MK _____ LOC RB COL _____ ELEV 2'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

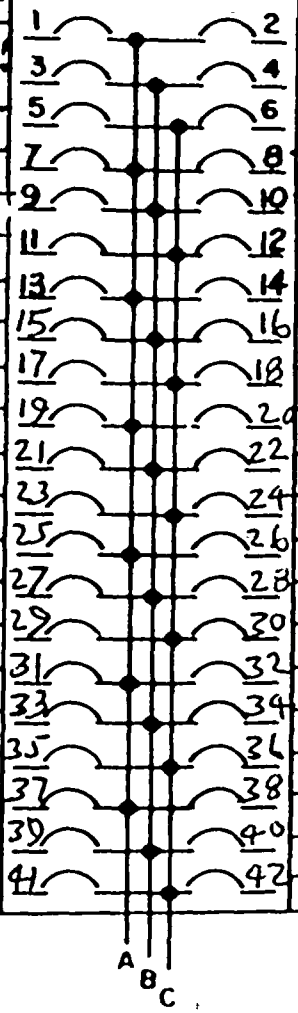
BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2LAT-PNL017

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
5	RX 215	880		
4	RX 215	560		
4	RX 215	560		
4	RX 196	320		
	SPARE			
4	RX 196 - EXIT SIGNS	160		
4	RX 240 (EXIT SIGNS)	160		
4	Comm.	120		
	SPARE			
5	RX 240	440		
	↓			
8	RX 240	710		
	↓			
	SPARE			
	SPARE			
3	RX 196	370		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			

SN



AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	80		RX-175	1
	160		RX 175	2
	240		RX 196	3
			PRI. CNTMT ?	
	160		RX175 EXIT SIGNS	4
	160		RX215 EXIT SIGNS	4
	390		Comm.	13
			SPARE	
			SPARE	
	370		RX 175	3
			↓	
	440		RX 175	4
			↓	
	240		RX 196	3
			↓	
	570		RX 215	6
			↓	
	410		RX 215	5
			↓	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 7.5 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 3
PAGE 19 OF 19

PRINTS			ISSUE (2)					ISSUE (4)		
APR CARD										

ISSUE 1 — ORIGINAL ISSUE

STONE & WEBSTER ENGINEERING CORP.
BOSTON, MASS.

CLIENT N.M.P.C. STA NINE MILE-UNIT 2 REF DWGS 1.420-221-071 JO 12177
PNL NO CDP-4 EQPT NO 2LAS-PNL016 LOC ELEC. BAY COL L 6.8/AK ELEV 261'
SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP
BR CKTS TYPE HE CKT BRKR, ~~[illegible]~~ - MTG: ~~SE~~, SURF - NEMA TYPE 12 FDR SIZE 1-4/0 PER Ø ~~SOC~~
~~XFMR~~ NO SOURCE EQPT NO UPS 1D KVA 75 ADD'L FEATURES 400A-3P MAIN BKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP		AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	2LAC-PNLU01 ✓	~~11.5KVA~~ 8-06		45	1 2 3 4 5 6	45	~~8.5KVA~~ 6-35		2LAT-PNLU03 ✓	
	2LAC-PNLU03 ✓	~~13.7KVA~~ 6-14		45	7 8 9 10 11 12	45			SPARE	
	2LAT-PNLU01 ✓	~~12.7KVA~~ 7-25		45	13 14 15 16 17 18	45	~~4.8KVA~~ 3-67		2LAR-PNLU03 ✓	
	2LAR-PNLU04 ✓	~~2KVA~~ 3-3		45	19 20 21 22 23 24	45	~~10.8KVA~~ 5-12		2LAC-PNLU02 ✓	
	SPARE			45	25 26 27 28 29 30	45			SPARE	
	2LAR-PNLU06 ✓	~~5.2KVA~~ 4-35		45	31 32 33 34 35 36	45			SPARE	
	SPARE			45	37 38 39 40 41 42	45				

A B C

CONN LOAD: ~~70.1 KVA~~
ULT LOAD:
TOTAL LOAD

(44.2 KVA)

DWG. NO. EE-11X

2LAS-PNL016

ATTACHMENT 4
PAGE 1 OF 10

EC-123 PAGE 27

2LAC-PNLU01

PNL NO _____ EQPT NO _____ MK NO _____ LOC, CONT. BLDG COL _____ ELEV +1'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAC-PNLU01B KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
3	ELEC-TUN. 214	240			1 2		80		ELEC TUN. 214	1
2	ELEC. TUN 214	160			3 4		160		ELEC. TUN. 214	2
4	ELEC. TUN 214	280			5 6		160		ELEC. TUN. 214	2
5	ET 214 - STAIR #1	400			7 8		240		ET 214 STAIR #1	3
4	ET 214 - STAIR #3	329			9 10		400		ET 214 - STAIR #3	5
3	STAIR #2	240			11 12		160		STAIR #2	2
3	STAIR #2	240			13 14				SPARE	
8	AB/C ET. EXIT SIGNS	320			15 16		600		CB 214 EXIT SIGNS	15
12	AB/C ET. STAIRS	960			17 18		600		CB237 EXIT SIGNS	15
10	CR EL 214	800			19 20				SPARE	
5	CR EL 214 STAIRS	400			21 22		160		CB 214 - BATT. RM	2
8	CB 214. BATT-RM	640			23 24		500		Comm. ET, AB/C, CB 214	11
	SPARE				25 26				SPARE	
					27 28					
					29 30					
					31 32					
					33 34					
					35 36					
					37 38					
					39 40					
					41 42					
					A B C					

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 8.06

NOTE: NONE OF THE LOADS FROM THIS PNL

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4

PAGE 2 OF 19

ITEM | 1 ORIGINAL ISSUE | 2 | 3 | 4

DESCRIPTION | CHKD | COR | APPD | DATE

PNL NO _____ EQPT NO 2LAT-PNL 13 M .0 LOC TB COL ____ ELEV 31-0"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO _____ KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
6	TB 250 (WE)	670		
	HTR BAY 7 & C			*
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
4	HTR BAY C-250	400		
1	TB250 HTR RM	80		
7	PIPE TUNNEL EDIT	280		
40	Comm/TB 250	1200		
3	PIPE TUNNEL	240		
3	PIPE TUNNEL	240		
3	HTR BAY B	300		
3	HTR BAY C	300		

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
*	450		TB 250 (EE)	4
			SPARE	
			SPARE	
*	400		TB 250 (EE)	4
			SPARE	
			SPARE	
	500		HTR BAY B 250	5
			SPARE	
			SPARE	
	120		TB250 EXIT SIGNS	3
	210		Comm/TB HTR BAY	7
	160		TB 250 (EE)	2
	400		PIPE TUNNEL	5
	160		HTR BAY B & C	2
	240		PIPE TUNNEL 93/4	3
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.35 kW

* REFER TO [redacted] DRAWING FOR [redacted] TO BE SHED FROM [redacted] EE-66B, EE-79B

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
PAGE 3 OF 10

ITEM	DESCRIPTION	CHKD CORRECTED DATE
1	ORIGINAL ISSUE	
2		
4		

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAC-PNL-13 MK NO _____ LOC, CONT BLDG COL ____ ELEV -26'-3"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL-216 KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	COMP. RM 238 & 238A	0			1 2		0		INST. RM. 238	
	RELAY RM. 233	0			3 4		280		RELAY RM. EDIT/SIGNS	7
4	RELAY RM 233/CORRID	320			5 6		80		RELAY RM. 233/CA CHGR	1
1	CB 306 - CORRIDOR	160			7 8		0		CR 306/SUPV. OFFICE	
1	CB 306 - CORRIDOR	160			9 10		200		CB 306 EDIT/SIGNS	5
4	CR 306 - HVAC/INST	640			11 12				SPARE	
	SPARE				13 14				SPARE	
	SPARE				15 16				SPARE	
	~~COMM~~ CR SPARE				17 18				SPARE	
18	Comms/CR	540			19 20		240		CR 306	3
	SPARE				21 22				SPARE	
	SPARE				23 24				SPARE	
	SPARE				25 26				SPARE	
	SPARE				27 28				SPARE	
	SPARE				29 30		0		RECEPTACLE	
	SPARE				31 32		0		RECEPTACLE/CB	
	SPARE				33 34				SPARE	
	FEED TO DIMMER RM	1520			35 36				SPARE	
					37 38		0		COUNT. RM/RECEPT.	
	COUNT. RM/RECEPT.	0			39 40		0		COUNT. RM/RECEPT.	
1	TELE. RM/RECEPT	1000			41 43		1000		CR 306/RECEPT.	1

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.14 KW

ATTACHMENT 6

PAGE 6 OF 19

ISSUE 1 2 4

DESCRIPTION ORIGINAL ISSUE

CHKD CORR APPD STAT

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAT-PNL1 MK NO _____ LOC _____ COL TB ELEV 06

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL01B KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
5	TB 306 (WE)	400	*	
	↓			
2	TB 306 (WE)	160	*	
	↓			
4	TB 306 (EE)	320	*	
	↓			
6	TB 306/mech-RHTR	480	*	
	↓			
6	TB 306/mech-RHTR	480	*	
	↓			
4	TB 306-CL.STM.RBLR	320	*	
	↓			
4	TB 306-mech-RHTR	320		
	SPARE			
	SPARE			
8	HVAC 306	640	*	
	↓			
12	Comm/TB 261, 299, 306	360		
9	Comm/TB-HTR RM 7	270		
	#3 ELEV. TB 250			
6	TB-NE STAIRS	480		

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	480	*	TB 306 (WE)	6
			↓	
			SPARE	
			SPARE	
1	320	*	TB 306 (NEE)	4
			↓	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
	320		TB 306-EXIT SIGNS	8
	800	*	HVAC 298	10
			↓	
	300		OG RM 283	2
			↓	
	240		CONT-INST.RM/CRAB	3
	320		OG RM 299, 306	4
	240		TB-WE STAIRS	3
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 7.25 KW

* CONVERT DOME CT TO NORMAL POWER FOR ALL EGRESS CT

ATTACHMENT 4
PAGE 5 OF 19

ISSUE | DESCRIPTION | CHK'D | CORR APPR | DATE
1 | ORIGINAL ISSUE

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAR-PNL 13 MK NO _____ LOC Rx B. COL _____ ELEV 61-6"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: FL, SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
9	Rx 306	315		
3	Rx 306 (EXIT-SIGNS)	180		
	SPARE			
3	Rx 32 &	105		
3	Rx 32 & (EXIT-SIGNS)	120		
3	Rx 32 &	105		
21	COMM - RB	630		
2	Rx SOUTH STAIRS	160		
6	Rx SOUTH STAIRS	480		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	245		Rx - 306	7
	70		Rx 306	2
	0		Rx 32 &	
	210		Rx 32 &	6
	140		Rx 32 &	4
	750		COMM - RB	25
	80		Rx (SOUTH STAIRS)	1
	80		Rx (NORTH STAIRS)	1
	0		RB (NORTH STAIRS)	
			SPARE ?	
			SPARE ?	
			SPARE ?	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 3.67 KW

ATTACHMENT 4
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ISSUE 1 ORIGINAL ISSUE | 2 | 4

DESCRIPTION | CHK'D/CORR APP'D DATE

PNL NO _____ EQPT NO 2LAR-PNL 19 MK NO _____ LOC Rx. BLDG COL _____ ELEV -1-10"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL 016 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
5	Rx. SOUTH STAIRS	440			1 2		150		RB - 353 1-10"	2
6	Rx SOUTH STAIRS	480			3 4		175		RB 353	5
6	Rx SOUTH STAIRS	440			5 6		210		RB 353	6
	SPARE				7 8		0		RB 353	
	SPARE				9 10				SPARE	
	SPARE				11 12				SPARE	
	SPARE				13 14				SPARE	
	SPARE				15 16				SPARE	
	SPARE				17 18				SPARE	
	SPARE				19 20				SPARE	
	SPARE				21 22				SPARE	
6	RB 353 1-10"	480			23 24		420		RB 353	6
	↓				25 26				↓	
	SPARE				27 28		540		RB 353	3
	SPARE				29 30				↓	
	SPARE				31 32				SPARE	
	SPARE				33 34				SPARE	
	SPARE				35 36				SPARE	
	SPARE				37 38				SPARE	
	SPARE				39 40				SPARE	
	SPARE				41 42				SPARE	
	SPARE								SPARE	

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 3.3

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
PAGE 7 OF 19

2LAR-PNL 12

PNL NO _____ EQPT NO _____ M. O _____ LOC, CONT-BLDG COL _____ ELEV. 21'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2LAS-PNL016

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
A	CB 237, CA. CHASE	320			1 2		80		CB 237, CA. ROOT	1
3	CB 237 STAIRS	240			3 4		320		CB 237, CA. ROOT	4
B	CB 237/DGB 294	520			5 6		240		STBY SWGR RM 261	3
	STBY SWGR RM 261	0			7 8		0		STBY SWGR RM-STAIRS	
2	STBY SWGR, CA. CHASE	80			9 10		160		STBY BATT-RM 261	2
	STBY SWGR-CORRIDOR	0			11 12		0		STBY SWGR-CORRIDOR	
B	STBY SWGR-EXIT-SIGNS	320			13 14		160		ELEC. BAY 261	2
	STBY-SWGR-STAIRS	0			15 16		320		ELEC. BAY 261	4
1	HPSC SWGR 261	80			17 18		80		ELEC. BAY/SWGR RM.	1
	SPARE				19 20		200		ELEC-BAY 261/EXIT SIGN	5
	CB 261, 2EF, 306 STAIRS	0			21 22				SPARE	
	CB 261, 2EF, 306 STAIRS	0			23 24				SPARE	
	DN. BLDG 261				25 26				SPARE	
	↓				27 28				SPARE	
	SPARE				29 30				SPARE	
	SPARE				31 32				SPARE	
	SPARE				33 34				SPARE	
	SPARE				35 36		900		Comm/DGB, CB, NS, Y	30
16	Comm/CB. HVAC.	480			37 38		280		DGB 261 EXIT-SIGNS	7
	DGB CB 261	0			39 40		0		DGB 261 CORRIDOR	
	SPARE				41 42		340		DGB 261	4

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.12

ISSUE | DESCRIPTION | CHKD | CORR APPD | DATE

1 ORIGINAL ISSUE

2

3

4

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
PAGE 5 OF 19

ISSUE 1 2 4 — ORIGINAL ISSUE — DESCRIPTION — CHKD CORR APPR DATE

LIGHTING PANELBOARD SCHEDULE

PNL NO 2LAR-PNL 16 EQPT NO _____ MK NO _____ LOC Rx-AUX-BAY SOUTH COL _____ ELEV -01'-0"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted]; SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAS-PNL 016 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
4	Rx ABS 175 (EXIT)	160		
7	Rx ABS (STAIRS)	560		
8	Rx ABS (STAIRS)	640		
6	Rx ABS 193 & 240	600		
	↓			
2	Rx ABS 240	200		
	↓			
	SPARE			
	SPARE			
	SPARE ?			
13	Comm- [redacted]	390		
	SPARE			
	↓			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	700	-	Rx ABS 175 & 215	7
			↓	
	120		Rx ABS 198 EXIT	3
	240		Rx ABS 215, 261 (EXIT)	6
	500		Rx ABS 245	5
			↓	
	80		Rx ABS 240	1
			SPARE	
			SPARE	
	160		MEC CTG ?	E
			SPARE	
			↓	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 9.35 KW

ATTACHMENT 4
PAGE 9 of 19

PRINTS | APR CARD | ISSUE (2) | ISSUE (4)

STONE & WEBSTER ENGINEERING CORP. BOSTON, MASS.

ISSUE 1 2 3 4 — DESCRIPTION: ORIGINAL ISSUE

CLIENT N.M.P.C. STA NINE MILE - UNIT 2 REF DWGS 1.420-221-071 JO 12177

PNL NO CDP-4 EQPT NO 2LAT-PNL017 LOC TURBINE BLDG COL ML6/C ELEV 2

SVCE 208Y/120VAC PH 3 W 4 NEUT SOLID MNS: ~~LUGS ONLY~~, CKT BRKR, ~~FUSED SW~~ - CONN: TOP

BR CKTS TYPE HE CKT BRKR, ~~FUSED SW~~ - MTG: ~~FLUSH~~, SURF - NEMA TYPE 12 FDR SIZE 1-750 MCM/Ø ~~3/0~~ 1-350 AT PANEL

~~MAIN MLO NO~~ SOURCE EQPT NO UPS1C KVA 75 ADD'L FEATURES 400A-3P MAIN BRKR

NO	SERVICE	LOAD CONN	LOAD ULT	AMP		AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	2LAR-PNL U02	~~8.8KVA~~ 6-97		45	1 2	45	~~27KVA~~ 5-4.5		2LAT-PNLU02	
	2LAX-PNLU01 ABB	~~20KVA~~ 2-1		45	3 4 5 6 7 8 9 10 11 12	45	~~9.5KVA~~ 5-19		2LAT-PNLU04	
	2LAT-PNLU05	~~7.0KVA~~ 6-1		45	13 14 15 16 17 18	45	~~11.4KVA~~ 12-3		2LAN-PNLU01 2W	
	2LAW-PNLU01 SW	~~6KVA~~ 4-49		45	19 20 21 22 23 24	45	~~6KVA~~ 3-81		2LAR-PNLU05	
	2LAR-PNL U01	~~6.6KVA~~ 6-53		45	25 26 27 28 29 30	45			SPARE	
	SPARE			45	31 32 33 34 35 36	46				
				45	37 38 39 40 41 42	45				

A B C

CONN LOAD: ~~70 KVA~~

ULT LOAD: _____

TOTAL LOAD _____ (52.94 KW)

2LAT-PNL017

DWG. NO. EE-11X

FEB 26 1981

ATTACHMENT 4
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EE-123
PAGE 28

ISSUE | 1 ORIGINAL ISSUE | 2 | 4

DESCRIPTION

CHKD | COR | APPD | DATE

PNL NO _____ EQPT NO 2LAR-PNL 22 MK NO _____ LOC Rx B COL _____ ELEV 01'-0"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	Rx 261	450		
1	Rx 261	80		
9	Rx 261 & 239	370		
21	Comm.	630		
	SPARE			
	SPARE			
	SPARE			
3	PRI. CNTMT. 261	600		
3	Comm.	90		
	SPARE			
	SPARE			
4	Rx 261	390		
	↓			
5	Rx 261	540		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
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	SPARE			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	120		Rx 261 EXIT S/BRKS	3
	420		Rx 2 & 9	12
	580		Rx 2 & 9	13
	35		Rx 239 ELEV-S/HR	1
	140		Rx 2 & 9	4
	120		LTG. CONT/CONT	3
	1200		PRI. CONTMT 261	6
	1200		PRI. CONTMT 239	6
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
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			SPARE	
			SPARE	
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			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.965

CKT # 14, 15, 16 DEENERGIZED DURING NORMAL OPERATION. (3KW)

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
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NO	DESCRIPTION	DATE
1	ORIGINAL ISSUE	
2		
--		
4		

2LAT-PNL 2

PNL NO _____ EQPT NO _____ MK NO _____ LOC TB COL _____ ELEV 7'-6"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
5	TB 277 (SWE)	500			1 2		500		TB 277 (NEE)	5
	↓				3 4				↓	
6	TB 277 (NWE)	700			5 6				SPARE	
	↓				7 8				SPARE	
2	TB 277 AIR EJ. RM	200			9 10		300		TB 277 (SEE)	3
	↓				11 12				↓	
4	TB 277 - SW STAIRS	370			13 14		200		TB 277 (SEE)	2
	↓				15 16				↓	
2	TB 277	250			17 18				SPARE	
	↓				19 20				SPARE	
	SPARE				21 22		550		DEMIN. AREA	7
	SPARE				23 24				↓	
	SPARE				25 26				SPARE	
	SPARE				27 28				SPARE	
	SPARE				29 30					
	SPARE				31 32		100		TB 277 (NEE)	1
	SPARE				33 34				↓	
	SPARE				35 36				SPARE	
5	TB 277 (WE)	400			37 38		420		Comm.	14
2	TB 277 (EE)	160			39 40		160		DEMIN. AREA	2
6	TB 277 EXIT SIGNS	240			41 42				SPARE	
3	DEMIN. AREA	240			A B C		160		TB 277 EXIT SIGNS	4

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.45 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
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ISSUE 1 | 2 | 4

ORIGINAL ISSUE

DESCRIPTION

CHKD CODE LATEST ISSUE

LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO: 2LAX-PN 101 MK NO _____ LOC: AUX-BOILER HOUSE COL _____ ELEV -61

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL 017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
3	AB 261	210	*		1 2		280	+-	AB 261	3
3	AB 2791-3	300			3 4					
	SPARE				5 6		240		AB 261	2
	SPARE				7 8					
	SPARE				9 10				SPARE	
	SPARE				11 12					
1	AB261 EXIT SIGNS	50			13 14					
	SPARE				15 16					
	SPARE				17 18					
	SPARE				19 20					
	SPARE				21 22					
E	Comm - RW	500			23 24		500		Comm - RW	E
	SPARE				25 26				SPARE	
					27 28					
					29 30					
					31 32					
					33 34					
					35 36					
					37 38					
					39 40					
					41 42					
					A B C					

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 2.08

CONVERT DOME LTG TO NORMAL POWER AND ADD BATTERY PACK (NOM. 1E) IN ALL AREAS

ATTACHMENT 4
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NO	DESCRIPTION	DATE	APPD
1	ORIGINAL ISSUE		
2			
3			
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2LAT-PNL 104

PNL NO _____ EQPT NO _____ M O _____ LOC TB COL _____ ELEV. 0'-0"

SVCE 120/208 V. PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE ____ FDR SIZE _____ [redacted]

2LAT-PNL 017

XFMR MK NO _____ EQPT NO _____ KVA ____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
3	SVCE WTR VLV-PIT	240		
1	↓	80		
	SPARE			
1	CLEAR ACCESS. AR	80		
1	CLEAR ACCESS. AR	80		
2	CLEAR ACCESS AR	160		
2	CAA - [redacted]	160		
3	CAA-EXIT SIGNS	120		
4	AUX-SVCE BLDG-SOUTH	640		
1	261 ↓	160		
3	AUX-SERV-BLDG(S)EXIT	120		
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
5	AUX-SERV-BG-S 261	490		
	↓			

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	490		PIPE TUNNEL	6
	200		PIPE TUNN-EXIT	5
	480		PIPE TUNNEL	6
	560		PIPE TUNNEL	7
	480		PIPE TUNNEL	6
	400		PIPE TUNNEL	5
	160		PIPE TUNNEL-EXIT	4
			SPARE	
			SPARE	
	150		COMMUNICATIONS	5
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 5.19 KW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
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ISSUES | 1 | 2 | 4
ORIGINAL ISSUE
DESCRIPTION
CHKD
CORR APPR
DATE

2LAT-PN 105

PNL NO _____ EQPT NO _____ M.. 10 _____ LOC TB COL _____ ELEV 0'-3"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2LAT-PNL 017.

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
	SPARE - ?			
	SPARE ?			
7	TB - NW STAIRS	560		
7	TB - NW STAIRS	720		
3	TB - EXIT SIGNS	129		
9	OG&E DEMIN. AREA	720		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	SPARE			
	DEMIN. AREA ?			
	SPARE			
	SPARE			
	SPARE			
2	DEMIN. AREA	240		
2	HTR BAY	200		
	↓			
	SPARE			
	SPARE			

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31			32
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35			36
37			38
39			40
41			42

A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
			- ?	
			?	
			SPARE	
			SPARE	
	720		OG&E RAILROAD	9
			↓	
	500		HTR BAY A	5
			↓	
			SPARE ?	
			SPARE	
			SPARE	
	480		SVCE, FOAM RM, TRUCK	7
	360		SVCE, FOAM RM, TR.	5
	600		SVCE, FOAM RM, TR	6
			SPARE ?	
	240		DEMIN. HTR BAY	6
	350		DEMIN. HTR BAY	4
	280		TRUCK AISLE	4
			↓	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.09 kW

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4

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ISSUE	DESCRIPTION	CHKD	CORR APPR	DATE
1	ORIGINAL ISSUE			
2				
3				
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LIGHTING PANELBOARD SCHEDULE

PNL NO _____ EQPT NO 2LAN-PN 01 M 10 LOC RW BLDG COL _____ ELEV 21'-0"

SVCE 120/208 V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

XFMR MK NO _____ EQPT NO 2LAT-PNL017 KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
4	RW 240	320		
10	RW240 EXIT SIGN	450		
13	RW261 EXIT SIGN	625		
11	RW240	385		
11	RW240	385		
9	RW261	315		
5	RW279 EXIT SIGN	250		
13	RW279	455		
7	RW279	560		
5	RW STAIRS	500		
	↓			
5	RW STAIRS	470		
	↓			
3	RW297 & 301	240		
	SPARE			
E	Comm-2COP-PNL V01	1500		
	↓			
	SPARE			
0	RECEPT-CHEM LAB	0		
3	CHEM LAB	240		

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A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	640		RW261	8
	400		RW NORTH STAIRS	5
	400		RW NORTH STAIRS	5
	315		RW261	9
			SPARE	
			SPARE	
			SPARE	
	510		Comm.	E
	500		Comm.	E
	250		RW291 EXIT SIGN	5
	385		RW291	11
	560		RW291	7
	100		RW309 EXIT SIGN	2
	245		RW309	7
			SPARE	
			SPARE	
	0		2RMS-CAB170	
			SPARE	
	400		COND.-STO-BLDG	11
	900		RW CONT-RM	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 12.29 KW

ATTACHMENT 4
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LIGHTING PANELBOARD SCHEDULE

ISSUE	DESCRIPTION	CHKD	CORE	APPR	DATE
1	ORIGINAL ISSUE				
2					
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4					

PNL NO ______ EQPT NO ZLAW-PC U01 MK. NO ______ LOC SCREENWELL BLDG COL ______ ELEV ______

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS ______ CKT BRKR, ~~FUSED SW~~ - MTG: [redacted], SURF - NEMA TYPE ______ FDR SIZE ______ [redacted]

XFMR MK NO ______ EQPT NO ZLAT-PNL017 KVA ______ ADD'L FEATURES ______

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
5	SW PUMP BAY	500	*		1 / 2		300	*	SW BLDG	3
	↓				3 / 4				↓	
5	SW HIGH BAY	500	*		5 / 6		300	*	SW BLDG HIGH BAY	3
	↓				7 / 8				↓	
5	SW BLDG	600			9 / 10		750		SW - CIRC. WTR	6
	↓				11 / 12				↓	
3	SW BLDG	300	*		13 / 14				SPARE	
	↓				15 / 16				SPARE	
	SPARE				17 / 18				SPARE	
	SPARE				19 / 20				SPARE	
	SPARE				21 / 22				SPARE	
	SPARE				23 / 24				SPARE	
	SPARE				25 / 26				SPARE	
	COMM - ?				27 / 28				SPARE ?	
	SPARE				29 / 30		40		SW - EXIT SIGNS	1
	SPARE				31 / 32		160		SW - EXIT SIGNS	4
	SPARE				33 / 34				SPARE	
4	SW BLDG	140			35 / 36		900		COMM	E
	SPARE				37 / 38				SPARE	
	SPARE				39 / 40				SPARE	
	SPARE				41 / 42				SPARE	

A B C

CONN LOAD ______

ULT LOAD ______

TOTAL LOAD 4.49 KW

* [illegible]

ATTACHMENT 4
PAGE 17 of 19

2CAR-PNL 5

PNL NO _____ EQPT NO _____ M..O _____ LOC, RX AUX. BAY NORTH COL _____ ELEV 0'-3"

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2CAT-PNL017

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP	SN	AMP	LOAD CONN	LOAD ULT	SERVICE	NO
4	RX ABN 125 (EXIT)	160			1 — 2		500		RX ABN 175	5
6	RX ABN - STAIRS	480			3 — 4				↓	
8	RX ABN - STAIRS	640			5 — 6		160		RX ABN 194 (EXIT)	4
5	RX ABN 198	470			7 — 8		500		RX ABN 215	5
	↓				9 — 10				↓	
	RX ABN 290	0			11 — 12		300		RX ABN 290	2
7	ABN - EXIT SIGNS	280			13 — 14				↓	
	SPARE				15 — 16				SPARE	
	SPARE				17 — 18				SPARE	
14	COMM.	420			19 — 20		0		MSC UTG 7	
	SPARE				21 — 22				SPARE	
	SPARE				23 — 24				SPARE	
	SPARE				25 — 26				SPARE	
	SPARE				27 — 28				SPARE	
	SPARE				29 — 30				SPARE	
	SPARE				31 — 32				SPARE	
	SPARE				33 — 34				SPARE	
	SPARE				35 — 36				SPARE	
	SPARE				37 — 38				SPARE	
	SPARE				39 — 40				SPARE	
	SPARE				41 — 42				SPARE	

A B C

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 3.81 kW

LIGHTING PANELBOARD SCHEDULE

ISSUE | DESCRIPTION | CHKD | CODE APPR | DATE

1 ORIGINAL ISSUE

2

4

ATTACHMENT 4
PAGE 14 OF 19

MARK	DESCRIPTION	DATE	APPROVED
1	ORIGINAL ISSUE		
2			
4			

2LAR-PNL 1

PNL NO _____ EQPT NO _____ M... NO _____ LOC: RB COL _____ ELEV 51-011

SVCE 120/208V PH 3 W 4 NEUT SOLID MNS: LUGS ONLY, [redacted], [redacted] - CONN: TOP

BR CKTS _____ CKT BRKR, [redacted] - MTG: [redacted], SURF - NEMA TYPE _____ FDR SIZE _____ [redacted]

2LAT-PNL 017

XFMR MK NO _____ EQPT NO _____ KVA _____ ADD'L FEATURES _____

NO	SERVICE	LOAD CONN	LOAD ULT	AMP
5	RX 215	280		
4	RX 215	560		
3	RX 215	480		
	RX 196			
	SPARE			
4	RX 196 - EXIT SIGNS	160		
4	RX 240 (EXIT SIGNS)	160		
4	Comm.	120		
	SPARE			
2	RX 240	170		
	↓			
7	RX 240	610		
	↓			
	SPARE			
	SPARE			
3	RX 196	370		
	↓			
	SPARE			
	SPARE			
	SPARE			
	SPARE			

SN

1	2		
3	4		
5	6		
7	8		
9	10		
11	12		
13	14		
15	16		
17	18		
19	20		
21	22		
23	24		
25	26		
27	28		
29	30		
31	32		
33	34		
35	36		
37	38		
39	40		
41	42		

A B C

AMP	LOAD CONN	LOAD ULT	SERVICE	NO
	80		RX-175	1
	160		RX 175	2
	240		RX 196	3
			PRI. CNTMT ?	
	160		RX175 EXIT SIGNS	4
	160		RX215 EXIT SIGNS	4
	390		Comm.	13
			SPARE	
			SPARE	
	370		RX 175	3
			↓	
	440		RX 175	4
			↓	
	290		RX 196	3
			↓	
	470		RX 215	5
			↓	
	310		RX 215	4
			↓	
			SPARE	
			SPARE	

CONN LOAD _____

ULT LOAD _____

TOTAL LOAD 6.53

LIGHTING PANELBOARD SCHEDULE

ATTACHMENT 4
PAGE 19 of 19

ATTACHMENT 5.

PAGE 1 OF 2.

MOD # 89-092 - LOAD SHED STUDY

2VBB-UPS 1C / 2LAT-PNL 017

PANEL #	EST. LOAD CALC. EC-123 (ATT. 1)	ACT. LOAD LTG. PLAN DWGS. (ATT. 2)	EXP. LOAD AFTER LOAD SHED. (ATT. 3)	REMARKS
2LAR-PNL U02	8.8	7.64	6.97	
2LAT-PNL U02	7.7	5.45	5.45	
2LAX-PNL U01	2.2	2.3	2.1	
2LAT-PNL M04	9.3	7.35	5.19	
2LAT-PNL U05	7.8	6.1	6.1	
2LAN-PNL U01	11.4	17.17	12.3	
2LAW-PNL U01	8.0	8.14	4.49	
2LAR-PNL U05	6.0	5.4	3.81	
2LAR-PNL U01	8.8	7.5	6.53	
	70	67.05	5?.?? -35	MOD # ?.?.?

MOD # 89-092 - LOAD SHED STUDY

2VBB-UPS1D / 2LAS-PNL 01G

PANEL #	EST. LOAD CALC. EC-123 (ATT. 1)	ACT. LOAD LTG. PLAN DWGS. (ATT. 2)	EXP. LOAD AFTER LOAD SHED. (ATT. 3)	REMARKS
2LAC-PNL U01	9.3	8.06	8.06	
2LAT-PNL U03	8.5	6.95	6.35	
2LAC-PNL U03	12.7	20.26	6.14	
2LAT-PNL U01	13.7	11.7	7.25	
2LAR-PNL U03	4.8	5.25	3.67	
2LAR-PNL U04	2.0	3.63	3.3	
2LAC-PNL U02	12.9	11.15	5.12	
2LAR-PNL U06	6.2	4.97	4.25	
	70.1	71.97	44.73	
			1.07	MOD # 87-...
			45.80	

NUCLEAR DESIGN-ELECTRICAL
CONCEPTUAL DESIGN INPUT
MOD. PN2Y89MX042

INCORPORATE FOR

PROJECT TITLE: Replace 2VBB-UPS1C and 2VBB-UPS1D

REVISION/DATE: 00 01 — 03/11/91 Date

PREPARED BY/DATE: [signature] — 3-11-91 Date

REVIEWED BY/DATE: [signature] — 3-11-91 Date

OBJECTIVE: The plant normal Uninterruptible Power Supply System (UPS) 2VBB-UPS1C and 1D are currently loaded to their full capacity of 75KVA/60KW and have been subjected to overloaded condition in the past. Because these UPS's have extented maintenance outages, they are not reliable and require replacement. This modification will:

1.0 Replace the subject 75KVA/60KW UPS's with new state of the art UPS's of the same size

2.0 Perform a load study of the existing loads on these two UPS's and determine the loads (that do not require UPS power) for possible load shedding.

3.0 If the load shedding evaluation concludes that greater than 30% of the loads can be shed, then item 1.0 above will only be implemented by procuring and installing two new state of the art 75KVA/60KW UPS units to replace the existing units. In addition design changes are required to transfer the sheddable loads to Normal power.

4.0 If the load shedding evaluation concludes that less than 30% of the loads can be shed, action will be taken to procure and install additional UPS units(s). In addition design changes are required to transfer the sheddable loads to Normal power.

Good presentation!

DESIGN CRITERIA ELECTRICAL:

1.0 Design Criterion: System and Scope of change

1.1 Input: Change affects system "VBB" and the scope of change involves the following:

a) Replacing 2VBB-UPS1C and 1D with new units of the same size.
b) Recalculating the loading on batteries 2BYS-BAT1A and 1B and battery chargers 2BYS-CHGR1A1 and 1B1.
c) Verification of 125V DC feeder cabling for ampacity, short circuit and voltage drops based on the manufacturer's data for the new UPS units.
d) Verification of 600V AC and 208/120V AC feeder cabling for ampacity, short circuit and voltage drops based on new vendor information.
e) Verification of ratings of protective devices associated with UPS 2VBB-UPS1C and 1D.
f) Verification of ratings of all electrical equipment associated with UPS 2VBB-UPS1C and 1D.
g) Evaluate by walkdown the feasibility of installing the new UPS units in Normal Switchgear room Elevation 237'-0".
h) Evaluate the adequacy of HVAC system to remove the heat release by new UPS units.
i) Evaluate the structural impact due to the weight of new UPS units.
j) Walkdown and determine the actual loads on UPS 2VBB-UPS1C and 1D , prepare panel schedule for each panel fed from these UPS's and issue the panel schedules.
k) Evaluate if the loads fed from these UPS's are really required to be powered by UPS and if not list the loads for possible load shedding.
l) If the estimated load shedding loads is is less than 30% of the anticipated total UPS loads, procure and install additional UPS unit(s).
m) Evaluate normal power availability and transfer sheddable UPS loads to normal power supply.

1.2 Basis: Modification PN2Y89MX042

c) Cable - Verify the adequacy of existing cables by revising and or evaluating the impact of on the following NMP2 electrical calculations.
   1. EC-049
   2. EC-100
   3. EC-111
   4. EC-130
   5. EC-131
   6. EC-143

   If the modification requires addition of new cables, its adequacy with respect to ampacity, short circuit and voltage drops should be established.
   Determinating the existing cables from the existing UPS and terminating cables on new UPS should be performed in accordance with the requirements of Spec. E061A.

d) Motors- Not applicable.

e) Termination - Same as 7.1.c above.

f) Protective Devices (Relays, Fuses, and Breakers) - Verify the adequacy of existing protective devices.

g) Electrical Penetrations - Not applicable.

h) Grounding - Verify the adequacy of existing grounding cables for the equipment grounding of new UPS units.
   Determinate the equipment grounding cables from the existing equipment and terminate on new equipment in accordance with the requirements of NMP2 Spec. E061A.

i) Others (General)- New UPS units and should be located as for as possible near the location of existing equipment so that minimum amount of design changes result. A field walkdown should be performed prior to the issue of change documents to ensure the installation of new units can proceed with minimum disturbance to the equipment located inside Normal Switchgear Room.
   Removal of existing equipment and installation of new equipment should be performed in acccordance with the requirements of NMP2 Spec. E061A.

7.2 Basis: FSAR Sections 8.1 thru 8.3.

8.0 Design Criterion: Other Discipline Requirements

8.1 Input: a) Mechanical - Required.
b) Structural - Required.

8.2 Basis: In accordance with Procedure NEL-400

9.0 Design Criterion: Instrumentation and Control Requirements

9.1 Input: a) Instruments - Not required
b) Controls - Ensure the changes meets the requirements of the modification request.
c) Alarms - Ensure that existing alarms on UPS 2VBB-UPS1C and 1D are reconnected back on to the replacement UPS units. In addition if new UPS unit(s) added, alarms to annunciate UPS trouble and UPS on DC power need to be included as part of this modification.
d) Set Point Data Sheets - Not required.

9.2 Basis: NMP2 Spec. E-147

10.0 Design Criterion: Redundancy, Diversity, and Separation Requirements

10.0 Input: Ensure during the design process that there are no electrical interconnection between 2NJS-US5 and US6.

10.2 Basis: FSAR Sections 1.8, 8.1, 8.2, 8.3, Regulatory Guides 1.6 and 1.75, IEEE Standard 383-1974.

11.0 Design Criterion: Failure Effects Requirements

11.1 Input: None required.

11.2 Basis: FSAR Sections 1.8, 15.0, and FMEA Volumes, Regulatory Guide 1.53.

16.0 Design Criterion: Maintenance Requirements

16.1 Input: The following maintenance procedures should be revised or new procedures developed to include the maintenance requirements specified for the new and or replacement UPS units.
a) N2-EMP-GEN-624
b) N2-EMP-VBA-623
c) N2-IMP-UPS-@001
d) N2-ESP-BYS-W001

16.2 Basis: NMP2 Spec.E-147 and Vendor maintenance manual.

17.0 Design Criterion: Other Requirements

17.1 Input: Installation of new UPS and/or replacement of the existing UPS will improve the reliability and maintainability of the subject UPS power supplies.

17.2 Basis: This modification

18.0 Design Criterion: Appendix R requirements

18.1 Input: Not applicable

18.2 Basis: Safe shutdown equipment list in Appendix 9B of USAR.

b) Lighting system - UPS 1C and 1D feed essential and egress lighting systems. USAR section 9.5.3.2 states that:
   1. The essential lighting system provides partial lighting for certain critical areas of the station requiring continuous lighting such as control room, relay and computer room, standby diesel generator rooms, emergency switchgear rooms, service water pump room, and for passageways to and from areas where safety-related equipment is located.
   2. The egress lighting system provides adequate lighting for all egress signs inside the plant, exit doors, hallways, corridors, passageways, stairways, and other areas leading to the outside building exits. The system is designed specifically for inside building egress emergency conditions in accordance with related standards, codes, and OSHA requirements. Internally illuminated exit signs are located.... and walkways. All exit facilities are provided with adequate illumination, both vertical and horizontal. Minimum intensity of illumination, measured at the floor level, for all exit paths is maintained at 0.5 footcandle.

In addition to the essential and egress lighting systems described above, 8-hr battery pack lighting is also provided in all areas of the plant required for operation of any safe shutdown equipment, and in access and egress routes thereto, to meet the requirements of 10CFR50, Appendix R.

The following will be considered during the load shedding study:

a) Essential lighting system for NMP2 has been designed prior to the implementation of 10CFR50, Appendix R. Therefore possibilities exist where both essential lighting and 8-hr battery pack lighting are provided in an area such as stairways and access and egress routes to safe shutdown equipment. If the evaluation indicates that 8-hr battery pack lighting is adequate in that area then consideration should be given to load shed the essential lighting from UPS power.
b) USAR Table 9.5-1 indicates that 100% of the lighting in areas such as Turbine Building, Reactor Building, Auxiliary Bays, Auxiliary Services Building South, Screenwell Building, Water Treating Area, Heater Bay, Off-Gas Building, Radwaste Building except Control room, Auxiliary Boiler Building, Electrical Tunnels and Piping Tunnels will be provided from the normal power source. In addition to normal lighting, these areas will be provided with egress lighting as required from UPS fed egress lighting. Minimum illumination levels for egress lighting is 0.5 footcandle. Egress lighting in the above areas will be evaluated as part of the load shedding study and extra lighting if any in these areas will be considered for shedding.

c) Miscellaneous Loads - Any miscelaneous loads such as receptacles located inside main and Radwaste control rooms connected to the essential lighting panels will be evaluated and considered for possible load shedding.

6.0 Complete the load shedding study and list the loads that can be shed from UPS power source and determine if the sheddable loads are greater than orequal to or less than 30% of UPS rating of 75KVA/60KW.

7.0 Evaluate the availability of spare capacity in normal lighting distribution panels and transfer the sheddable loads from UPS supplied essential lighting system panels to the normal lighting system panels.

OPTION NO.1 - PROCURE AND REPLACE EXISTING 75KVA/60KW UPS 2VBB-UPS1C AND 1D

SCOPE: A single line representation of the power supplies involved with 2VBB-UPS1C and 1D is provided in attachment 1 of this package. The scope of this option includes the following:

1.0 Perform a load shedding study as outlined in load shedding study of this package and ensure greater than or equal to 30% of the existing UPS loads from 2VBB-UPS1C and 1D can be shed.
2.0 Issue design changes to transfer the sheddable loads to lighting distribution panels fed from the plant normal power source.
3.0 Procure new 75KVA/60KW UPS units.
4.0 Issue design changes to replace the existing 75KVA/60KW UPS units.

Attachment 4 of this package provides the list of documents affected if this option is implemented.

DISCUSSION: This option reduces the loadings on UPS 2VBB-UPS1C and 1D and therfore the reliability, operability and the maintenability of these units are enhanced. In addition, its impact as outlined below on the existing associated equipment will be minimum:

1.0 Power Supplies - No changes is required except to revise the calculations listed in affected document list in attachment 1.
2.0 Raceway - None required. However the conduits that are connected to the existing UPS units will be determinated and reterminated to the new UPS units. Because the size of the new units is unknown, some modifications to the conduits may be necessary.
3.0 Cables - Because of the reduced loadings, the existing cables are adequate. However when these cables are reterminated to the new UPS units, they may not reach the destinations within the units. Existing cables may have to be spliced with adequately sized pigtails and then reterminated to the destinations inside the new UPS units. However certain calculations listed in the affected document list, attachment 4 may have to be revised.

4.0 Grounding - Existing grounding cables require to be determinated from the old units and reterminated to the new units.
5.0 Other Equipment and Components - Because of the reduced loadings, other components such as breakers and batteries are considered adequate.
6.0 Alarms - Existing alarms and annunciator windows are adequate.

OPTION NO.2 - PROCURE AND REPLACE EXISTNG 75KVA/60KW UPS 2VBB-UPS1C AND 1D. IN ADDITION PROCURE AND INSTALL TWO NEW UPS RATED FOR 25KVA/20KW

SCOPE: A single line representation of the power supplies involved with 2VBB-UPS1C and 1D and with the proposed two new UPS units rated for 25KVA/20KW is provided in attachment 2 of this package. The scope of this option includes the following:

1.0 Perform a load shedding study as outlined previously in the load shedding portion of this package and ensure only less than 30% of the existing UPS loads have been qualified for load shedding.
2.0 Issue design changes to transfer the sheddable loads to lighting distribution panels fed from normal power source.
3.0 Procure two 75KVA/60KW UPS units to replace 2VBB-UPS1C and 1D.
4.0 Procure two 25KVA/20KW UPS units and associated equipment as indicated in attachment 2.
5.0 Issue design changes to replace the existing 75KVA/60KW UPS units. Ensure that the new 75KVA/60KW UPS units are loaded only to 80% of their rated capacity.
6.0 Issue design changes to install new 25KVA/20KW UPS units and their associated equipment and components.
7.0 Issue design changes to transfer UPS loads that can not be accomodated in 2VBB-UPS1C and 1D to the new UPS units.

Attachment 4 also provides the list of affected design documents if this option is implemented.

DISCUSSION: This option also reduces the loadings on 2VBB-UPS1C and 1D to 80% of their capacity and therfore the reliability, operability and the maitainability of the units are enhanced. However it involves the addition of new units with their associated equipment and components. The impact of this option on the plant electrical distribution system is evaluated as indicated below:
1.0 Replacing existing 75KVA/60KW UPS units 2VBB-UPS1C and 1D with new units of the same rating impacts minimally and has already been discussed in option #1 above.

MPC Seg. 4

N20691

ES

A. Raju

428-7401

App. R