07-233-91

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-71

13.8KV/4160V/600V A.C. POWER DISTRIBUTION

APPROVALS	SIGNATURES	DATE AND INITIALS REVISION 2	REVISION 3	REVISION 4
Superintendent Operations NMP Unit #2 R. G. Smith	RG Smith	10/2/87 RGS	12/10/87 RGS	
Station Superintendent NMPNS Unit 2 R. B. Abbott	RB Abbott	10/3/87 RBA	12/11/87 RBA	
General Superintendent Nuclear Generation T. J. Perkins	T Perkins	10/3/87 RBA TJP	12/11/87 TJP	

FOR INFORMATION ONLY

Summary of Pages (Cont'd on Cover Sheet 2)

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NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED AFTER December 1991
SUBJECT TO PERIODIC REVIEW

*Changes per Section 11.5, AP-2.0 RG Smith 11/29/88
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5/4/164

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-71

13.8KV/4160V/600V A.C. POWER DISTRIBUTION

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3.2 Electrical Schematics (cont.)

3.2 Electrical Schematics (cont.)

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B. SYSTEM DESCRIPTION

The 24.9KV main generator leads are tapped to provide power to the normal station service transformer 2STX-XNS1, which has two 13.8KV windings.

During normal operation, 13.8KV bus 2NPS-SWG001 is fed from the "X" winding of normal station service transformer 2STX-XNS1; and 13.8KV bus 2NPS-SWG003 is fed from the "Y" winding of normal station service transformer 2STX-XNS1. 13.8KV bus 2NPS-SWG002 is fed from auxiliary boiler service transformer 2ABS-X1. During startup, shutdown and standby, reserve transformer 2RTX-XSR1A feeds 13.8KV bus 2NPS-SWG001; and reserve transformer 2RTX-XSR1B feeds 13.8KV bus 2NPS-SWG003. Reserve transformers 2RTX-XSR1A and 1B and auxiliary boiler service transformer 2ABS-X1 are fed at 115KV from two off-site sources.

Transformer 2ATX-XS1, fed from 13.8KV bus 2NPS-SWG001, supplies 4160V power to normal 4160V buses 2NNS-SWG011 and 2NNS-SWG014. Bus 2NNS-SWG011 has a tie breaker which feeds 4160V bus 2NNS-SWG012.

Transformer 2ATX-XS3, fed from 13.8KV bus 2NPS-SWG003, supplies 4160V power to normal 4160V buses 2NNS-SWG013 and 2NNS-SWG015. Bus 2NNS-SWG013 has a tie breaker which can feed 4160V bus 2NNS-SWG012.

There are two 600V load centers supplied by the 4160V buses 2NNS-SWG014 and 2NNS-SWG015. The two 600V load centers, 2NJS-US5 and 2NJS-US6, are fed from two supply breakers, one normally closed and one normally open. There is no tie breaker supplied between the separate feeds.

B. SYSTEM DESCRIPTION (Cont.)

There are eight 600V load centers, supplied by the 13.8KV buses 2NPS-SWG001 and 2NPS-SWG003. Seven 600V load centers, 2NJS-US1,2,3,4,8,9,10, are divided into "A", "B" and "C" sections, The "A" section is fed from 13.8KV bus 2NPS-SWG001 and a tie breaker supplies the "C" sections. The "B" sections are fed from 13.8KV bus 2NPS-SWG003 and a tie breaker can supply to "C" sections. One 600V load center, 2NJS-US7, is divided into "A" and "B" sections. The "A" section is supplied from 13.8KV bus 2NPS-SWG001; and the "B" section is supplied from 13.8KV bus 2NPS-SWG003. There is a normally-open tie breaker between the two sections.

4160V Emergency bus 2ENS*SWG101 is designated Division I. 4160V Emergency bus 2ENS*SWG103 is designated Division II. 4160V Emergency bus 2ENS*SWG102 is designated Division III. Division I and II supply all safety-related loads required for safe plant shutdown, except high pressure core spray system which is supplied by Division III.

All three divisions are normally energized from off-site power by Reserve A and Reserve B transformers, with auxiliary boiler transformer 2ABS-X1 as a back up for division I and II. In the event of a loss of off-site power, each division has a standby diesel generator which would start automatically in order to provide power to that division.

Division I (II) consists of one 4160V bus 2ENS*SWG101 (2ENS*SWG103), one 600V load center 2EJS*US1 (2EJS*US3), three 600V motor control centers 2EHS*MCC101,102,103, (2EHS*MCC301,302,303) and various 600 volt distribution panels.

Division III consists of one 4160V bus 2ENS*SWG102 and one motor control center 2EHS*MCC201.

There are five 75KVA Uninterruptable Power Supplies (UPS) and two 10 KVA UPS. Each UPS System has a normal A.C. source (600V), a D.C. source (125V) and a maintenance source supplying the same voltage as its associated UPS output. The UPS is normally fed from its normal source. Upon loss of normal A.C. source the UPS automatically is fed from the D.C. source. Upon loss of both the A.C. normal and D.C. sources or an inverter section failure the UPS load will automatically transfer to the maintenance source. The maintenance source is also used when maintenance is being performed on the UPS. | 3 | 3

The 75 KVA UPS supplies 120/208. 3-phase power as follows:

UPS1A/1B feed selected nonsafety-related instrumentation and control loads UPS1A feeds Radwaste computer, UPS1B feeds leaky-wire radio system. UPS1C/1D feeds essential lighting loads and Gaitronics, UPS1G feeds PMS computer loads. | 3

The normal feed for UPS1A, 1B & 1G is fed through transfer switch 2VBB-TRS1. Upon loss of normal feed (from 2NJS-US3) to - TRS1. The transfer switch will automatically transfer to 2NJS-US4. The load will automatically transfer back upon re-energization of 2NJS-US3. (After a 10-30 sec. time delay). | 3

B. SYSTEM DESCRIPTION (Cont.)

The 10 KVA UPS (UPS 3A/3B) supply their loads through electrical protection assemblies (EPA's). These are molded case circuit breakers that will trip upon an over voltage, under voltage or under-frequency condition. After a trip to return to normal these must be manually reset.

C. OPERATING REQUIREMENTS

1.0 Systems

The following systems must be in operation in accordance with their respective operating procedures to support the 13.8KV, 4160V, 600V A.C. Power distribution System:

1.1	Normal 125V D.C. Power Distribution	N2-OP-73
1.2	Station Electrical Feed 115KV Switchyard	N2-OP-70
1.3	Emergency D.C. Distribution	N2-OP-74
1.4	Normal 125V D.C. Power Distribution	N2-OP-73
1.5	Control Bldg Air Cond. & Vent Sys. (UPSIG)	N2-OP-53
1.6	Normal Switchgear Bldg. Vent Sys. (For all except UPSIG)	N2-OP-54

D. PRECAUTIONS/LIMITATIONS

1.0 For 13.8KV, 4160V, 600V switchgear: Before racking in a breaker, the control switch for the breaker should be in the "Pull-to-Lock" position; and the control circuit fuses must be removed, and the breaker should be in the open position.

2.0 For all 600V motor control centers: Before closing a breaker, the control switch for the start associated with this breaker must be in the "Pull-to-Lock" position where applicable.

3.0 For normal operation of reserve transformer "A", neutral switch 2RTX-SW001 must be in the "Open" position.

4.0 For operation with neutral switch 2RTX-SW001 in the "Closed" position, refer to Section H, Step 11.

5.0 At no time will both emergency bus 2ENS*SWG101 and 2ENS*SWG103 be paralleled to bus 2NNS-SWG018.

6.0 Prior to energizing any 600V load center or motor control center bus, the associated loads should be individually investigated to assure that they are in a condition to prevent damage to equipment or personnel.

7.0 Prior to energization of any UPS, the associated loads should be individually investigated to assure that they are in a condition to prevent damage to equipment or personnel.

8.0 Before installing breakers in switchgear, verify that spring charging motor circuits have fuses installed and, where applicable, switches are on. After closing breakers, verify that springs are charged.

9.0 All applicable evolutions described in this procedure shall be monitored and controlled in accordance with Radiation Protection procedures.

10.0 Load tap changers for 2STX-XNS1, 2RTX-XSR1A and 2RTX-XSR1B will normally be operated in the "Manual" mode. TCN-2

E. STARTUP PROCEDURE

This section includes procedures for placing de-engerized 13.8KV, 4160V, 600V station service buses in service from the reserve supply. It also includes procedures for placing the UPS in service.

NOTE: For the purpose of this procedure the following equipment may be identified as follows:

Equipment ID	Location	Alternate ID
2NPS-SWG001	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 001
2NPS-SWG002	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 002
2NPS-SWG003	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 003
2NNS-SWG011	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 011
2NNS-SWG012	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 012
2NNS-SWG013	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 013
2NNS-SWG014	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 014
2NNS-SWG015	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 015
2NNS-SWG016	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 016
2NNS-SWG017	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 017
2NNS-SWG018	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 018
2NJS-US1	Turbine Bldg. Northeast Elev. 277'	600V Bus US1
2NJS-US2	Reactor Bldg. East Elev. 289'	600V Bus US2
2NJS-US3	Turbine Bldg. Southwest Elev. 277'	600V Bus US3
2NJS-US4	Normal Switchgear Bldg. Elev. 261'	600V Bus US4
2NJS-US5	Normal Switchgear Bldg. Elev. 261'	600V Bus US5
2NJS-US6	Normal Switchgear Bldg. Elev. 261'	600V Bus US6
2NJS-US7	Turbine Bldg. Northeast Elev. 277'	600V Bus US7
2NJS-US8	Turbine Bldg. North Elev. 306'	600V Bus US8
2NJS-US9	Radwaste Bldg. South Elev. 279'	600V Bus US9
2NJS-US10	Turbine Bldg. East Elev. 250'	600V Bus US10
2EJS*PNL 100A	Control Bldg. Elev. 261'	Panel 100A
2EJS*PNL 101A	Aux. Bldg. North Elev. 240'	Panel 101A
2EJS*PNL 102A	Control Bldg. Elev. 261'	Panel 102A
2EJS*PNL 103A	Aux. Bldg. North Elev. 240'	Panel 103A
2EJS*PNL 104A	Aux. Bldg. North Elev. 240'	Panel 104A
2EJS*PNL 300B	Control Bldg. Elev. 261'	Panel 300B
2EJS*PNL 301B	Control Bldg. Elev. 261'	Panel 301B
2EJS*PNL 302B	Aux. Bldg. South Elev. 240'	Panel 302B

E. STARTUP PROCEDURE (Cont'd)

Equipment ID	Location	Alternate ID
2EJS*PNL 303B	Aux. Bldg. South Elev. 240'	Panel 303B
2EJS*PNL 304B	Aux. Bldg. South Elev. 240'	Panel 304B
2EJS*US1	Control Bldg. Elev. 261'	600V Bus US1
2EJS*US3	Control Bldg. Elev. 261'	600V Bus US3
2CEC*PNL601	Control Bldg. Elev. 306'	Panel 601
2CEC*PNL602	Control Bldg. Elev. 306'	Panel 602
2CEC*PNL603	Control Bldg. Elev. 306'	Panel 603
2CEC-PNL802	Control Bldg. Elev. 288'	Panel 802
2CEC-PNL803	Control Bldg. Elev. 288'	Panel 803
2CEC-PNL804	Control Bldg. Elev. 288'	Panel 804
2CEC-PNL805	Control Bldg. Elev. 288'	Panel 805
2CEC-PNL806	Control Bldg. Elev. 288'	Panel 806
2CEC-PNL807	Control Bldg. Elev. 288'	Panel 807
2CEC-PNL808	Control Bldg. Elev. 288'	Panel 808
2CEC-PNL809	Control Bldg. Elev. 288'	Panel 809
2CEC-PNL810	Control Bldg. Elev. 288'	Panel 810
2CEC-PNL811	Control Bldg. Elev. 288'	Panel 811
2CEC-PNL812	Control Bldg. Elev. 288'	Panel 812
2CEC-PNL813	Control Bldg. Elev. 288'	Panel 813
2CEC-PNL814	Control Bldg. Elev. 288'	Panel 814
2CEC-PNL815	Control Bldg. Elev. 288'	Panel 815
2CEC-PNL849	Control Bldg. Elev. 306'	Panel 849
2CEC-PNL851	Control Bldg. Elev. 306'	Panel 851
2CEC-PNL852	Control Bldg. Elev. 306'	Panel 852
2CEC-PNL867	Control Bldg. Elev. 288'	Panel 867
2CES-IPNL506	Auxiliary Boiler Bldg. Elev. 261'	Panel 506
2CES-IPNL507	Auxiliary Boiler Bldg. Elev. 261'	Panel 507
2FPW-PNL233	Screenwell Bldg., Motor Fire Pump Room Elev. 261'	Panel 233
2NPS-SWG004	Normal Switchgear Bldg EL. 293'	3.8KV BUS 4
2NPS-SWG005	Normal Switchgear Bldg EL. 293'	13.8KV BUS 5
2NHS-MCC001	Radwaste Bldg South EL. 279'	600V.MCC001
2NHS-MCC002	Screenwell Bldg EL. 261'	600V.MCC002
2NHS-MCC003	Turbine Bldg Northeast EL. 277'	600V.MCC003
2NHS-MCC004	Turbine Bldg Northeast EL. 277	600V.MCC004
2NHS-MCC005	Reactor Bldg West EL 215	600V.MCC005
2NHS-MCC006	Turbine Bldg Southwest EL 277	600V.MCC006
2NHS-MCC007	Normal Switchgear Bldg EL 261	600V.MCC007
2NHS-MCC008	Normal Switchgear Bldg EL 261	600V.MCC008
2NHS-MCC009	Normal Switchgear Bldg EL 261	600V.MCC009
2NHS-MCC010	Turbine Bldg East EL 250	600V.MCC101
2NHS-MCC011	Reactor Bldg Northwest EL. 261	600V.MCC011
2NHS-MCC012	Reactor Bldg Southwest EL 261	600V.MCC012
2NHS-MCC013	Screenhouse (Cooling Tower)	600V.MCC013
2NHS-MCC014	Reactor Bldg West EL215	600V.MCC014
2NHS-MCC015	Turbine Bldg North EL 306	600V.MCC015
2NHS-MCC016	Radwaste Bldg South EL 279	600V.MCC016
2NHS-MCC017	Screenwell Bldg EL 261	600V.MCC017
2VBB-UPS1A	Normal Switchgear Bldg EL237	UPS1A
2VBB-UPS1B	Normal Switchgear Bldg EL 237	UPS1B
2VBB-UPS1C	Normal Switchgear Bldg EL 237	UPS1C
2VBB-UPS1D	Normal Switchgear Bldg EL 237	UPS1D

E. STARTUP PROCEDURE (Cont'd)

Equipment ID	Location	Alternate ID
2VBB-UPS1G	Control Bldg EL 214'	UPS1G
2VBB-UPS3A	Normal Switchgear Bldg EL 237'	UPS3A
2VBB-UPS3B	Normal Switchgear Bldg EL 237'	UPS3B

1.0 To ensure reserve station service transformers 2RTX-XSR1A, 2RTX-XSR1B, and 2ABS-X1 are energized:

a. The 115KV System should be energized in accordance with OP-70.

2.0 To place 13.8KV bus 2NPS-SWG-001 in Service

a. At Panel 852, verify the control switch for the normal station service feed to 13.8 KV bus 001 breaker 1-3 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the reserve transformer "B" feed to 13.8 KV bus 001 breaker 1-16 is in the "pull to lock" position. (Cubicle only)

c. At Panel 852, verify the control switch for the reserve transformer "A" feed to 13.8KV bus 001 Breaker 1-1 is in the "pull to lock" position.

d. At Panel 852, verify the control switch for the feed to Aux. Transformer 2ATX-XS1, Breaker 1-4 is in the "pull to lock" position (4160V feed to bus 2NNS-SWG011 and 2NNS-SWG-014)

e. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US1 and US2, Breaker 1-5 is in the "pull to lock" position.

f. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US3, US4 and US7 Breaker 1-14 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 13.8KV Normal Bus Feed to 600V Bus US8, US9, US10, Breaker 1-1A is in the "pull to lock" position.

h. At panel 851 verify the control switch for the the following motor breakers are in the "pull to lock" position:

Panel 851 Condensate Booster Pump A
Reactor Feed Pump A
Condensate Booster Pump C.(Bus 001)
Circulating Water Pump A
Circulating Water Pump C
Circulating Water Pump E
Reactor Feed Pump C (Bus 001)

Panel 602 Reactor Recirc. Pump A (Breaker 2A)

E. STARTUP PROCEDURE (Cont'd)

2.0 (Cont'd)

i. At 13.8KV bus 001 metering cubical 1-2/1-15, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

j. For reserve transformer 2-RTX-XSR1A, check neutral switch 2RTX-SW001 "Open".

k. At 13.8KV Bus 001, Rack In Reserve Transformer "A" supply breaker 1-1, as required.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 812 - 13.8KV Bus NPS-001 Protection Lockout Relay
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout Relay
3. Panel 806 - Reserve Station Service XFMR 1A Backup Protection Lockout Relay
4. Panel 867 - Generator Backup Protection Lockout Relay 2
5. Check all relay flags are reset on NPS-SWG-001, inform SSS of all flags.

l. At Panel 852, turn on synchronize reserve "A" switch.

m. At Panel 852, close reserve transformer "A" supply breaker 1-1. Check voltage on 13.8KV bus 001 as nominally 13.8KV.

n. At panel 852, turn off synchronize reserve "A" switch.

3.0 To place 13.8KV bus 2NPS-SWG-003 in service:

a. At Panel 852, verify the control switch for the normal station service feed 13.8KV bus 003, Breaker 3-14 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the reserve transformer "A" feed to 13.8KV bus 003, Breaker 3-16 is in the "pull to lock" position. (Cubicle Only)

c. At Panel 852, verify the control switch for the reserve transformer "B" feed to 13.8KV bus 003, Breaker 3-1 is in the "pull to lock" position.

d. At Panel 852, verify the control switch for the feed to Aux. Transformer 2ATX-XS3, Breaker 3-6 is in the "pull to lock" position (4160V feed to bus 2NNS-SWG013 and 2NNS-SWG015)

e. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US1 and US2, Breaker 3-3 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

3.0 (Cont'd)

f. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US3, US4 and US7 Breaker 3-13 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 13.8KV Normal Bus Feed to 600V Bus US8, US9, US10, Breaker 3-1A is in the "pull to lock" position.

h. At panel 851 verify the control switch for the the following motor breakers are in the "pull to lock" position:

Panel 851	Condensate Booster Pump B
	Reactor Feed Pump B
	Condensate Booster Pump C (Bus 003)
	Reactor Feed Pump C (Bus 003)
	Circulating Water Pump B
	Circulating Water Pump D
	Circulating Water Pump F
Panel 602	Reactor Recirc. Pump B (Breaker 2B)

i. At 13.8KV bus 003 at metering cubical 3-2/3-15, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

j. At 13.8KV Bus 003, Rack In Reserve Transformer "B" Supply Breaker 3-1.

k. Check the following lockout relays are reset to assure closing permissive satisfied:

1. Panel 813 - 13.8 KV Bus NPS-003 Protection Lockout Relay
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay
3. Panel 809 - Reserve Station Service XFMR 1B Backup Protection Lockout Relay
4. Panel 867 - Generator Backup Protection Lockout Relay 2
5. Check all relay flags are reset on NPS-SWG 003, inform SSS of all flags.

At Panel 852, turn on synchronize reserve "B" switch.

l. At Panel 852, close reserve transformer "B" supply Breaker 3-1 Check voltage on 13.8KV bus 003 as nominally 13.8KV.

m. At panel 852, turn off synchronize reserve "B" switch.

4.0 To place 13.8KV bus 2NPS-SWG 002 in Service

a. At Panel 852, verify the control switch for the auxiliary boiler transformer to 13.8KV bus 002 Breaker 2-5 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

4.0 (Cont'd)

b. At Panel 852, verify the control switch for the reserve transformer "A" emergency feed to 13.8KV bus 002 Breaker 2-1 is in the "pull to lock" position. (Cubicle Only)

c. At Panel 506 verify the control switch for the 13.8KV feed to "A" auxiliary boiler is in the "pull to lock" position.

d. At Panel 507 verify the control switch for the 13.8KV feed to "B auxiliary boiler "is in the "pull to lock" position.

e. At 13.8KV bus 002 at metering cubical 2-4, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

f. At 13.8KV Bus 002, rack in auxiliary boiler transformer feed to 13.8KV Bus 002 supply breaker 2-5, as required.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 811 - Aux Boiler XFMR ABS-X1 Primary Protection Lockout Relay
2. Panel 802 - Aux Boiler Service XFMR Backup Protection Lockout Relay
3. Panel 815 - 13.8KV Bus NPS-002 Protection Lockout Relay
4. Check all relay flags are reset on NPS-SWG 002, inform SSS of all flags.

g. At Panel 852, close auxiliary boiler transformer to 13.8KV bus 002 supply breaker 2-5. Check voltage on 13.8KV Bus 002 as nominally 13.8KV.

5.0 To energize 13.8KV/4.16KV auxiliary Transformer 2ATX-XS1

a. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS1 to bus 2NNS-SWG011, Breaker 11-3 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS1 to bus 2NNS-SWG014, Breaker 14-2 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 13.8KV feed to transformer 2ATX-XS1, Breaker 1-4 is in the "pull to lock" position.

d. At Panel 852, check voltage on 13.8KV Bus 001 as nominally 13.8KV.

e. At 13.8KV bus 001, rack in 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

E. STARTUP PROCEDURE (Cont'd)

5.0 (Cont'd)

Check the following lockout relay reset to assure closing permissive satisfied:

1. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
2. Check all relay flags are reset, inform SSS of all flags.

f. At Panel 852, close 13.8KV feed to auxiliary transformer 2ATX-XS1 supply breaker 1-4.

6.0 To place 4.16KV bus 2NNS-SWG011 in service.

a. At Panel 852, verify control switch for the 4.16KV normal bus feed to 4.16KV bus 011, Breaker 11-3 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

c. At Panel 852, verify control switch for the tie breaker from 4.16KV Bus 011 to 4.16KV Bus 012, Breaker 11-1 is in the "pull to lock" position.

d. At Panel 601, verify control switch for the TBCLC pump "A" (2CCS-P1A) is in the "pull to lock" position.

e. At Panel 851, verify control switch for the Heater Drain pump "A" (2HDL-P1A) is in the "pull to lock" position.

f. At Panel 851, verify control switch for the Condensate pump "A" (2CNM-P1A) is in the "pull to lock" position.

g. At Panel 851, verify control switch for the Condensate pump "C" (2CNM-P1C) (Bus 011) is in the "pull to lock" position.

h. At Panel 602, verify the control switch for Reactor Recirc. Motor Generator Set "A" (2RCS-MG1A) (Breaker 1A) is in the "pull to lock" position.

i. At 4.16KV bus 011 rack in 4.16KV Normal Bus feed to 4.16KV Bus 011 Breaker 11-3.

Check the following lockout relays reset to assure closing permissives satisfied:

1. Panel 815 - 4.16KV Bus NNS-012 Backup Protection & Lockout Relay
2. Panel 812 - 4.16KV Bus NNS-011 Protection Lockout Relay
3. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
4. Check all relay flags are reset, inform SSS of all flags.

E. STARTUP PROCEDURE (Cont'd)

6.0 (Cont'd)

j. At Panel 852, close 4.16KV bus feed to 4.16KV bus 011, Breaker 11-3 and Check voltage on 4.16KV bus 011 as nominally 4.16KV.

7.0 To place 4.16KV bus 2NNS-SWG014 In Service

a. At Panel 852, verify the control switch for the 4.16KV normal bus feed to 4.16KV bus 014, Breaker 14-2 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

c. At Panel 852, verify the control switch for the 4.16KV bus 014 tie breaker to emergency bus 2ENS*SWG101(G), Breaker 14-1 is in the "pull to lock" position.

d. At Panel 603, verify the control switch for Control Rod Drive pump "A" (2RDS-P1A) breaker 14-7 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for RBCLC pump "C" (2CCP-P1C) and RBCLC booster pump (2CCP-P3C) breakers 14-6 and 14-9 are in the "pull to lock" position.

f. At Panel 852, verify the control switch for the 4.16KV bus 014 feed to 600V bus US5 (auxiliary transformer 2NJS-X1F), Breaker 14-4 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 4.16KV bus 014 feed to 600V bus US5 (auxiliary transformer 2NJS-X1E), Breaker 14-8 is in the "pull to lock" position.

h. At 4.16KV bus 014, rack in 4.16KV Normal Bus feed to 4.16KV Bus 014, Breaker 14-2.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
2. Panel 803 - 4.16 Bus NNS-014 Protection Lockout Relay
3. Check all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus feed to 4.16KV bus 014, Breaker 14-2 Check voltage on 4.16KV bus 014 as nominally 4.16KV.

E. STARTUP PROCEDURE (Cont'd)

8.0 To energize 13.8KV/4.16KV auxiliary transformer 2ATX-XS3

a. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS3 to bus 2NNS-SWG013, Breaker 13-6 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS3 to bus 2NNS-SWG015, Breaker 15-3 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 13.8KV feed to transformer 2ATX-XS3, Breaker 3-6 is in the "pull to lock" position.

d. At Panel 851, check voltage on 13.8KV Bus 003 as nominally 13.8KV.

e. At 13.8KV bus 003, rack in 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

Check the following lockout relay reset to assure closing permissive satisfied:

1. Panel 810 - Aux. XFMR ATX-XS3 Protection Lockout Relay

2. Check all relay flags, reset. Inform SSS of all flags.

f. At Panel 852, close 13.8KV feed to auxiliary transformer 2ATX-XS3 supply breaker, 3-6.

9.0 To place 4.16KV bus 2NNS-SWG013 In Service

a. At Panel 852, verify the control switch for the 4.16KV Normal Bus feed to 4.16KV bus 013, Breaker 13-6 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

c. At Panel 852, verify the control switch for the tie breaker from bus 013 to bus 012, Breaker 13-10 is in the "pull to lock" position.

d. At Panel 851, verify the control switch for Condensate pump "C" (2CNM-P1C) (Bus 013) breaker 13-2 is in the "pull to lock" position.

e. At Panel 851, verify the control switch for Condensate pump "B" (2CNM-P1B) breaker 13-3 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

9.0 (Cont'd)

f. At Panel 851, verify the control switch for Heater Drain pump "B" (2HDL-P1B) breaker 13-4 is in the "pull to lock" position.

g. At Panel 601, verify the control switch for TBCLC pump "B" (2CCS-P1B) and RBCLC booster pump (2CCP-P3A) breaker 13-8 and 13-9 are in the "pull to lock" position.

h. At Panel 602, verify the control switch for Reactor Recirc. Motor Generator Set "B" (2RCS-MG1B) (Breaker 1B) is in the "pull to lock" position.

i. At 4.16KV bus 013, rack in 4.16KV Normal Bus feed to 4.16KV Bus 013, Breaker 13-6.

Check the following lockout relays reset to assure closing permissives satisfied:

1. Panel 810 - Aux. XFMR ATX-XS3 Protection Lockout Relay
2. Panel 813 - 4.16KV Bus NNS-013 Protection Lockout Relay
3. Panel 815 - 4.16KV Bus NNS-012 Backup Protection Lockout Relay
4. Check all relay flags are reset, inform SSS of all flags.

j. At Panel 852, close 4.16KV bus feed to 4.16KV bus 013, Breaker 13-6. Check voltage on 4.16KV bus 013 as nominally 4.16KV.

10.0 To place 4.16KV bus 2NNS-SWG015 in Service

a. At Panel 852, verify the control switch for the 4.16KV normal bus feed to 4.16KV bus 015, Breaker 15-3 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

c. At Panel 852, verify the control switch for the 4.16KV bus 015 tie breaker to emergency bus 2ENS*SWG103, Breaker 15-8 is in the "pull to lock" position.

d. At Panel 603, verify the control switch for Control Rod Drive pump "B" (2RDS-P1B) breaker 15-2 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for RBCLC pump "B" (2CCP-P1B) and RBCLC booster pump (2CCP-P3B) breakers 15-4 and 15-6 are in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

10.0 (Cont'd)

f. At Panel 852, verify the control switch for the 4.16KV bus 015 feed to 600V bus US6 (auxiliary transformer 2NJS-X3E) (Breaker 15-7) is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 4.16KV bus 015 feed to 600V bus US6 (auxiliary transformer 2NJS-X3F) (Breaker 15-1) is in the "pull to lock" position.

h. At 4.16KV bus 015, rack in 4.16KV Normal Bus feed to 4.16KV bus 015, Breaker 15-3.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 810 - Aux XFMR ATX-XS3 Protection Lockout Relay
2. Panel 804 - 4.16KV Bus NNS-015 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus feed to 4.16KV bus 015, Breaker 15-3. Check voltage on 4.16KV bus 015 as nominally 4.16KV.

11.0 To place 4.16KV bus 2NNS-SWG012 in Service from 4.16KV bus 2NNS-SWG011:

a. At Panel 852, verify the control switch for the 4.16KV bus 011 tie breaker to 4.16KV bus 012, Breaker 11-1 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 013 tie breaker to bus 4.16KV bus 012, Breaker 13-10 is in the "pull to lock" position.

c. At Panel 851, verify the control switch for Heater Drain pump "C" (2HDL-P1C) breaker 12-2 is in the "pull to lock" position.

d. At Panel 849, and Panel 233, verify the control switches for Motor Driven Fire pump (2FPW-P2), breaker 12-3 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for TBCLC pump "C" (2CCS-P1C), breaker 12-4 is in the "pull to lock" position.

f. At Panel 601, verify the control switch for RBCLC pump "A" (2CCP-P1A), breaker 12-5 is in the "pull to lock" position.

g. At Panel 852, Check voltage on 4.16KV Bus 011 as nominally 4.16KV.

E. STARTUP PROCEDURE (Cont'd)

11.0 (Cont'd)

h. At 4.16KV bus 011, rack in 4.16KV Bus 011 tie breaker to 4.16KV Bus 012, breaker 11-1.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 812 - 4.16KV Bus NNS-011 Protection Lockout Relay
2. Panel 814 - 4.16KV Bus NNS-012 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus 011 tie breaker to 4.16KV bus 012, breaker 11-1. Check voltage on bus 012 as nominally 4.16KV.

12.0 To place 4.16KV Bus 2NNS-SWG012 in service from 4.16KV Bus 2NNS-SWG013:

a. Refer to Section E, Step #11 a. thru f.

b. At Panel 852, check voltage on 4.16KV Bus 013 as nominally 4.16KV.

c. At 4.16KV Bus 013, rack in 4.16KV Bus 013 Tie Breaker to 4.16KV Bus 012, Breaker 13-10.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 813 - 4.16KV Bus NNS-013 Protection Lockout Relay
2. Panel 814 - 4.16KV Bus NNS-012 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

d. At Panel 852, close 4.16KV Bus 013 Tie Breaker to 4.16KV Bus 012, Breaker 13-10. Check voltage on 4.16KV Bus 012 as nominally 4.16KV.

13.0 To place 4.16KV bus 2NNS-SWG016 in Service

a. At Panel 852, verify the control switch for the 4.16KV bus 016 feed from Reserve Station Transformer 2RTX-XSR1A 4.16KV tertiary winding, Breaker 16-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 016 feed to 4.16KV emergency bus 2ENS*SWG101 (G), Breaker 101-13 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the bus 016 feed to 4.16KV emergency bus 2ENS*SWG102 (P), Breaker 102-4 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

13.0 (Cont'd)

d. At Panel 852, check voltage from Reserve Station Service Transformer 2RTX-XSR1A to 4.16KV bus 016 as nominally 4.16KV.

e. At 4.16KV bus 016, rack in Supply Breaker from Reserve Station Transformer 2RTX-XSR1A, Breaker 16-2.

Check the following lockout relays reset to assure closing permissive satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 16-2
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout
3. Panel 806 - Reserve Station Service XFMR 1A Backup Protection Lockout Relay
4. Check that all relay flags are reset, inform SSS of all flags.

f. At Panel 852, close 4.16KV bus 016 supply breaker from Reserve Station Transformer 2RTX-XSR1A, Breaker 16-2.

14.0 To place 4.16KV bus 2NNS-SWG017 in Service

a. At Panel 852, verify the control switch for the 4.16KV bus 017 feed from Reserve Station Transformer 2RTX-XSR1B 4.16KV tertiary winding, Breaker 17-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 017 feed to 4.16KV emergency bus 2ENS*SWG102 (P), Breaker 102-5 (Cubicle Only) is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 4.16KV bus 017 feed to 4.16KV emergency bus 2ENS*SWG 103 (Y), Breaker 103-4 is in the "pull to lock" position.

d. At Panel 852, check voltage from Reserve Station Transformer 2RTX-XSR1B to 4.16KV bus 017 as nominally 4.16KV.

e. At 4.16KV bus 017 rack in Supply Breaker from Reserve Station Transformer 2RTX-XSR1B, Breaker 17-2.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 17-2
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay

E. STARTUP PROCEDURE (Cont'd)

14.0 (Cont'd)

3. Panel 809 - Reserve Station Service XFMR 1B Backup Protection Lockout Relay
4. Check that all relay flags are reset, inform SSS of all flags.

f. At Panel 852, close 4.16KV bus 017 supply breaker from reserve Station Transformer 2RTX-XSR1B, Breaker 17-2.

15.0 To place 4.16KV bus 2NNS-SWG018 in service

a. At Panel 852, verify the control switch for the 4.16KV bus 018 feed from Auxiliary Boiler Transformer 2ABS-X1 4.16KV tertiary winding, Breaker 18-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 018 feed to emergency bus 2ENS*SWG101 (G), Breaker 101-10 (Cubicle Only) is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 4.16KV bus 018 feed to emergency bus 2ENS*SWG103 (Y), Breaker 103-2 (Cubicle Only) is in the "pull to lock" position.

d. At Panel 852, check voltage from Aux. Boiler Transformer 2ABS-X1 to 4.16KV bus 018 as nominally 4.16KV.

e. At 4.16KV bus 018, rack in Supply Breaker from Auxiliary Boiler Transformer 2ABS-X1, Breaker 18-2.

Check the following Lockout Relays are reset to assure closing permissives satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 18-2
2. Panel 811 - Aux. Boiler XFMR ABS-X1 Primary Protection Lockout Relay
3. Panel 802 - Aux. Boiler Service XFMR Backup Protection Lockout Relay
4. Verify all relay flags are reset.

f. At Panel 852, close 4:16KV bus 018 supply breaker from Auxiliary Boiler Transformer 2ABS-X1, Breaker 18-2.

16.0 The following will energize 13.8 KV/600 V auxiliary transformers and place 600V 2NJS-US1 through 4 and 7 through 10 load centers in service..

a. At load center check open bus A supply breaker from aux. transformer.

b. At load center check open bus B supply breaker from aux. transformer.

E. STARTUP PROCEDURE (Cont'd)

16.0 (Cont'd)

c. At load center check open one bus tie breaker to bus C. Normally A to bus C tie breaker will be closed and B bus tie to C will be open.

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d. At panel 852, check voltage on ~~2NNS~~ 2NPS-SWG 001 & 003 bus normal.

e. Check that non-essential loads are removed from load center.

f. At 2NPS-SWG001 rack in supply breaker to 600V aux. transformers. Check lockout relay 86 reset, and all flags cleared.

Breaker 1-1A for 2NJS-US8,9,10
Breaker 1-5 for 2NJS-US1,2
Breaker 1-14 for 2NJS-US3,4,7

g. At panel 852, close the respective 13.8 KV supply breaker to 600V aux. transformers, as noted above.

h. At 13.8 KV bus 003 rack in supply breaker to aux. transformers. Check lockout relay 86 reset and all flags cleared.

Breaker 3-1A for 2NJS-US8,9,10
Breaker 3-3 for 2NJS-US1,2
Breaker 3-13 for 2NJS-US3,4,7

i. At panel 852, close the respective 13.8 KV supply breaker to 600V aux. transformers, as noted above.

j. At load center bus A, close supply breaker from aux. transformer. Check bus A voltage as nominally 600 V.

k. At load center bus B, close supply breaker from aux. transformer. Check bus B voltage as nominally 600V.

17.0 To energize 4160V/600V Auxiliary Transformers and place load center 2NJS-US5 in Service:

a. At Panel 852, Lockout 4.16KV Bus 014 feed to Aux. Transformer 2NJS-X1E, Breaker 14-8.

b. At Panel 852, Lockout 4.16KV Bus 014 feed to Aux. Transformer 2NJS-X1F, Breaker 14-4.

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c. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X1E, Breaker 5-3B.

E. STARTUP PROCEDURE (Cont'd)

17.0 (Cont'd)

d. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X1F, Breaker 5-8B.

e. At Panel 852, Check voltage on 4.16KV Bus 014 as nominally 4.16KV.

f. At 4.16KV Bus 014, rack in Supply Breaker to Aux. Transformer 2NJS-X1E, Breaker 14-8. Check Lockout Relay 86-2NJSX31 Reset.

g. At 4.16KV Bus 014, Rack in Supply Breaker to Aux. Transformer 2NJS-X1F, Breaker 14-4, as required. Check Lockout Relay 86-2NJSX21 Reset.

h. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X1E, Breaker 14-8.

i. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X1F, Breaker 14-4.

NOTE:

CAUTION

Before racking in 2NJS-US5 supply breaker 5-3B (5-8B) verify supply breaker 5-8B (5-3B) is open ~~and racked out~~.

j. At Load Center 2NJS-US5, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X1E (X1F), Breaker 5-3B (5-8B), as required.

~~CAUTION~~

~~Before racking in 2NJS-US5 supply breaker 5-8B reverify breaker 5-3B is open and racked out.~~

~~k. At Load Center 2NJS-US5, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X1F, Breaker 5-8B.~~

k. At Panel 852, close 600V Supply Breaker from Aux. Transformer 2NJS-X1E (X1F), Breaker 5-3B (5-8B). Check voltage on Load Center 2NJS-US5 as nominally 600V.

l. At panel 852, take the control switch for breaker 5-8B (5-3B) out of pull-to-lock, DO NOT close the breaker.

NOTE: Aux. Transformer 2NJS-X1F 600V Supply Breaker to 600V Load Center 2NJS-US5, Breaker 5-8B, will be the alternate feed. The alternate feed can be used if the normal feed (2NJS-X1E) is not available.

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E. STARTUP PROCEDURE (Cont'd)

18.0 To energize 4160V/600V Auxiliary Transformers and place load center 2NJS-US6 in Service:

a. At Panel 852, Lockout 4.16KV Bus 015 feed to Aux. Transformer 2NJS-X3E, Breaker 15-7.

b. At Panel 852, Lockout 4.16KV Bus 015 feed to Aux. Transformer 2NJS-X3F, Breaker 15-1.

c. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 3NJS-X3E, Breaker 6-3B.

d. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X3F, Breaker 6-7B.

e. At Panel 852, Check voltage on 4.16KV Bus 015 as nominally 4.16KV.

f. At 4.16KV Bus 015, rack in Supply Breaker to Aux. Transformer 2NJS-X3E, Breaker 15-7. Check Lockout Relay 86-2NJSY31 Reset.

g. At 4.16KV Bus 015, Rack in Supply Breaker to Aux. Transformer 2NJS-X3F, Breaker 15-1. Check Lockout Relay 86-2NJSY21 Reset.

h. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X3E, Breaker 15-7.

i. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X3F, Breaker 15-1.

NOTE: Aux. Transformer 2NJS-X3F 600V Supply Breaker to 600V load center 2NJS-US6, breaker 6-7B, will be the alternate feed. The alternate feed can be used if the normal feed (2NJS-X3E) is not available.

CAUTION

Before racking in 2NJS-US6 supply breaker 6-3B (6-7B) verify 2NJS-US6 supply breaker 6-7B (6-3B) is open ~~and racked out~~.

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j. At Load Center 2NJS-US6, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X3E (X3F) Breaker 6-3B (6-7B) as required.

~~CAUTION~~

~~Before racking in 2NJS-US6 supply breaker 6-7B verify 2NJS-US6 supply breaker 6-3B is open/racked out.~~

~~k. At Load Center 2NJS-US6, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X3F, Breaker 6-7B, as required.~~

k. At Panel 852, close 600V Supply Breaker from Aux. (X3F) Transformer 2NJS-X3E, Breaker 6-3B (6-7B). Check voltage on Load Center 2NJS-US6 as nominally 600V.

l. At Panel 852, take the control switch for breaker 6-7B (6-3B) out of pull-to-lock, DO NOT close the breaker.

E. STARTUP PROCEDURE (Cont'd)

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18.0 (Cont'd)

~~NOTE: Aux. Transformer 2NJS-X3F 600V Supply Breaker to 600V Load Center 2NJS-US6, Breaker 6-7B, will be the alternate feed.~~

19.0 The following will energize 600V 2NHS motor control centers 1, 2, 3, 5, 6, 7, 10, 13 through 17.

a. At load center, check open bus A supply breaker to 2NHS MCC bus A.

b. At load center, check open bus B supply breaker to 2NHS MCC bus B.

c. At 2NHS MCC bus A, check open supply breaker from load center bus A.

d. At 2NHS MCC bus B, check open supply breaker from load center bus B.

e. At 2NHS MCC, check open tie breaker between bus A and C, bus B and C. Normally bus tie A to C will be closed and bus tie B to C will be open.

f. At load center, check voltage normal for bus A and B.

g. Check that large non-essential loads are removed from MCC.

h. At load center bus A, rack in and close supply breaker to 2NHS-MCC bus A.

i. At load center bus B, rack in and close supply breaker to 2NHS-MCC bus B.

j. At 2NHS-MCC bus A, close supply breaker from load center bus A. Check voltage.

k. At 2NHS-MCC bus B, close supply breaker from load center bus B check voltage.

CAUTION

Verify bus tie B to C is open before closing bus tie A to C.

1. At 2NHS-MCC close bus tie A to C. Check voltage as normal.

20.0 To energize 600 V motor control center 2NHS-MCC 004

a. At load center 2NJS-US4, check open supply breaker to 2NJS-PNL401, breaker 4B bus A.

E. STARTUP PROCEDURE (Cont'd)

20.0 (Cont'd)

b. At load center 2NJS-US4, check open supply breaker to 2NJS-PNL402 breaker 14A bus B.

c. At 2NJS-PNL401 check open supply breaker to 2NHS-MCC 004, breaker 31.

d. At 2NJS-PNL402 check open supply breaker to 2NHS-MCC 004, breaker 31.

e. At 2NJS-PNL401 check closed main supply breaker.

f. At 2NJS-PNL402 check closed main supply breaker.

g. At load center 2NJS-US4, close supply breaker to 2NJS-PNL401, breaker 4B bus A.

h. AT load center 2NJS-US4, close supply breaker to 2NJS-PNL402, breaker 14A bus B.

i. At 2NJS-PNL401 close supply breaker to 2NHS-MCC 004, breaker 31.

j. At 2NJS-PNL 402 close supply breaker to 2NHS-MCC 004, breaker 31.

k. At 2NHS-MCC 004 verify white indicating light is lit.

21.0 To energize 600V Motor Control Center 2NHS-MCC008

a. At Load Center 2NJS-US5, Check open supply breaker to 2NHS-MCC008, Breaker 3D.

b. At Load Center 2NJS-US5, Check open Supply Breaker to 2NHS-MCC008, Breaker 5A.

c. At 2NHS-MCC008, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 3D).

d. At 2NHS-MCC008, Check open Breaker 9A, 600V Supply from Load Center 2NJS-US5 (Breaker 5A).

e. At Load Center 2NJS-US5, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US5, rack in Supply Breaker to 2NHS-MCC008, Breaker 3D.

g. At Load Center 2NJS-US5, rack in supply breaker to 2NHS-MCC008, Breaker 5A.

h. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC008, Breaker 3D.

E. STARTUP PROCEDURE (Cont'd)

21.0 (Cont'd)

i. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC008, Breaker 5A.

j. At 2NHS-MCC008, close Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 3D). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC008, Breaker 9A, the 600V Supply from Load Center 2NJS-US5 (Breaker 5A), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

22.0 To energize 600V Motor Control Center 2NHS-MCC009

a. At Load Center 2NJS-US6, Check open supply breaker to 2NHS-MCC009, Breaker 3C.

b. At Load Center 2NJS-US6, Check open Supply Breaker to 2NHS-MCC009, Breaker 5D.

c. At 2NHS-MCC009, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 3C).

d. At 2NHS-MCC009, Check open Breaker 7A, 600V Supply from Load Center 2NJS-US6 (Breaker 5D).

e. At Load Center 2NJS-US6, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US6, rack in Supply Breaker to 2NHS-MCC009, Breaker 3C.

g. At Load Center 2NJS-US6, rack in supply breaker to 2NHS-MCC009, Breaker 5D.

h. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC009, Breaker 3C.

i. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC009, Breaker 5D.

j. At 2NHS-MCC009, close Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 3C). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC009, breaker 7A, the 600V supply from load center 2NJS-US6 (Breaker 5D) will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

E. STARTUP PROCEDURE (Cont'd)

23.0 To energize 600V Motor Control Center 2NHS-MCC011

a. At Load Center 2NJS-US5, Check open supply breaker to 2NHS-MCC0011, Breaker 4A.

b. At Load Center 2NJS-US5, Check open Supply Breaker to 2NHS-MCC011, Breaker 5C.

c. At 2NHS-MCC011, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 4A).

d. At 2NHS-MCC011, Check open Breaker 10A, 600V Supply from Load Center 2NJS-US5 (Breaker 5C).

e. At Load Center 2NJS-US5, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US5, rack in Supply Breaker to 2NHS-MCC011, Breaker 4A.

g. At Load Center 2NJS-US5, rack in supply breaker to 2NHS-MCC011, Breaker 5C.

h. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC011, Breaker 4A.

i. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC011, Breaker 5C.

j. At 2NHS-MCC011, close Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 4A). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC011, Breaker 10A, the 600V Supply from Load Center 2NJS-US5 (Breaker 5C), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Control Interlock System.

24.0 To energize 600V Motor Control Center 2NHS-MCC012

a. At Load Center 2NJS-US6, Check open supply breaker to 2NHS-MCC012, Breaker 4D.

b. At Load Center 2NJS-US6, Check open Supply Breaker to 2NHS-MCC012, Breaker 5A.

c. At 2NHS-MCC012, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 4D).

d. At 2NHS-MCC012, Check open Breaker 10A, 600V Supply from Load Center 2NJS-US6 (Breaker 5A).

e. At Load Center 2NJS-US6, Check Voltage as nominally 600V.

E. STARTUP PROCEDURE (Cont'd)

24.0 (Cont'd)

f. At Load Center 2NJS-US6, rack in Supply Breaker to 2NHS-MCC012, Breaker 4D.

g. At Load Center 2NJS-US6, rack in supply breaker to 2NHS-MCC012, Breaker 5A.

h. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC012, Breaker 4D.

i. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC012, Breaker 5A.

j. At 2NHS-MCC012, close Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 4D). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC012, Breaker 10A, the 600V Supply from Load Center 2NJS-US6 (Breaker 5A), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

25.0 To energize the normal, welding and lighting 600V Distribution Panels, refer to the main one line diagrams and perform the following steps for each Distribution Panel:

a. Check open all Distribution Panel Load Breakers.

b. Check open 600V Incoming Supply Breaker (Main Breaker), located on Distribution Panel.

c. Close 600V Feed Breaker to Distribution Panel located on respective Load Center.

d. Close 600V Incoming Supply Breaker (Main Breaker), located on Distribution Panel.

e. Sequentially close Load Breakers on Distribution Panel.

Distribution Panel	Location	Power Supply
2NJS-PNL 100	Turb Build. East El 277'	2NJS-US1
2NJS-PNL 200	Reactor Build. West El 289'	2NJS-US2
2NJS-PNL 300	Turb. Build. West El 277'	NJS-US3
2NJS-PNL 301	Turb. Build. West El 288'	2NJS-US3
2NJS-PNL 400	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 401	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 402	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 500	Normal Swgr. Build. El 237'	2NJS-US5
2NJS-PNL 600	Normal Swgr. Build. El 237'	2NJS-US6
2NJS-PNL 700	Turb. Build. East El 277'	2NJS-US7

E. STARTUP PROCEDURE (Cont'd)

25.0 (Cont'd)

Distribution Panel	Location	Power Supply
2NJS-PNL 701	Turb. Build. East El 277'	2NJS-US7
2NJS-PNL 702	Reactor Build. North El 289'	2NJS-US7
2NJS-PNL 703	Reactor Build. North El 289'	2NJS-US7
2NJS-PNL 704	Turb. Build. West El 277'	2NJS-US7
2NJS-PNL 705	Turb. Build. West El 277'	2NJS-US7
2NJS-PNL 706	Electrical Bay El 261'	2NJS-US7
2NJS-PNL 707	Normal Switchgear Bldg El 261'	2NJS-US7
2LAT PNL 100	Turb. Build. East El 277'	2NJS-US1
2LAR PNL 200	Reactor Build. West El 289'	2NJS-US2
2LAT PNL 300	Turb. Build. West El 277'	2NJS-US3
2LAS PNL 400	Normal Switchgear Bldg EL 261'	2NJS-US4
2LAN PNL 900	Radwaste Build. El 279'	2NJS-US9
2WPS PNL 100	Turb. Build. East El 277'	2NJS-US1
2WPS PNL 200	Reactor Build. West El 289'	2NJS-US2
2WPS PNL 300	Turb. Build. West El 277'	2NJS-US3
2WPS PNL 400	Normal Switchgear Bldg El 261'	2NJS-US4

26.0 This section includes procedures for placing the maintenance supply for UPS1A in service when UPS1A is de-energized.

a. Verify loads on Panel 2VBS-PNLA101 & A102 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD500 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #8-D on 2NJS-US5

g. Close in loads on Panels 2VBS-PNLA101 & A102 as desired.

27.0 This section includes procedures for placing the de-energized UPS1A in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE per #26, a-g above.

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

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E. STARTUP PROCEDURE (cont.)

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h1 Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

h2 DISCONNECT THE POWER CORD PLUG, P6, TO MOTOR OPERATOR ON CB-4

i. In the UPS place control switches A27-CB1 & A27-S2 in the "ON" position. S1

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #1 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001A that voltage is 130V to 140V.

r. Close breaker #2-C on 2BYS-SWG001A.

s. Close breaker CB-2 on UPS1A.

t. Verify that the "Util Sync OK" lamp is lit.

u. Verify that the "No break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

E. STARTUP PROCEDURE (cont.)

2. The maintence supply breaker "CB-4" open lamp is lit. | 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

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4. The "No break transfer ready, to ~~bypass"~~ (maintenance ~~supply)~~" lamp is lit. | 3

w. Place the transfer control switch in the "Auto Restart" position.

28.0 This section includes procedures for placing the maintenance supply for UPS1B in service when UPS1B is de-energized. | 3

a. Verify loads on Panel 2VBS-PNLB101 & B102 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD601 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #4-B on 2NJS-US6

g. Close in loads on Panels 2VBS-PNLB101 & B102 as desired.

29.0 This section includes procedures for placing the de-energized UPS1B in service:

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a. Check the maintenance supply is in service ~~as~~ OR PUT IN SERVICE per Step 28.0, a-g above. | 3

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b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

E. STARTUP PROCEDURE (cont.)

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h.1 Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

h.2 DISCONNECT THE POWER CORD PLUG, P9, TO MOTOR OPERATOR ON CB-4.

i. In the UPS place control switches A27-CS1 & A27-~~S2~~ S1 in the "ON" position.

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #2 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001C that voltage is 130V to 140V.

r. Close breaker #2-A on 2BYS-SWG001C.

s. Close breaker #CB-2 on UPS1B.

t. Verify that the "Util Sync OK" lamp is lit.

u. Verify that the "No break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit.

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass~~ (maintenance ~~supply)~~ lamp is lit.

w. Place the transfer control switch in the "Auto Transfer" position.

E. STARTUP PROCEDURE (cont.)

30.0 This section includes procedures for placing the maintenance supply for UPS1C in service when UPS1C is de-energized.

a. Verify loads on Panel 2LAT-PNL017 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD501 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #4-B on 2NJS-US5

g. Close in loads on Panel 2LAT-PNL017 as desired.

31.0 This section includes procedures for placing the de-energized UPS1C in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE as per #30, a-g above.

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e.1) Place the switch for "CB-3" in the open position.

e.2) DISCONNECT/VERIFY DISCONNECTED POWER CORD PLUG, P6, TO MOTOR OPERATOR ON CB-4.

f. Place control switches A27-CB1 & A27-S2 in the "ON" position.

g. Reconnect the motor operator power cable to CB-4.

h. Reset all alarms, test that all alarms lights will light, then reset alarms and silence horn.

i. On 2LAT-PNL300 close the sub-feed breaker #45 for 2VBB-UPS1C.

j. On the UPS close CB-1.

k. Push the module "ON" pushbutton.

l. After a time delay verify that the UPS output volts are nominally 120 VAC.

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E. STARTUP PROCEDURE (cont.)

m. Verify that the module "ON" light is lit.

n. Verify on 2BYS-SWG001A that voltage is 130V to 140V.

o. Close Breaker #2-D on 2BYS-SWG001A.

p. Close Breaker #CB-2 on UPS1C.

q. Verify that the "Util Sync OK" lamp is lit. | 3

r. Verify that the "No Break transfer ready - to UPS" lamp is lit.

s. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit. | 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass" (~~maintenance ~~supply)~~ lamp is lit.

t. Place the transfer control switch in the "Auto Restart" position.

32.0 This section includes procedures for placing the maintenance supply for UPS1D in service when UPS1D is de-energized. | 3

a. Verify loads on Panel 2LAS-PNL016 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD600 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #6-C on 2NJS-US6

g. Close in loads on Panels 2LAS-PNL016 as desired.

33.0 This section includes procedures for placing the de-energized UPS1D in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE ~~as~~ per #32, a-g above. | 3

E. STARTUP PROCEDURE (cont.)

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b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e.1) Place the switch for "CB-3" in the open position.

e.2) DISCONNECT/VERIFY DISCONNECTED THE POWER CORD PLUG, P6, TO MOTOR OPERATOR TO CB-4. PIC 2/28/90 dlr 2/28/90

f. Place control switches A27-CB1 & A27-~~32~~ 51 in the "ON" position.

g. Reconnect the motor operator power cable to CB-4.

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h. Reset all alarms, test that all alarm lights will light, then reset alarms and silence horn.

i. On Panel (2NHS-MCC006) close the #8-A breaker that feed 2VBB-UPS1D.

j. On the UPS, close CB-1.

k. Push the module "ON" pushbutton.

l. After a time delay verify that the UPS output volts are nominally 120 VAC.

m. Verify that the module "ON" light is lit.

n. Verify on 2BYS-SWG001B that voltage is 130V to 140V.

o. Close Breaker #2-D on 2BYS-SWG001B.

p. Close Breaker #CB-2 on UPS1D.

q. Verify that the "Util Sync OK" lamp is lit. | 3

r. Verify that the "No Break transfer ready - to UPS" lamp is lit.

s. Place the "CB-3" switch in the closed position. the following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit. | 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS. TCN 27

4. The "No break transfer ready, to ~~bypass~~" (maintenance ~~supply~~) lamp is lit. | 3 PIC 2-28-90 dlr 2/28/90

E. STARTUP PROCEDURE (cont.)

t. Place the transfer control switch in the "Auto Restart" position.

34.0 This section includes procedures for placing the maintenance supply for UPS1G in service when UPS1G is de-energized. | 3

a. Verify loads on Panel 2VBS-PNLC100, C101, C102, and C103, and 2VBB-PNL 300 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD602 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #6-D on 2NJS-US6

g. Close in loads on Panels 2VBS-PNLC100, C101, C102, and C103 and 2VBB-PNL 300 as desired.

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35.0 This section includes procedures for placing the de-energized UPS1G in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE per #34, a-g above. |

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h. Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

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E. STARTUP PROCEDURE (cont.)

h.2) DISCONNECT/VERIFY DISCONNECTED THE POWER CORD PLUG, P6, TO MOTOR OPERATOR TO CB-4.

i. In the UPS place control switches A27-CB1 &A27-~~S2~~ 51 in the "ON" position.

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #7 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001C that voltage is 130V to 140V.

r. Close breaker #2-C on 2BYS-SWG001C.

s. Close Breaker #CB-2 on UPS1G.

t. Verify that the "Util Sync OK" lamp is lit.

u. Verify that the "No Break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit.

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready to ~~bypass" (~~maintenance~~ supply)~~ lamp is lit.

w. Place the transfer control switch in the "Auto Restart" position.

36.0 This section contains the startup procedure for energizing the UPS3A loads from its maintenance supply when UPS3A is de-energized.

a. Verify that the loads off panels 2VBS*PNLA101, 2VBS*PNLA103, 2VBS*PNLA104, 2VBS*PNLA105, and 2VBS*PNLA106, 2CEC*PNL709 are in a safe condition to allow energization of these panels.

E. STARTUP PROCEDURE (cont.)

b. Put the UPS3A manual transfer switch, S-1, in the maintenance position.

c. Close breaker #2 on 2NJS-PNL500.

d. On 2VBB-XRC503, close the input A.C breaker - #CB-1. 2VBB-XRC503 will energize.

e. Verify "Power in" light is lit on front of 2VBS*ACB1A.

f. Manually close breaker 2VBS*ACB1A.

g. Verify "Power in" light is lit on front of 2VBS*ACB2A.

h. Manually close breaker 2VBS*ACB2A.

.. Verify "Power out" light is lit on front of 2VBS*ACB2A.

j. Close in loads on panel 2VBS*PNLA101 as desired.

37.0 This section contains the startup procedure for energizing 2VBB-UPS3A:

a. Check that the maintenance supply for UPS3A is in service per Section E, #36, a-j. | 3

OR put in service

b. On UPS3A, check breaker #CB-1, #CB-2 open.

c. On 2LAT-PNL100, close breaker #26.

d. On 2BYS-SWG001C, check that voltage is 130V to 140 VDC.

e. Close breaker #2-C on 2BYS-SWG001C.

f. On UPS3A, close A.C. input breaker - #CB-1

g. Set the D.C. input voltmeter switch to "rectifier" and check that the voltmeter reads nominally 140 VDC. | 3

NOTE: As the UPS "Starts Up" an increase in noise will be noticed.

h. When the UPS starts up, set the output A.C. voltmeter switch to "inverter" and check that it indicates nominal 124 VAC. | 3

i. Push the lamp test pushbutton, all lamps will light and then go out when button is released.

j. Check the following indications:

1. "Low Battery" lamp is lit (because CB-2 is open)

2. "Reverse Transfer" lamp is lit.

k. Close battery input breaker, #CB-2.

E. STARTUP PROCEDURE (cont.)

1. Set the D.C. input voltmeter switch to "Battery" and check the battery voltage as 130V - 140 VDC. | 3

m. Check "Sync Loss" lamp is out.

n. Place manual transfer switch, S-1, in the static switch position. | 3

o. Push the "Forward Transfer" pushbutton.

p. Load can be monitored on the "Load Current" ammeter. | 3

q. Check that all alarm lamps are out.

38.0 This section contains the startup procedure for energizing the UPS3B loads from its maintenance supply when UPS3B is de-energized. | 3

a. Verify that the loads on panels 2VBS*PNLB101, 2VBS*PNLB103, 2VBS*PNLB104, 2VBS*PNLB105, and 2VBS*PNLB106, 2CEC*PNL708 are in a safe condition to allow energization of these panels.

b. Put the UPS3B manual transfer switch, S-1, in the maintenance position. | 3

c. Close breaker #2 on 2NJS-PNL600.

d. On 2VBB-XRC603, close the input A.C. breaker - #CB-1. 2VBB-XRC603 will energize.

e. Verify "power in" light lit on front of 2VBS*ACB1B.

f. Manually close breaker 2VBS*ACB1B.

g. Verify "power in" light is lit on front of 2VBS*ACB2B.

h. Manually close breaker 2VBS*ACB2B.

i. Verify "power out" light is lit on front of 2VBS*ACB2B.

j. Close in loads off panel 2VBS*PNLB101 as desired.

39.0 This section contains the startup procedure for energizing 2VBB-UPS3B:

a. Check that the alternate supply for UPS3B is in service per Section D, #38 a-j.

b. On UPS3B, check breaker #CB-1, #CB-2 open.

c. On 2NJS-PNL402 close breaker #32.

d. On 2BYS-SWG001B check that voltage is 130V to 140 VDC.

E. STARTUP PROCEDURE (cont.)

e. Close breaker #3-D on 2BYS-SWG001B.

f. On UPS3B, close A.C. input breaker - #CB-1.

g. Set the D.C. input voltmeter switch to "rectifier" and check that the voltmeter reads nominally 140 VDC. | 3

NOTE: As the UPS "Starts Up" an increase in noise will be noticed.

h. When the UPS starts up, set the output A.C. voltmeter switch to "inverter" and check that it indicates nominal 124 VAC. | 3

i. Push the lamp test pushbutton, all lamps will light and then go out when button is released.

j. Check the following indications:

1. "Low Battery" lamp is lit (because CB-2 is open).
2. "Reverse Transfer" lamp is lit.

k. Close battery input breaker, #CB-2.

l. Set the D.C. input voltmeter switch to "Battery" and check the battery voltage is 130V to 140 VDC. | 3

m. Check "Sync Loss" lamp is out.

n. Place manual transfer switch, S-1, in the static switch position. | 3

o. Push the "Forward Transfer" pushbutton.

p. Load can be monitored on the "Load Current" ammeter. | 3

q. Check that all alarm lamps are out.

F. NORMAL OPERATION

1.0 Before energizing normal station transformer 2STX-XNS1, ensure that:

a. At Panel 852, check open 13.8KV bus 001 supply breaker from normal station service transformer 2STX-XNS1, Breaker 1-3.

b. At Panel 852, check open 13.8KV bus 003 supply breaker from normal station service transformer 2STX-XNS1, breaker 3-14.

c. At 2STX-XNS1, place oil pumps and fans selector switches in auto.

d. At 2STX-XNS1, check closed potential power circuit breaker at load tap changer auto controller.

e. At 2STX-XNS1, place local-remote switch in remote position.

F. NORMAL OPERATION (cont.)

f. At 2STX-XNS1, check closed circuit breaker to cooling equipment and check closed circuit breaker to load-tap changer.

g. At 2STX-XNS1, check closed space heater circuit breaker.

h. At 2STX-XNS1, check transfer tank and load tap changer oil levels as normal.

i. At 2STX-XNS1, check that transformer tank pressure is between .30 and .55 psig.

j. At 2STX-XNS1, check automatic gas control equipment in service and gas cylinder pressure as greater than 200 psig.

k. Check liquid and winding temperatures as less than 80°C.

l. At Panel 852, place 2STX-XNS1 load tap changer auto-manual switch in manual.

2.0 To transfer station service from reserve to normal

a. Verify that the main generator has been synchronized and tied to the grid in accordance with OP #68 and a stable load has been established.

b. At 13.8 KV bus 001, rack in supply breaker from normal station service transformer 2STX-XNS1, breaker 1-3. Check the following lockout relays reset to assure closing permissives are satisfied:

1. Panel 864 - Unit Protection Lockout Relay 1
2. Panel 865 - Unit Protection Lockout Relay 1
3. Panel 866 - Unit Protection Lockout Relay 1
4. Panel 867 - Generator Backup Protection Lockout Relay 1
5. Panel 812 - 13.8 KV Bus NPS-001 Protection Lockout Relay.
6. Check that relay flags are reset.

c. At 13.8 KV Bus 003, rack in supply breaker from normal station service transformer 2STX-XNS1, Breaker 3-14. Check the following lockout relays reset to assure closing permissives are satisfied:

1. Panel 864 - Unit Protection Lockout Relay 1
2. Panel 865 - Unit Protection Lockout Relay 1
3. Panel 866 - Unit Protection Lockout Relay 1
4. Panel 867 - Generator Backup Protection Lockout Relay 1
5. Panel 813 - 13.8 KV Bus NPS-003 Protection Lockout Relay.
6. Check that relay flags are reset.

d. At Panel 852, turn on Synch Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, Breaker 1-3.

F. NORMAL OPERATION (Cont.)

e. Check voltages equal and synchroscope in phase, approximately 12 O'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower Control switch (P-852). TCN-

NOTE: Normal station service transformer 2STX-XNS1 load tap changer auto-manual switch will be left in "Manual" for normal operating conditions.

f. At Panel 852, close 13.8 KV Bus 001 supply breaker from 2STX-XNS1, breaker 1-3. Check normal station service transformer ammeters to verify load was picked up.

g. At Panel 852, turn off Sync. Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, breaker 1-3.

h. At Panel 852, open 13.8 KV Bus 001 supply breaker from reserve station service transformer 2RTX-XS-R1A, Breaker 1-1, and leave control switch in normal after trip position. Check voltage on 13.8 KV Bus 001 as nominally 13.8 KV.

i. At Panel 852, turn on Synch. Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 003, Breaker 3-14.

j. Check voltages equal and synchroscope in phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower control switch.

k. At Panel 852, close 13.8 KV Bus 003 supply breaker from 2STX-XNS1, breaker 3-14. Check normal station service transformer ammeters to verify load picked up.

l. At Panel 852, turn off Synch Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, breaker 3-14.

m. At Panel 852, open 13.8 KV Bus 003 supply breaker from reserve station service transformer 2RTX-XRS1B, breaker 3-1. Check voltage on 13.8 KV Bus 003 as nominally 13.8 KV.

3.0 After 13.8KV buses 001 and 003 are transferred to normal station service and periodically thereafter, transformer 2STX-XNS1 should be inspected and the following items should be checked as normal:

a. Liquid temperature (Less than 80°c).

b. Winding temperature (Less than 80°c).

F. NORMAL OPERATION (Cont.)

c. Tank pressure (Between -8 and +10 PSIG)

d. Liquid flow (If pump is running)

e. Liquid level in transformer

f. Liquid level in load tap changer

g. Fault gas

4.0 Normal operation for UPS-1 series and 3-series, 75KVA and 10 KVA

The normal operation of UPS's require little operator action. However, the individual UPS should be checked periodically for the following:

a. Ventilation filters clean
b. Doors and panel secured
c. AC output voltage: For UPS 3A/3B - 124V ± 2% (121.5-126.5)
UPS 1 Series- 120V ± 2%. (117.6 - 122.4 VAC)

5.0 Aux Service Transformers

5.1 The following parameters should be periodically monitored on each transformer, by the operator.

a. Winding Temperature (less than 80°C)
b. Oil Temperature (less than 80°C)
c. Oil Level in Transformer
d. Internal Gas Pressure (-5 to +7.5 psig)

TCN-1

G. SHUTDOWN PROCEDURE

NOTE: Once established, this system will not be shutdown as a unit. Shutdown is considered to be the manual transfer from normal to reserve supply when the main generator is taken out of service.

1.0 To transfer station service from normal to reserve

a. Manual transfer from normal to reserve for purposes of shutting down the main generator should be done while the generator is still synchronized to the bus.

b. Check the following lockout relays reset to assure closing permissives satisfied, for 13.8KV bus 001.

1. Panel 812 - 13.8 KV Bus NPS-001 protection lockout relay
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout Relay
3. Panel 806 - Reserve Station Service XFRM 1A Backup Protection Lockout Relay
4. Panel 867 - Generator backup protection lockout relay 2
5. Check that relay flags are reset

G. SHUTDOWN (Cont.)

c. Check the following lockout relays reset to assure closing permissives satisfied, for 13.8KV bus 003.

1. Panel 813 - 13.8 KV Bus NPS-003 protection lockout relay
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay
3. Panel 809 - Reserve Station Service XFRM 1B Backup Protection Lockout Relay
4. Panel 867 - Generator backup protection lockout relay 2
5. Check that relay flags are reset

d. At Panel 852, turn on Synch Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, breaker 1-1.

e. Check voltages equal and synchroscope in phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower control switch (P852). TCN-8

f. At panel 852, close 13.8 KV Bus 001 supply breaker from 2RTX-XSR1A, breaker 1-1. Check reserve station service transformer 2RTX-XSR1A ammeters to verify load was picked up.

g. At Panel 852 turn off Synch Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

h. At Panel 852, open 13.8 KV bus 001 supply breaker from normal station service transformer 2STX-XNS1, Breaker 1-3 and leave Control Switch in the normal after trip position. Check voltage on 13.8 KV Bus 001 is nominally 13.8 KV.

TCN-8

i. At Panel 852, turn on Synch Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 003, Breaker 3-1.

j. Check voltages equal and synchroscope on phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower switch (P852).

k. At Panel 852, close supply breaker from 2RTX-XSR1B, Breaker 3-1, check reserve station service transformer 2RTX-XSR1B ammeters to verify load was picked up.

G. SHUTDOWN (Cont.)

1. At Panel 852, turn off Synch Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 003, breaker 3-1.

m. At Panel 852, open 13.8 KV Bus 003 supply breaker from normal station service transformer 2STX-XNS1, breaker 3-14 and leave control switch in the normal after trip position. Check voltage on 13.8 KV bus 003 as nominally 13.8 KV.

n. Station service is now transferred from normal to reserve. Refer to OP #101 for plant shutdown.

2.0 Once the UPS Systems are put into service they should not be shut down as a unit. This would de-energize all UPS loads. However, certain individual components of the UPS systems may be taken out of service for maintenance, etc. These procedures will be given under section H - off-normal procedures.

H. OFF NORMAL PROCEDURES

NOTE: 13.8 KV Bus 001 Breaker 1-16, 13.8 KV bus 002 Breaker 2-1, and 13.8 KV bus 003 Breaker 3-16. No Breaker is supplied for cubicle.

NOTE: For extended outages of reserve station service transformers 2RTX-XSR1A and XSR1B, refer to Sections of this procedure for transferring emergency switchgears to alternate feeds.

1.0 To remove reserve station service transformer 2RTX-XSR1A from service with unit running and station being fed from normal station service:

a. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water and breaker 101-1 must be tripped. Note that the following step defeats load sequencing for Div. 1 SWP Pumps. TCN-12

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open Breaker 101-13, feed from Transformer 2RTX-XSR1A to bus 2ENS*SWG101.

H. OFF NORMAL PROCEDURES (Cont.)

NOTE: Step d and e is not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1B.

d. Place the 43LS switch on SWG102 to the ON position.

e. At P852, open breaker 102-4.

f. Move breaker from 102-4 to 102-5.

g. Place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

h. Close breaker 102-5.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch on SWG102 to the OFF position.

k. At Panel 852, 4.16 KV bus 2NNS-SWG016, open Breaker 16-2, 4.16KV feed from Reserve Station Service Transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

l. At Panel 852, 13.8KV bus 2NPS-SWG001 check open breaker 1-1, feed from Reserve Station Service Transformer 2RTX-XSR1A to 13.8 KV Bus.001.

m. At 13.8 KV Bus 003, check cubicle 3-16, alternate feed from reserve station service transformer 2RTX-XSR1A, is empty.

n. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS3, feed to Reserve Station Service Transformer 2RTX-XSR1A.

o. At Panel 852, 13.8KV bus 001, verify that control switch for Breaker 1-16 is in the normal after trip position.

p. At 13.8KV bus 001, rack out and remove Breaker 1-1 from cubicle 1-1 and rack breaker 1-1 into cubicle 1-16, feed to 13.8 KV Bus 001 from reserve station service transformer 2RTX-XSR1B.

NOTE: Transfer of Station Service from normal to reserve station service will now be from Reserve B Transformer.

2.0 To return reserve station service transformer 2RTX-XSR1A to service with unit running and station being fed from normal station service:

a. To energize transformer 2RTX-XSR1A, refer to OP-70 Section D.

b. At Panel 852, 13.8KV bus 2NPS-SWG*001, verify that control switch for Breaker 1-1 is in the normal after trip position.

c. At 13.8KV bus 001, rack out and remove Breaker 1-16 from cubicle 1-16 and rack Breaker 1-16 into cubicle 1-1.

H. OFF NORMAL PROCEDURES (Cont.)

d. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1A to 4.16 KV bus 016 as nominally 4.16 KV.

e. At Panel 852, check breakers 101-13 and 102-4, feed from 4.16 KV Bus 016 to emergency switchgear are open.

f. At Panel 852, 4.16KV bus 2NNS-SWG016 close Breaker 16-2, 4.16KV feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16KV.

g. At Panel 852, turn on Synch Switch across 4.16 KV Bus 016 and 2ENS*SWG101, Breaker 101-13.

h. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across Breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

i. Close circuit #4 in panel 2BYS*PNL201A.

j. At Panel 852, turn off Synch Switch across 4.16KV Bus 016 and 2EHS*SLX-101, Breaker 101-13.

k. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1A then perform steps l, m, n, o, p, q.

l. Place the 43LS switch on SWG102 to the ON position.

m. At P852, open breaker 102-5.

n. Move the breaker from 102-5 to 102-4.

o. Place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

p. Close breaker 102-4.

q. Place the synch switch in the OFF position.

r. Place 43LS switch in the OFF position.

3.0 To remove reserve station service transformer 2RTX-XSR1B from service with unit running and station being fed from normal station service:

a. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

H. OFF NORMAL PROCEDURES (Cont.)

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER AND BREAKER 103-14 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP ALSO DEFEATS SWP PUMP LOAD SEQUENCING FOR DIV. 1.

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an off-site feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open Breaker 103-4, feed from Transformer 2RTX-XSR1B to bus 2ENS*SWG103.

NOTE: Steps d through j are not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1A.

d. Place the 43LS switch on SWG102 in the ON position.

e. At P852, open breaker 102-5.

f. Move the breaker from 102-5 to 102-4.

g. Place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

h. Close breaker 102-4.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch in the OFF position.

k. At Panel 852, 4.16 KV bus 2NNS-SWG017, open Breaker 17-2, 4.16KV feed from Reserve Station Service Transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. *

l. At Panel 852, 13.8KV bus 2NPS-SWG003 check open breaker 3-1, feed from Reserve Station Service Transformer 2RTX-XSR1B to 13.8 KV Bus 003.

m. At 13.8 KV Bus 001, check cubicle 1-16, alternate feed from reserve station service transformer 2RTX-XSR1B, is empty.

n. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS4, feed to Reserve Station Service Transformer 2RTX-XSR1B.

o. At Panel 852, 13.8KV bus 003, verify that control switch for Breaker 3-16 is in the normal after trip position.

p. At 13.8KV bus 003, rack out and remove Breaker 3-1 from cubicle 3-1 and rack breaker 3-1 into cubicle 3-16, feed to 13.8 KV Bus 003 from reserve station service transformer 2RTX-XSR1A.

NOTE: Transfer of Station Service from normal to reserve station service will now be from Reserve A Transformer.

H. OFF NORMAL PROCEDURES (Cont.)

4.0 To return reserve station service transformer 2RTX-XSR1B to service with unit running and station being fed from normal station service:

a. To energize transformer 2RTX-XSR1B, refer to OP-70 Section D.

b. At Panel 852, 13.8KV bus 2NPS-SWG003, verify that control switch for Breaker 3-1 is in the normal after trip position.

c. At 13.8KV bus 003, rack out and remove Breaker 3-16 from cubicle 3-16 and rack Breaker 3-16 into cubicle 3-1.

d. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1B to 4.16 KV bus 017 as nominally 4.16 KV.

e. At Panel 852, check breakers 103-4 and 102-5, feed from 4.16 KV Bus 017 to emergency switchgear are open.

f. At Panel 852, 4.16KV bus 2NNS-SWG017 close Breaker 17-2, 4.16KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. Check 4.16KV bus 017 voltage as nominally 4.16KV.

g. At Panel 852, turn on Synch Switch across 4.16 KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

h. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across Breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

i. Close circuit #4 in Panel 2BYS*201B.

j. At Panel 852, turn off Synch Switch across 4.16KV Bus 017 and 2ENS*SWG-103, Breaker 103-4.

k. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1B then perform steps l through r.

l. Place the 43LS switch on SWG102 to the ON position.

m. At P852, open breaker 102-4.

n. Move the breaker from 102-4 to 102-5. TCN-6

o. Place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

p. At P852, close breaker 102-5.

q. Place the synch switch in the OFF position.

H. OFF NORMAL PROCEDURES (Cont.)

r. Place the 43LS switch in the OFF position.

5.0 To remove reserve station service transformer 2RTX-XSR1A from service with unit shutdown and station being fed from Reserve Station Service Transformers 2RTX-XSR1A and 1B.

a. At Panel 852, start emergency diesel 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO [illegible] SWP PUMP LOAD SEQUENCING FOR DIV. 1. TCN-1

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open breaker 101-13, feed from transformer 2RTX-XSR1A to bus 2ENS*SWG101 (See N2-OP-100A).

NOTE: Steps d through i are not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1B.

d. At SWG102 place the 43LS switch in the ON position.

e. At P852 open breaker 102-4.

f. Move the breaker from 102-4 to 102-5.

g. At P852, place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

h. At P852, close breaker 102-5.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch in the OFF position.

k. At Panel 852, 4.16KV bus 2NNS-SWG016, open breaker 16-2, 4.16KV feed from Reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

l. At 13.8KV bus 001, rack out and remove breaker 1-3 from cubicle 1-3 and rack breaker 1-3 into cubicle 1-16.

m. At Panel 852, bus 2NPS-SWG001, turn on synch. switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 001, Breaker 1-16.

n. At Panel 852, bus 2NPS-SWG001, place the control switch for breaker 1-16 to the close position. Breaker 1-1 will trip and breaker 1-16 will close. 13.8 KV Bus 001 is now fed from reserve station service transformer 2RTX-XSR1B. 7/17/87

H. OFF NORMAL PROCEDURES (Cont.)

o. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 001, breaker 1-16.

p. At Panel 852, bus 2NPS-SWG001, place control switch for breaker 1-1 in the pull to lock position.

q. At 13.8 KV Bus 003, check cubicle 3-16, alternate feed from reserve station service transformer 2RTX-XSR1A is empty.

r. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS3, feed to Reserve station service transformer 2-RTX-XSR1A.

6.0 To return reserve station service transformer 2RTX-XSR1A to service with unit shutdown and station being fed from Reserve station service transformer 2RTX-XSR1B:

a. To energize transformer 2RTX-XSR1A, refer to OP-70 Section E. TCN-13

b. At 13.8KV bus 001 verify that breaker 1-1 is racked in.

c. At Panel 852, bus 2NPS-SWG001, turn on synch switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

d. At Panel 852, bus 2NPS-SWG001, place the control switch for breaker 1-1 to the close position. Breaker 1-16 will trip and breaker 1-1 will close. 13.8 KV Bus is now being fed from reserve station service transformer 2RTX-XSR1A.

e. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

f. At Panel 852, Bus 2NPS-SWG001, place control switch for breaker 1-16 in the pull to lock position.

g. At 13.8KV bus 001, rack out and remove breaker 1-16 from cubicle 1-16 and rack breaker 1-16 into cubicle 1-3.

h. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1A to 4.16 KV Bus 016 as nominally 4.16 KV.

i. At Panel 852, check breakers 101-13 & 102-4, feeds from 4.16 KV bus 016 to emergency switchgear are open.

j. At Panel 852, bus 2NNS-SWG016, close breaker 16-2 4.16KV feed from Reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16 KV.

H. OFF NORMAL PROCEDURES (Cont.)

k. At Panel 852, turn on Synch. Switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

l. At Panel 852, bus 2ENS*SWG101 check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

m. Close circuit #4 in Panel 2BYS*PNL201A.

n. At Panel 852, turn off synch. switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

o. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1A then perform steps p through v.

p. Place the 43LS switch on SWG102 in the ON position.

q. At P852, open breaker 102-5.

r. At P852, place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

s. Move the breaker from 102-5 to 102-4.

t. At P852 close breaker 102-4.

u. Place the synch switch in the OFF position.

v. Place the 43LS switch in the OFF position.

7.0 To remove reserve station service transformer 2RTX-XSR1B from service with unit shutdown and station being fed from Reserve Station Service Transformers 2RTX-XSR1A and 1B.

a. At Panel 852, start emergency diesel 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 103-14 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 2 SWP PUMPS. TCN-12

b. Station an operator with a flashlight and radio at Panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

H. OFF NORMAL PROCEDURES (Cont.)

c. At Panel 852, open breaker 103-4, feed from transformer 2RTX-XSR1B to bus 2ENS*SWG103 (See N2-OP-100A).

NOTE: Step d through j is not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1A.

d. At SWG102, place the 43LS switch in the ON position.

e. At P852, open breaker 102-5.

f. At P852, place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

g. Move the breaker from 102-5 to 102-4.

h. At P852, close breaker 102-4.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch on SWG102 in the OFF position.

k. At Panel 852, 4.16KV bus 2NNS-SWG017, open breaker 17-2, 4.16 KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102.

l. At 13.8KV bus 003, rack out and remove breaker 3-14 from cubicle 3-14 and rack breaker 3-14 into cubicle 3-16.

m. At Panel 852, bus 2NPS-SWG003, turn on synch. switch across reserve station service transformer 2RTX-XSR1A and 13.8KV Bus 003, Breaker 3-16.

n. At Panel 852, bus 2NPS-SWG003, place the control switch for breaker 3-16 to the close position. Breaker 3-1 will trip and breaker 3-16 will close. 13.8KV Bus 003 is now being fed from reserve station service transformer 2RTX-XSR1A.

o. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1A and 13.8KV Bus 003 Breaker 3-16.

p. At panel 852, bus 2NPS-SWG003, place control switch for breaker 3-1 in the pull to lock position.

q. At 13.8 KV Bus 001 check cubicle 1-16, alternate feed from reserve station service transformer 2RTX-XSR1B is empty.

r. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS4, feed to reserve station service transformer 2RTX-XSR1B.

8.0 To return reserve station service transformer 2RTX-XSR1B to service with unit shutdown and station being fed from Reserve Station Service transformer, 2RTX-XSR1A:

a. To energize transformer 2RTX-XSR1B refer to OP-70 Section E. TCN-13

H. OFF NORMAL PROCEDURES (Cont.)

b. At 13.8KV bus 003 verify that breaker 3-1 is racked in.

c. At Panel 852, bus 2NPS-SWG003, turn on Synch. Switch across reserve station service transformer 2RTX-XSR1B and 13.8KV Bus 003, Breaker 3-1.

d. At Panel 852, bus 2NPS-SWG003, place the control switch for breaker 3-1 to the close position. Breaker 3-16 will trip and breaker 3-1 will close. 13.8KV Bus 003 is now fed from reserve station service transformer 2RTX-XSR1B.

e. At Panel 852, turn off synch switch across reserve station service transformer 2RTX-XSR1B and 13.8KV Bus 003, Breaker 3-1.

f. At Panel 852, Bus 2NPS-SWG003, place control switch for Breaker 3-16 in the pull to lock position.

g. At 13.8KV bus 003, rack out and remove breaker 3-16 from cubicle 3-16 and rack breaker 3-16 into cubicle 3-14.

h. At Panel 852, check 4.16KV feed from reserve station service transformer 2RTX-XSR1B to 4.16KV Bus 017 as nominally 4.16KV.

i. At Panel 852, check breakers 103-4 and 102-5 feeds from 4.16 KV Bus 017 to emergency switchgear are open.

j. At Panel 852, bus 2NNS-SWG017, close breaker 17-2 4.16KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. Check 4.16KV bus 017 voltage as nominally 4.16 KV.

k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

l. At Panel 852, bus 2ENS*SWG103 check synchronization and voltage across breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

m. Close circuit #4 in Panel 2BYS*PNL201B.

n. At Panel 852, turn off Synch. switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

o. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

NOTE: Steps p through v are not necessary if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1A. TCN-6

p. Place the 43LS switch on SWG102 in the ON position. TCN-6

q. At P852, open breaker 102-4.

H. OFF NORMAL PROCEDURES (Cont.)

r. Move the breaker from 102-4 to 102-5.

s. At P852, place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

t. At P852, close breaker 102-5.

u. At P852, place the synch switch in the OFF position.

v. Place the 43LS switch on SWG102 in the OFF position.

9.0 To remove auxiliary boiler service transformer 2ABS-X1 from service.

NOTE: No breakers are supplied for cubicles 18-2 bus 2NNS-SWG018 and 2-1 bus 2NPS-SWG002.

a. Refer to OP-48 for removing auxiliary boilers from service.

b. At Panel 852, bus 2NPS-SWG002, open breaker 2-5, 13.8KV feed to bus 2NPS-SWG002 and place control switch in the pull to lock position.

c. At Panel 852, bus 2NNS-SWG018, check open breaker 18-2, 4.16KV feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103.

d. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS5, 115KV feed to transformer 2ABS-X1.

e. At Panel 852, check that bus 2NNS-SWG018 and bus 2NPS-SWG002 voltage reads zero.

10.0 To return Auxiliary boiler service transformer 2ABS-X1 to service:

NOTE: No breakers are supplied for cubicles 18-2 bus 2NNS-SWG018 and 2-1 Bus 2NPS-SWG002.

a. To energize auxiliary boiler service transformer 2ABS-X1, refer to OP-70 Section E. TCN-13

b. To energize 13.8KV Bus 002, refer to this procedure Section E, Step 4.

c. To energize 4.16KV Bus 018, refer to this procedure Section E, Step 15.

11.0 To remove auxiliary boiler service transformer 2ABS-X1 from service and supply auxiliary boilers from reserve station service transformer 2RTX-XSR1A.

a. To remove auxiliary boiler service transformer 2ABS-X1 from service refer to Section H Step 9 this procedure.

H. OFF NORMAL PROCEDURES (Cont.)

CAUTION

STEP C MUST BE DONE WHILE TRANSFORMER 2RTX-XSR1A LOAD BREAKERS; 1-1, 3-16, AND 2-1 ARE OPEN.

b. To remove reserve station service transformer 2RTX-XSR1A from service refer to this procedure Section H Step 5.

c. Close neutral disconnect switch 2RTX-SW001 in the grounding circuit for the 13.8KV windings of reserve station service transformer 2RTX-XSR1A.

d. At Panel 852, 115KV bus, close circuit switcher 2YUC-MDS3, feed to Reserve A transformer. (See OP-70)

e. At Panel 852, check 4.16KV feed from reserve station service transformer 2RTX-XSR1A to 4.16KV Bus 016 as nominally 4.16KV.

f. At Panel 852, check breakers 101-13 and 102-4, feed from 4.16KV Bus 016 to emergency switchgear are open.

g. At Panel 852, 4.16KV bus 2NNS-SWG016, close breaker 16-2, 4.16KV feed to emergency bus 2ENS*SWG101 and 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16KV.

h. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, breaker 101-13.

i. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

j. Close circuit #4 in Panel 2BYS*PNL201A.

k. At Panel 852, turn off Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, breaker 101-13.

l. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: Steps m through s are not necessary if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.

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m. At SWG102, place the 43LS switch in the ON Position.

n. At P852, open breaker 102-4.

o. Move the breaker from 102-4 to 102-5.

H. OFF NORMAL PROCEDURES (Cont.)

p. At P852, place the synch switch for the alternate feed bus 102 from NNS017 in the ON position.

q. At P852, close breaker 102-5.

r. At P852, place the synch switch in the OFF position.

s. At SWG102, place the 43LS switch in the OFF position.

12.0 To return auxiliary boiler service transformer 2ABS-X1 to service and return reserve station service transformer 2RTX-XSR1A to normal feed:

a. Verify auxiliary boiler service transformer 2ABS-X1 is de-energized by checking open breaker 18-2 bus 2NNS-SWG018; breaker 2-5 bus 2NPS-SWG002 and circuit switcher 2YUC-MDS5.

b. Remove auxiliary boilers from service in accordance with OP-48.

c. At Panel 852, 13.8 KV bus 2NPS-SWG002, open breaker 2-1 feed from reserve station service transformer 2RTX-XSR1A and check that voltage reads zero on bus 2NPS-SWG002. Place control switch for breaker 2-1 in the pull to lock position.

d. At 13.8KV bus 2NPS-SWG002, rack out and remove breaker 2-1 from cubicle 2-1 and rack breaker 2-1 into cubicle 2-5.

e. At Panel 852, start emergency diesel 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100B).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BRRAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS. TCN-12

f. Station an operator with a flashlight and radio at Panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

g. At Panel 852, open breaker 101-13, feed from reserve station service transformer 2RTX-XSR1A to emergency bus 2ENS*SWG101 (See OP-72).

NOTE: Steps h through m are not necessary if bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.

H. OFF NORMAL PROCEDURES (Cont.)

h. At SWG102, place the 43LS switch in the ON position.

i. At P852, open breaker 102-4.

j. Move the beraker from 102-4 to 102-5.

k. At P852, place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

l. At P852, close breaker 102-5.

m. Place the synch switch in the OFF position.

n. Place the 43LS switch in the OFF position.

o. At Panel 852, bus 2NNS-SWG016, open breaker 16-2, 4.16KV feed from Reserve station service transformer 2RTS-XSR1A to emergency bus 2ENS*SWG101 and 2ENS*SWG102.

p. At Panel 852, bus 2NPS-SWG001 verify breaker 101, Reserve A feed to bus 2NPS-SWG001 is open.

q. At 13.8KV Bus 003, check cubicle 3-16 alternate feed from reserve station service transformer 2RTX-XSR1A is empty.

r. At Panel 852, 115KV bus open circuit switcher 2YUC-MDS3, feed to reserve station service transformer 2RTX-XSR1A.

CAUTION

STEP S MUST BE DONE WHILE TRANSFORMER 2RTX-XSR1A LOAD BREAKERS: 1-1, 3-16, AND 2-1 ARE OPEN.

s. Open neutral disconnect switch 2RTX-SW001 in the grounding circuit for the 13.8KV windings of reserve station service transformer 2RTX-XSR1A.

t. Energize reserve station service transformer 2RTX-XSR1A and transfer 13.8KV bus 2NPS-SWG001 feed in accordance with Section H Step 6 this procedure. TCN-9

u. Energize auxiliary boiler transformer and 13.8KV bus 2NPS-SWG002 in accordance with Section H Step 10 this procedure.

13.0 To transfer emergency bus 2ENS*SWG102 normal feed from Reserve station service transformer 2RTX-XSR1A to reserve station service transformer 2RTX-XSR1B.

a. At Panel 852, bus 2NNS-SWG017, verify that breaker 17-2 is closed. Check 4.16KV bus 017 voltage as nominally 4.16KV.

b. At SWG102, place the 43LS switch in the ON position.

H. OFF NORMAL PROCEDURES (Cont.)

c. At Panel 852, bus 2ENS*SWG102, open breaker 102-4, feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG102.

d. At bus 2ENS*SWG102 rack out and remove breaker 102-4 from cubicle 102-4 and rack breaker 102-4 into cubicle 102-5. TCN-7

e. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG102, breaker 102-5.

f. At Panel 852, close breaker 102-5.

g. At Panel 852, turn off Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG102, Breaker 102-5.

h. Place the 43LS switch in the OFF position.

14.0 To transfer emergency bus 2ENS*SWG102 feed from Reserve station service transformer 2RTX-XSR1B to reserve station service transformer 2RTX-XSR1A.

a. At Panel 852, bus 2NNS-SWG016, verify that breaker 16-2 is closed, check 4.16KV bus 016 voltage as nominally 4.16KV.

b. At SWG102, place the 43LS switch in the ON position.

c. At Panel 852, bus 2ENS*SWG102, open breaker 102-5, feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG102.

d. At bus 2ENS*SWG102 rack out and remove breaker 102-5 from cubicle 102-5 and rack in breaker 102-5 into cubicle 102-4.

e. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG102, breaker 102-4. TCN-7

f. At Panel 852, close breaker 102-4.

g. At Panel 852, turn off Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG102, Breaker 102-4.

h. Place the 43LS switch in the OFF position.

15.0 To transfer emergency bus 2ENS*SWG101 feed from reserve station service transformer 2RTX-XSR1A to Aux. boiler transformer 2ABS-X1:

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~~NOTE: Step a. is not required if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.~~

H. OFF NORMAL PROCEDURES (Cont.)

~~a. Transfer emergency bus 2ENS*SWG102 from reserve station transformer 2RTX XSR1A to reserve station service transformer 2RTX XSR1B per Section H, Step 13, this procedure.~~

a b. At Panel 852, 115KV bus, verify that Aux. boiler transformer 2ABS-X1 is energized.

b c. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS. TCN-12

C d. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d e. At Panel 852, bus 2ENS*SWG101 open breaker 101-13 feed from 4.16KV bus 2NNS-SWG016 to bus 2ENS*SWG101. Place control switch for breaker 101-13 in the pull to lock position.

~~f. At Panel 852, bus 2NNS-SWG016, open breaker 16-2, feed from Reserve station service transformer 2RTX XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Place control switch for breaker 16-3 in the pull to lock position.~~

~~g. At Panel 852, lock out aux. boiler transformer 2ABS-X1 feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103, Breaker 18-2.~~

e. At Panel 852, verify breaker 18-2 is closed and NNS-SWG018 is energized.

~~h. At 4.16KV bus 016 rack out and remove breaker 16-2 from cubicle 16-2 and rack breaker 16-2 into 4.16 KV bus 018 cubicle 18-2.~~

f x. At bus 2ENS*SWG101 rack out and remove breaker 101-13 from cubicle 101-13 and rack breaker 101-13 into cubicle 101-10.

~~j. At Panel 852, bus 2NNS-SWG018, close breaker 18-2, feed from 2ABS-X1 transformer to bus 2ENS*SWG101 and bus 2ENS*SWG103.~~

g k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 018 and 2ENS*SWG101, Breaker 101-10.

h l. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-10. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-10.

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H. OFF NORMAL PROCEDURES (Cont.)

i. Close circuit #4 in panel 2BYS*PNL201A.

j. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 018 and 2ENS*SWG101, Breaker 101-10.

k. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

16.0 To transfer emergency bus 2ENS*SWG101 feed from Aux. boiler transformer 2ABS-X1 to reserve station service transformer 2RTX-XSR1A:.

a. At Panel 852, 115KV bus, verify that reserve station service transformer 2RTX-XSR1A is energized.

b. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS. TCN-1

c. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d. At panel 852 bus 2ENS*SWG101 open breaker 101-10, feed from 4.16KV bus 2NNS-SWG018 to bus 2ENS*SWG101. Place control switch for Breaker 101-10 in the pull to lock position.

e. At Panel 852, bus 2NNS-SWG018, open breaker 18-2, feed from Aux. boiler transformer 2ABS-X1 to bus 2ENS*SWG101 and bus 2ENS*SWG103. Place control switch for breaker 18-2 in the pull to lock position.

f. At Panel 852, lockout reserve station service transformer 2RTX-XSR1A feed to emergency buses 2ENS*SWG101 & 2ENS*SWG102, Breaker 16-2.

g. At 4.16KV bus 018 rack out and remove breaker 18-2 from cubicle 18-2 and rack breaker 18-2 into 4.16KV bus cubicle 16-2.

h. At bus 2ENS*SWG101 rack out and remove breaker 101-10 from cubicle 101-10 and rack breaker 101-10 into cubicle 101-13.

i. At Panel 852, bus 2NNS-SWG016, close breaker 16-2, feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

H. OFF NORMAL PROCEDURES (Cont.)

j. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, Breaker 101-13.

k. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

l. Close circuit #4 in panel 2BYS*PNL201A.

m. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

n. At Panel 852, bus 2ENS*SWG101 open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

o. Transfer emergency bus 2ENS*SWG102 from reserve station service transformer 2RTX-XSR1B to reserve station service transformer 2RTX-XSR1A per Section H Step 14 of this procedure.

NOTE: Normal feed to Bus 2ENS*SWG102 is from reserve station transformer 2RTX-XSR1A with 2RTX-XSR1B as the alternate source.

17.0 To transfer emergency bus 2ENS*SWG103 feed from reserve station service transformer 2RTX-XSR1B to aux. boiler transformer 2ABS-X1:

a. Verify that bus 2ENS*SWG102 is fed from it's normal source, 2RTX-XSR1A.

NOTE: If in mode 1, 2 or 3 and 2ENS*SWG103 is to be transferred to the aux. boiler xfmr with ABS-X1 powered from 2RTX-XSR1A, consult with Tech. Spec. 3.8.1.1

b. At Panel 852, the same 115KV line as 115KV bus, verify that aux. boiler transformer 2ABS-X1 is energized and breaker 13-2 closed. TCN-1

c. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water, and breaker 103-14 must be tripped. Note that the following step will also defeat load sequencing for Div. 2 SWP Pumps. TCN-1

d. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

e. At Panel 852, bus 2ENS*SWG103 open breaker 103-4 feed from 4.16KV bus 2NNS-SWG017 to bus 2ENS*SWG103. Place control switch for breaker 103-4 in the pull to lock position.

H. OFF NORMAL PROCEDURES (Cont.)

~~f. At Panel 852, bus 2NNS-SWG017, open breaker 17-2, feed from Reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG102 and bus 2ENS*SWG103. Place control switch for breaker 17-2 in the pull to lock position.~~

~~g. At Panel 852, lock out aux. boiler transformer 2ABS-X1 feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103, Breaker 18-2.~~

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f. X. Check control switch for breaker 103-2 is in pull-to-lock position.

g X. At bus 2ENS*SWG103 rack out and remove breaker 103-4 from cubicle 103-4 and rack breaker 103-4 into cubicle 103-2.

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~~i. At Panel 852, bus 2NNS-SWG018, close breaker 18-2, feed from 2ABS-X1 transformer to bus 2ENS*SWG101 and bus 2ENS*SWG103.~~

h X. At Panel 852, turn on Synch. Switch across 4.16KV Bus 018 and 2ENS*SWG103, Breaker 103-2.

i X. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across breaker 103-2. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-2.

j X. Close circuit #4 in Panel 2BYS*PNL201B.

K X. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 018 and 2ENS*SWG103, Breaker 103-2.

L X. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

CAUTION

At no time will both emergency bus 2ENS*SWG101 and 2ENS*SWG103 be paralleled on bus 2NNS-SWG018.

18.0 To transfer emergency bus 2ENS*SWG103 feed from Aux. boiler transformer 2ABS-X1 to reserve station service transformer 2RTX-XSR1B:

a. At Panel 852, 115KV bus, verify that reserve station service transformer 2RTX-XSR1B is energized.

b. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

H. OFF NORMAL PROCEDURES (Cont.)

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water, and breaker 103-14 must be tripped. Note that the following step will also defeat Div. 2 SWP Pump load Sequencing. TCN-12

c. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d. At panel 852 bus 2ENS*SWG103 open breaker 103-2, feed from 4.16KV bus 2NNS-SWG018 to bus 2ENS*SWG103. Place control switch for Breaker 103-2 in the pull to lock position.

e. At Panel 852, bus 2NNS-SWG018, open breaker 18-2, feed from Aux. boiler transformer 2ABS-X1 to bus 2ENS*SWG101 and bus 2ENS*SWG103. Place control switch for breaker 18-2 in the pull to lock position.

f. At Panel 852, verify the control switch for the reserve station service transformer 2RTX-XSR1B feed to emergency buses 2ENS*SWG103 & 2ENS*SWG102, Breaker 17-2 is in the "pull to lock" position.

g. At 4.16KV bus 018 rack out and remove breaker 18-2 from cubicle 18-2 and rack breaker 18-2 into 4.16KV bus 017 cubicle 17-2.

h. Check control switch for breaker 103-4 is in pull-to-lock position.

i. At bus 2ENS*SWG103 rack out and remove breaker 103-2 from cubicle 103-2 and rack breaker 103-2 into cubicle 103-4.

j. At Panel 852, bus 2NNS-SWG017, close breaker 17-2, feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102.

k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

l. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

m. Close circuit #4 in Panel 2BYS*PNL201B.

n. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

o. At Panel 852, bus 2ENS*SWG103 open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

H. OFF NORMAL PROCEDURES (Cont.)

19.0 Loss of normal feed (2NJS-US3) to 2VBB-TRS1 - transfer switch feeding normal A.C. voltage supply to 2VBB-UPS1A, 1B, 1G:

Upon loss of feed 2NJS-US3 to transfer switch 2VBB-TRS1, the UPS and transfer switch will automatically transfer so that there is no loss of load, therefore, no operator action is required.

Description of transfer: Upon loss of power from 2NJS-US3 to 2VBB-TRS1 the "normal" green light on TRS1 will go out and TRS1 will automatically (after a time delay) transfer its input to 2NJS-US4 and the "emergency" red light will light. When normal power is lost to the UPS it will automatically begin drawing power from the batteries. | 3

As soon as TRS 1 transfers to 2NJS-US4 normal power is restored to the UPS and the UPS will bias off (stop drawing from) the batteries and draw from its normal source again. When 2NJS-US3 is re-energized the transfer switch, 2VBB-TRS1, will automatically retransfer back to 2NJS-US3 (after a delay). There is no loss of power to the UPS load and all equipment will restore automatically so no operator action is necessary.

20.0 Loss of normal A.C. power to all series 1 and series 3 UPS

No operator action required. Upon loss of normal A.C. supply to any series 1 or series 3 UPS the UPS will automatically begin accepting power from the batteries. As long as the battery voltage does not fall to an undervoltage condition (due to an off normal condition in the 125VDC system), the UPS can continue to operate off the battery indefinitely. When the normal A.C. source is re-energized, the UPS will automatically bias off (stop drawing from) the batteries and draw power again from its normal source. | 3

21.0 Loss of normal A.C. power with added loss of D.C. backup power to all series 1 and series 3 UPS:

If there is loss of normal A.C. power to any UPS combined with a loss of (battery) D.C. power, the UPS will automatically transfer its load to its maintenance A.C. source. Once the UPS is on the maintenance source it can operate indefinitely on maintenance power until normal power is available. Once normal power is available the load is automatically retransferred back to the UPS. | 3

22.0 Energized UPS (Series 1 or 3) with loss of D.C. power without loss of normal A.C. power: | 3

An energized UPS operating on normal A.C. power can experience the loss of D.C. power with no effect on the UPS or its loads. Therefore this requires no operator action. | 3

NOTE: THIS PROCEDURE WILL RESULT IN THE UPS CRITICAL LOADS BEING SUPPLIED FROM THE MAINTENANCE SOURCE. THE UPS INVERTER AND UPS LOGIC POWER WILL BE DE-ENERGIZED. WITH THE UPS LOGIC POWER DE-ENERGIZED, CONTROL ROOM ANNUNCIATION FOR THE ASSOCIATED UPS WILL BE INHIBITED.

6-K-91
15796

H. OFF NORMAL PROCEDURES (Cont.)

23.0 Transfer of load from UPS 1 series (75 KVA) to the maintenance source and shutdown of the UPS.

a. Initial Condition:

1. UPS module supplying critical load.

2. The maintenance source is energized.

3. The UPS A.C. input breaker is closed.

b. UPS transfer and shutdown:

1. Check that "util sync ok" lamp is lit.

2. "No - break transfer, to ~~bypass~~ MAINTENANCE" lamp is lit.

3. Place the transfer control switch in the ~~bypass~~ maintenance position.

NOTE: This initiates the transfer to maintenance. CB-3 and CB-4 will change position.

4. Release switch and allow it to spring back to the "manual restart" position.

5. Verify breaker CB-4 is closed.

6. Open "switch" CB-3" on panel and verify CB-3 opens.

7. Push "module off" switch.

8. Open battery breaker, CB-2.

9. Manually open A.C. input breaker, CB-1.

10. Using portable D.C. voltmeter on UPS internal D.C. Bus, check that voltmeter indicates less than 30 VDC.

NOTE: Allow approx. one minute for DC bus to decay below 30 volts.

12 ~~11~~. Open control circuit breakers, A27-CB1 and control switch, A27-S1.

13 ~~12~~. The UPS is now de-energized except for the load current transformer loops. Refer further isolation and/or repairs to maintenance.

11 (R) DISCONNECT THE POWER CORD PLUG, P6, TO MOTOR OPERATOR TO CB-4.

24.0 Removing the ~~alternate~~ MAINTENANCE supply to any 1-series UPS with the UPS supplying the critical load:

a. Verify UPS "module-on" lamp is lit.

b. Check D.C. volts at 130-140 VDC.

c. Check output frequency at nominal 60 Hz.

H. OFF NORMAL PROCEDURES (Cont.)

d. Check A.C. output volts at nominal 120 volts.

e. Check breaker toggle switch "CB-3" is in closed position.

f. Check that breaker CB-4 is open.

g. Disconnect the power jack for the cable to the motor operator of CB-4.

h. Place transfer control switch to "manual restart" position.

CAUTION:

BE CAREFUL THAT SWITCH DOES NOT GO TO "BYPASS" ACCIDENTLY.

i. In order to de-energize each maintenance supply open the associated input breaker, CB-1, on the associated transformer. | 3

j. To de-energize the feed to each associated transformer, open up the A.C. feed breaker as follows: | |

k. For 2VBB-XD500 (UPS1A) open breaker # 8-D on 2NJS-US5
2VBB-XD601 (UPS1B) open breaker # 4-B on 2NJS-US6
2VBB-XD501 (UPS1C) open breaker # 4-B on 2NJS-US5
2VBB-XD600 (UPS1D) open breaker # 6-C on 2NJS-US6
2VBB-XD602 (UPS1G) open breaker # 6-D on 2NJS-US6

l. Refer cable removal, etc. to electrical maintenance.

NOTE: With UPS in this configuration, a UPS trip will cause a loss of critical load.

25.0 Transfer of load from UPS 3A and 3B (10 KVA) to the maintenance source and shutdown of the UPS. | 3

1. Initial Conditions:

a. UPS module supplying the critical load.

b. The maintenance source is energized. | 2

2. UPS transfer and shutdown-

a. Check the maintenance supply voltage and frequency to be nominally 124 volts and 60 H_Z, respectively. | 3
b. Check "Sync. Loss" lamp is out.
c. Push reverse transfer (to maintenance) pushbutton.
d. Switch manual transfer switch S-1 to the "Maintenance" position. | 3
e. Turn off battery circuit breaker CB-2.
f. Turn off A.C. input breaker, CB-1.
g. Check D.C. rectifier and inverter output volts drop to zero.
h. Set output AC voltmeter and frequency meter switch, S-2, to the "maintenance" position. | 3

H. OFF NORMAL PROCEDURES (Cont.)

26.0 Removing the maintenance supply to UPS3A or UPS3B with the UPS supplying the critical loads.

a. Verify on UPS - CB-1 closed.

b. Verify on UPS - CB-2 closed.

c. Verify UPS D.C. volts is 130-140 VDC.

d. Verify UPS A.C. output volts to be nominal 124 VAC.

e. Verify UPS frequency at nominal 60 H_Z.

f. Check all alarms clear.

g. Move switch S-1, "manual transfer switch" to the "~~maintenance~~ INVERTER" switch position.

h. On the maintenance supply transformer/regulator open ~~CB-1~~ "AC INPUT TO MAINTENANCE SUPPLY REGULATOR" BREAKER.

i. Any further isolation and/or repair should be referred to electrical maintenance.

TCN-20 QIC 2-28-90 4/26/90 12-10-90 12/10/90 TCN-25

NOTE: With UPS and maintenance supply in this position, any UPS fault condition will result in loss of load.

27.0 UPS 1-series restart after a UPS failure trip/transfer to maintenance supply:

a. Check the critical load is being powered by the maintenance supply.

b. Record all UPS alarm and switch positions, and then push reset buttons A13A34 and A13A21. TCN-

c. Close/verify closed CB-1, normal AC input.

d. Place the transfer control switch in the "manual restart" position.

e.1 Place CB-3 toggle switch in the OPEN position. TCN-

e.2 Push ON pushbutton. After unit stabilizes (running), close CB-2.

e.3 Push OFF pushbutton. Place transfer control switch to "AUTO RESTART." Place CB-3 toggle switch in CLOSE position.

f. The UPS will automatically restart (after a time relay of approximately 40 sec.) and retransfer back to the UPS.

TCN-

g. If the UPS transfers back to ~~bypass~~ MAINTENANCE, then move the transfer control switch to "Manual Restart" and investigate cause. If UPS shutdown is warranted do so per Section H.23.b.5-14.

PIC 2-25-90 MK 2/28/90

h. If UPS stays on UPS power, verify output of nominal 120 VAC, and 60 H_Z.

i. Check transfer Control Switch is in "Auto Restart" position.

28.0 UPS 1-series shutdown after failure, maintenance source feeding load:

a. Record all alarms and switch positions on the UPS.

b. Place transfer control switch to "manual restart" position.

c. Follow Section H.23.b.5-~~14~~ 13.

*2 3-2-91

29.0 UPS 3A/3B restart after a UPS failure trip/transfer to maintenance supply:

a. Check that the critical load is being powered by the maintenance supply.

b. Record all alarms and switch positions.

c. Clear all alarms as necessary.

d. Verify A.C. input breaker CB-1 closed, close if open/tripped.

e. Check D.C. input breaker CB-2 closed. (If tripped, do not reset until UPS is up and running.)

f. Check UPS D.C. volts 130-140 VDC.

g. Check inverter output volts nominally 124 VAC and 60 H_Z.

h. Check manual transfer switch, S-1, is in the "static switch" position.

i. Check "Sync. Loss" lamp is out.

j. Push the "forward transfer" (to inverter) pushbutton.

k. If the load transfers back to the maintenance supply, then investigate the cause. If UPS shutdown is warranted, do so per Section H. 25.

30.0 UPS 3A/3B shutdown after failure, with maintenance source feeding load.

a. Record all alarms and switch positions.

b. Follow Section H. 25.

3.1.0 RESTORING THE MAINTENANCE SUPPLY TO UPS 3A OR UPS 3B WITH THE UPS SUPPLYING THE CRITICAL LOADS.

a. Verify on UPS CB-1 closed.
b. Verify on UPS CB-2 closed.
c. Verify UPS D.C. volts 130-140 VDC
d. Verify UPS A.C. output volts to be nominal 124 VAC.
e. Verify UPS frequency at nominal 60 Hz.
f. Check all alarms clear except Sync loss.
g. On the maintenance supply transformer/regulator, close the "AC INPUT TO MAINTENANCE SUPPLY REGULATOR" BREAKER
h. Move switch S-1 "Manual transfer switch" to the "STATIC SWITCH AUTO TRANSFERS POSSIBLE" POSITION.

12-1 90 MR 12/31/ TCN 25

32.0 Inadvertent Loss of Buss

NOTE: Loss of Buss may be indicated by any of the following:
- Trip of Feeder Breaker due to electrical malfunction (typically from electrical fault or undervoltage condition).
- Zero voltage indicated at the affected buss.
- Annunciators in alarm for the associated buss.
- Loss of loads supplied by the affected buss.

32.1.0 OPERATOR ACTIONS

32.1.1 Take the necessary actions to place the Plant in a Safe condition.

32.1.2 Refer to Operating Procedures as required.

32.1.3 Place all loads on affected Switchgear, Unit sub or Motor Control Center in the Pull-to-Lock position.

32.1.4 Place affected Feeder Breakers in the Pull-to-Lock position.

32.1.5 Determine the cause of the inadvertent loss of buss by performing the following steps as appropriate:
- Contact Electrical Maint. for assistance.
- Scan all Control Room panels for abnormal indications which may aid in identifying the cause.
- Request assistance from I&C and Meter&Test as necessary.
- Refer to electrical diagrams and load lists as necessary to identify affected loads.

32.1.6 Refer to Technical Specifications for possible entry into LCO's.

32.1.7 Attempt to correct or isolate the cause of loss of buss.

CAUTION Trips or Lockout's should not be reset until the cause of the loss of buss has been determined and corrected.

32.2.0 RESTORATION

32.2.1 When the cause of the loss of buss has been determined and corrected then restore power to the buss using the following steps as a guideline.

a. Verify all load breakers on the affected buss are in Pull-to-Lock.

b. Reclose Feeder Breaker to re-energize the buss.

c. Verify proper voltage on the buss.

CAUTION The following step may involve re-starting of equipment in the plant, Operating Procedures for re-start of those systems must be used.

d. Sequentially re-energize loads on the buss by placing the breakers from Pull-to-Lock to the Normal-after-Start position for only those loads which are required to support normal plant operation or as directed by the SSS.

e. Control Room panels should again be scanned to verify that all abnormal indications and alarms caused by the loss of buss have been corrected.

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TCN-28

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS

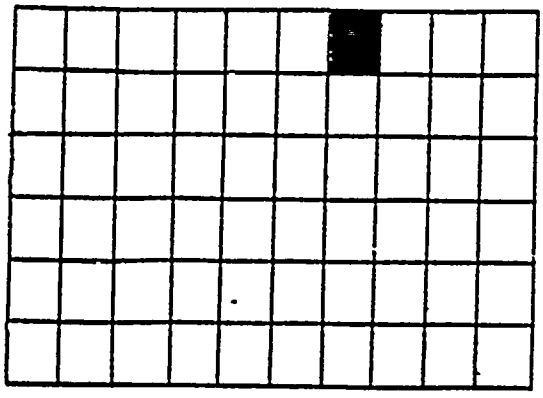
1.0 852407 4KV Stub Bus Feeder Air Circuit Breaker to Load Center Transformer Auto Trip Failure to Close

TCN-24 BCR 12/6/90 RA 1446

Reflash: Yes

4KV STUB BUS
FEEDER ACB TO
LD CTR XFMER
AUTO TRIP/FTC

852407



852407

1.1

	Computer Point	Computer Printout	Source
a.	NJSUC13	X1E ACB 14-4 AT/FTC	2NJS-X1E ACB 14-4 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSX21
b.	NJSUC14	X1E ACB 14-8 AT/FTC	2NJS-X1E ACB 14-8 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSX31
c.	NJSUC15	X3E ACB 15-1 AT/FTC	2NJS-X3E ACB 15-1 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSY21
d.	NJSUC16	X3E ACB 15-7 AT/FTC	2NJS-X3F ACB 15-7 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSY31

1.2 Automatic Response

a. Trip 4160 stub bus feeders to 600V load centers US5 or US6.

1.3 Corrective Action

a. Verify auto station response.

b. Investigate and determine reason for trip.

c. ~~Return system to normal.~~ When the cause for the trip is corrected, re-energize the system per N2-OP-71 sect. E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 sect. H.2.0 as appropriate.

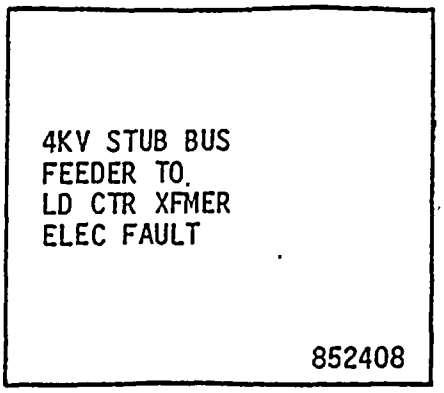
TCN-17 4/27/11 JT 4-25

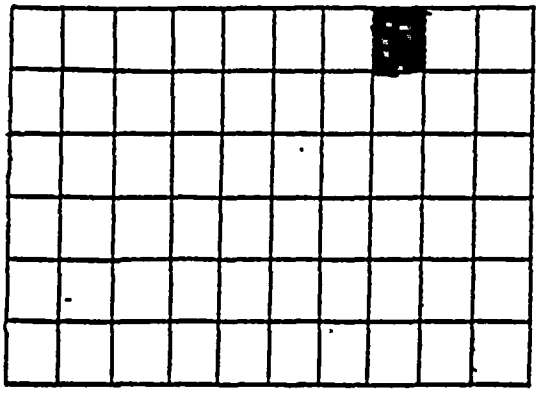
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCR 12/6/90 MH 12/6/90

2.0 852408 4KV Stub Bus Feeder to Load Center Transformer Electrical Fault

Reflash: Yes





852408

2.1	Computer Point	Computer Printout	Source
a.	NJSUC09	LOCK OUT RLY 86-X21 TRIP	Lock Out Relay 86-2NJSX21 on stub bus 2NNS-SWG014 feeder ACB 14-4 to US-5 trips and locks out 600V Breaker US-5-8B on high: INST, Time or GND over-current
b.	NJSUC10	LOCK OUT RLY 86-X31 TRIP	Lock Out Relay 86-2NJSX31 on stub bus 2NNS-SWG014 feeder ACB 14-8 to US-5 trips and locks out 600V Breaker US-5-3B on high: INST, Time or GND over-current
c.	NJSUC11	LOCK OUT RLY 86-Y21 TRIP	Lock Out Relay 86-2NJSY21 on stub bus 2NNS-SWG015 feeder ACB 15-1 to US-6 trips and locks out 600V Breaker US-6-7B on high: INST, Time or GND over-current
d.	NJSUC12	LOCK OUT RLY 86-Y31 TRIP	Lock Out Relay 86-2NJSY31 on stub bus 2NNS-SWG015 feeder ACB 15-7 to US-6 trips and locks out 600V Breaker US-6-3B on high: INST, Time or GND over-current

2.2 Automatic Response

a. Trip stub bus feeder 5-8B (86-2NJS-X21) to US-5, bus loads trip on sustained under voltage.

b. Trip stub bus feeder 5-3B (86-2NJS-X31) to US-5, bus loads trip on sustained under voltage.

c. Trip stub bus feeder 6-7B (86-2NJS-Y21) to US-6, bus loads trip on sustained under voltage.

d. Trip stub bus feeder 6-3B (86-2NJS-Y31) to US-6, bus loads trip on sustained under voltage.

2.3 Corrective Action

a. Verify auto matic response.

b. Check computer and panel 852 to determine which breaker tripped.

c. Investigate and determine reason for trip.

d. ~~Return system to normal.~~ When the cause for the trip is corrected, re-energize the system per N2-OP-71 Sect. E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Sect. A.2.0 as appropriate

TCN-1

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

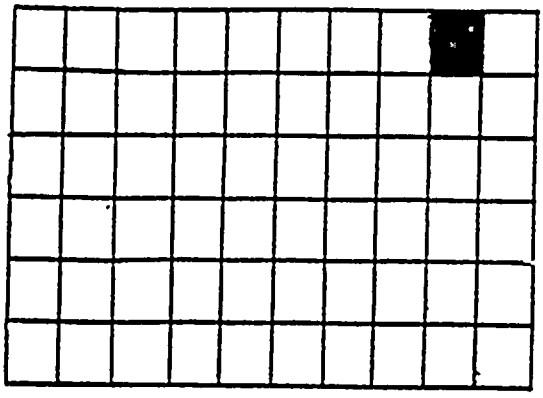
TCN-24 SO3 10/6/90 AM 12/6/90

3.0 852409 13.8KV Feeder to Load Center Transformer Electrical Fault

Reflash: Yes

13.8KV FDR TO
LD CTR XFMER
ELECTRICAL
FAULT

852409



852409

3.1

	Computer Point	Computer Printout	Source
a.	NJSUC01	LOCK OUT RLY 86-Y01 TRIP	Lock out relay 86-2NJSY01 on 2NPS-SWG001 feeder ACB 1-5 to 2NJS-US1 and 2NJS-US2 trips and locks out on: high time or Inst Grnd overcurrent (OC) high time or Inst. Overcurrent (OC).
b.	NJSUC02	LOCK OUT RLY 86-Y04 TRIP	Lock out Relay 86-2NJSY04 on 2NPS-SWG001 feeder ACB 1-14 to 2NJS-US3,-US4, -US7 trips on transformer X1A, X1B, X1G high: phase Inst. or Time over current; ground inst. or time OC.
c.	NJSUC05	LOCK OUT RLY 86-X07 TRIP	Lock out Relay 86-2NJSX07 on 2NPS-SWG003 feeder ACB 3-3 to 2NJS-US1,-US2, trips on transformer 2NJS-X3C,-X3D high: phase Inst. or Time over current; ground inst. or time OC.

d.	NJSUC06	LOCK OUT RLY 86-X10 TRIP	Lock out Relay 86-2NJSX10 on 2NPS-SWG003 feeder ACB 3-13 to 2NJS-US3,-US4, -U57, trips on transformer 2NJS-X3A, -X3B or -X3G high: phase Inst. or Time over current; ground inst. or time OC.

3.2 Automatic Response

a. Trips and locks out bus breakers: 2NPS-SWG001, ACB1-5; 2NJS-US1, ACB 1-3B; 2NJS-US2, ACB 2-3B. Removes power to the Alternate Access Bldg. Transformer 2JKB-X1.

b. Trips and Locks out bus breakers: 2NPS-SWG001, ACB 1-14; 2NJS-US3, ACB 3-3B, 2NJS-US4, ACB 4-3B, 2NJS-US7, ACB 7-3B.

c. Trips and Locks out bus breakers: 2NPS-SWG003, ACB 3-3; 2NJS-US1, ACB 1-14B; 2NJS-US2, ACB 2-12B.

d. Trips and Locks out bus breakers: 2NPS-SWG003, ACB 3-13; 2NJS-US3, ACB 3-14B; 2NJS-US4, ACB 4-15B; 2NJS-US7, ACB 7-7B.

3.3 Corrective Action

a. Verify automatic response.

b. Check computer and panel, 2CES-PNL852 to determine which breaker tripped.

c. Investigate and determine reason for trip.

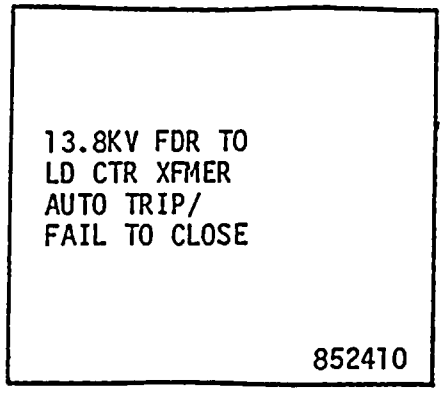
d. Return system to normal.

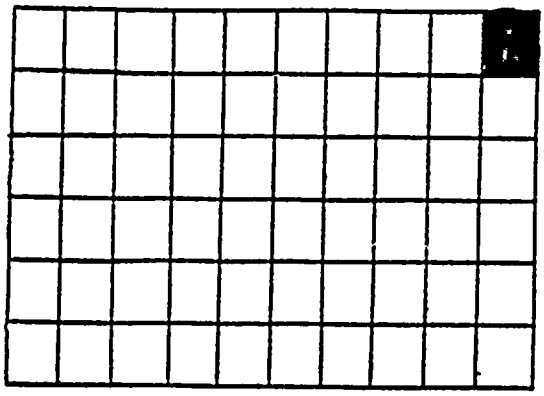
TCN-24
BJB
12/6/90
RJY
12/4/91

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

4.0 852410 13.8KV Feeder to Load Center Transformer Auto Trip/Failure to Close

Reflash: Yes





852410

4.1	Computer Point	Computer Printout	Source
a.	NJSUC03	NPS001 ACB 1-5 AT/F-T-C	2SWG-NPS001 Air Circuit Breaker 1-5 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSY01
b.	NJSUC04	NPS001 ACB 1-14 AT/F-T-C	2SWG-NPS001 Air Circuit Breaker 1-14 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSY04
c.	NJSUC07	NPS003 ACB 3-3 AT/F-T-C	2SWG-NPS003 Air Circuit Breaker 3-3 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSX07
d.	NJSUC08	NPS003 ACB 3-13 AT/F-T-C	2SWG-NPS003 Air Circuit Breaker 3-13 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSX10

4.2 Automatic Response

a. 13.8KV breaker 1-5 open and Ctrl Sw in Normal after close.

b. 13.8KV breaker 1-14 open and Ctrl Sw in Normal after close.

c. 13.8KV breaker 3-3 open and Ctrl Sw in Normal after close.

d. 13.8KV breaker 3-13 open and Ctrl Sw in Normal after close.

4.3 Corrective Action

a. Investigate and determine reason for trip or failure to close.

b. Return system to normal.

TCN-84
BCB
12/6/90
MY
12/6/90

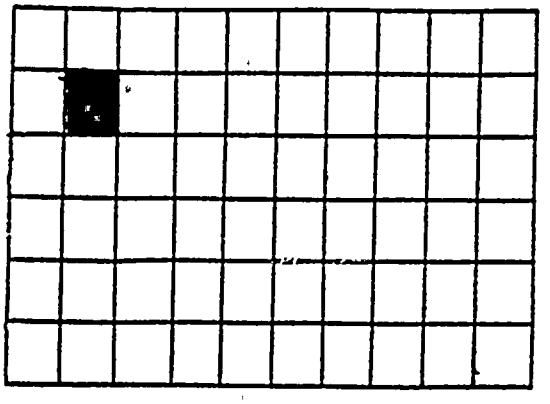
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

5.0 852412 Loss of 115KV From Scriba Alternate 1B Primary Relay

Reflash: No

LOSS OF 115KV
FROM SCRIBA
ALTERNATE 1B
PRIMARY RELAY

852412



852412

5.1	Computer Point	Computer Printout	Source
	YUCBC08	115KV PWR SCRIBA ALT 1(B)	Scriba Station (B) 115KV Line #6 protection (alternate 1) operated as sensed by 94-2YUCB01

5.2 Automatic Response

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

5.3 Corrective Action

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

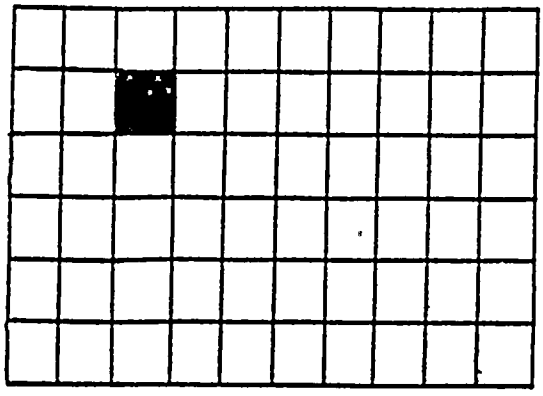
6.0 852413 Loss of 115KV From Scriba Alternate 2B Backup Relay

TCN-24 BCB 12/6/90 MS 12/6/90.

Reflash - No

LOSS OF 115KV
FROM SCRIBA
ALTERNATE 2B
BACKUP RELAY

852413



852413

6.1	Computer Point	Computer Printout	Source
	YUCBC10	115KV PWR SCRIBA ALT 2 (B)	Scriba Station (B) 115KV Line #6 protection (alternate 2) operated as sensed by 94-2YUCB02

6.2 Automatic Response

NONE (unless 2YUL-MDS2,-MDS20, MDS10 are closed then alarm window 852441 would also be lit.

6.3 Corrective Action

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

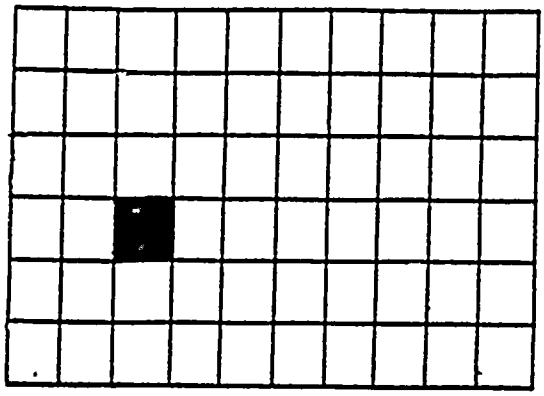
BB 12/6/90 NB 12/6/90 TCN-24

7.0 852433 Auxiliary Boiler Transformer Loss of Voltage

Reflash: No

AUX BOILER
TRANSFORMER
LOSS OF
VOLTAGE

852433



852433

7.1	Computer Point	Computer Printout	Source
	NPSEC12	AUX BLR XFMR LOSS OF VOLT	Auxiliary Boiler Transformer 2ABS-X1 Loss of Voltage as sensed by 59-2NPSZ17 (between 2ABS-X1 and 13.8KV Bus 2NPS-SWG002)

7.2 Automatic Response

NONE (unless 13.8KV Bus 2NPS-SWG002 Supply ACB 2-5 is closed, then annunciator 852519 would also be lit.

7.3 Corrective Action

a. Determine the cause of the undervoltage.

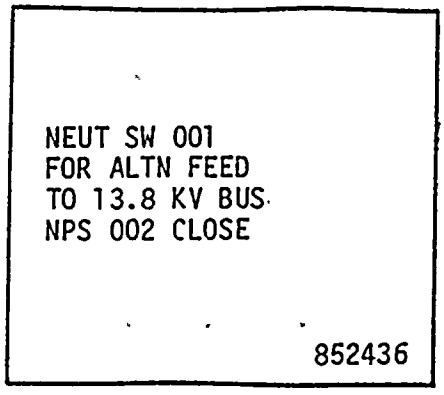
b. Restore to required.

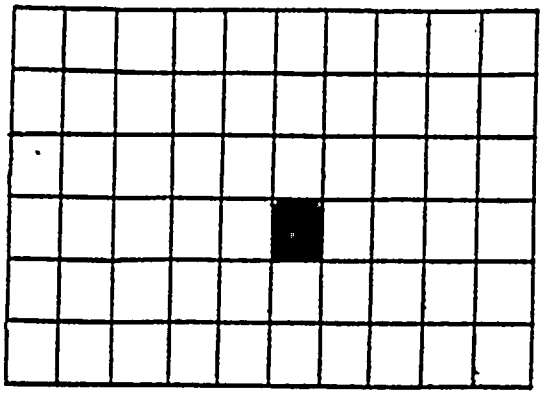
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

8.0 852436 Neutral Switch 001 for Alternate Feed to BUS 2NPS-SWG002 close

TCN-24 BCB 12/6/90 MH 12/6/90

Reflash: No





852436

8.1	Computer Point	Computer Printout	Source
	NPSZC01	Neut SW001 Altn. Fd. 002	Neutral Switch 2RTX-SW001 (Neutral Grounding Resistor Bypass) on 2RTX-XSR1A for Alternate Feed to 13.8KV Bus 2NPS-SWG002 closed, as sensed by 33-2NPSZ13

8.2 Automatic Response

NONE

8.3 Corrective Action

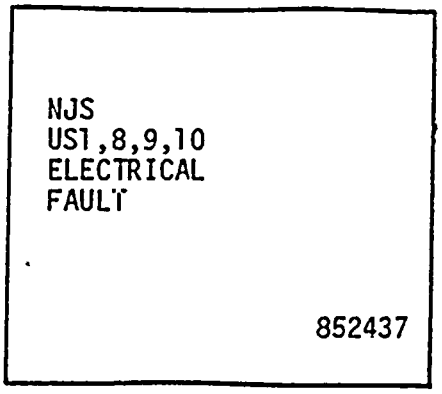
a. Verify that 2NPS-SWG002 is the only 13.8KV bus to be connected to 2RTX-XSR1A.

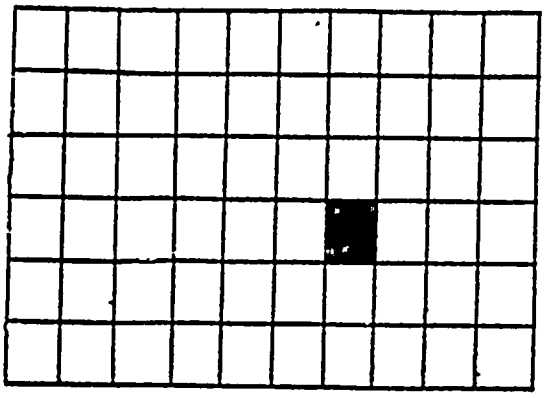
TCN-24
BB
12/6/90
MM
12/6/90

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

9.0 852437 NJS US1, 8, 9,10, Electrical Fault

Reflash: Yes





852437

9.1	Computer Point	Computer Printout	Source
a.	NJSUC21	US1A ACB 1-3B Elec. Fault	2NJS-US1A Air Circuit Breaker 1-3B Electrical Fault as sensed by 520C-2NJSA01
b.	NJSUC22	US1B ACB 1-14B Elec. Fault	2NJS-US1B Air Circuit Breaker 1-14B Electrical Fault as sensed by 520C-2NJSB01
c.	NJSUC27	US1A & C ACB 1-8B Elec. Fault	2NJS-US1A &USIC Air Circuit Breaker ACB1-8B Electrical Fault as sensed by 520C-2NJSN28
d.	NJSUC29	US1B&C ACB 1-10B Elec. Fault	2NJS-US1B &USIC Air Circuit Breaker ACB1-10B Electrical Fault as sensed by 520C-2NJSN30
e.	NJSUC45	US8A Sply Brkr ACB 8-3B	2NJS-US8A Air Circuit Breaker ACB 8-3B Electrical Fault as sensed by 520C-2NJSA08

9.1	Computer Point	Computer Printout	Source (cont.)
	f. NJSUC46	US8B Sply Brkr ACB 8-13B	2NJS-US8B Air Circuit Breaker ACB 8-13B Electrical Fault as sensed by 520C-2NJSB08
	g. NJSUC44	US8 A & C Sply Brkr ACB 8-7B	2NJS-US8A & US8C Air Circuit Breaker ACB 8-7B Electrical Fault as sensed by 520C-2NJSN41
	h. NJSUC47	US8B & C Sply Brkr ACB 8-9B	2NJS-US8B & US8C Air Circuit Breaker ACB 8-9B Electrical Fault as sensed by 520C-2NJSN42
	i. NJSUC49	US9A Sply Brkr ACB 9-3B	2NJS-US9A Air circuit Breaker ACB 9-3B Electrical Fault as sensed by 520C-2NJSA09
	j. NJSUC50	US9B Sply Brkr ACB 9-13B	2NJS-US9B Air circuit Breaker ACB 9-13B Electrical Fault as sensed by 520C-2NJSB09
	k. NJSUC48	US9A & US9C Sply Bkr ACB 9-7B	2NJS-US9A & US9C Air Circuit Breaker ACB 9-7B Electrical Fault as sensed by 520C-2NJSN43
	l. NJSUC51	US9B & US9C Sply Bkr ACB 9-9B	2NJS-US9B & US9C Air Circuit Breaker ACB 9-9B Electrical Fault as sensed by 520C-2NJSN44
	m. NJSUC52	US10A & C Tie Bkr ACB 10-6B	2NJS-US10A & US10C Air Circuit Breaker ACB 10-6B Electrical Fault as sensed by 520C-2NJSN45
	n. NJSUC53	US10A Sply Brkr ACB 10-3B	2NJS-US10A Air Circuit Breaker ACB 10-3B Electrical Fault as sensed by 520C-2NJSA10

9.1	Computer Point	Computer Printout	Source (cont.)
	o. NJSUC54	US10B Sply Brkr ACB 10-12B	2NJS-US10B Air Circuit Breaker ACB 10-12B Electrical Fault as sensed by 520C-2NJSB10
	p. NJSUC55	US10B &C Bs Tbkr ACB 10-9B	2NJS-US10B &US10C Bus Tie Breaker Air Circuit Breaker ACB 10-9B Elec. Fault as sensed by 520C-2NJSN46

9.2 Automatic Response

a. Trip 600V supply or tie breaker on 2NJSUS1, US8, US9, or US10 (whichever breaker fault occurred on).

9.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US1, US8, US9, US10.

c. Investigate and determine reason for trip.

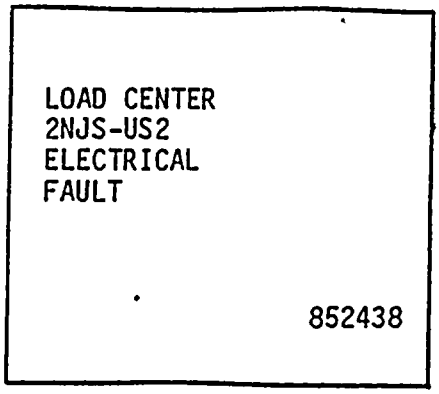
d. Return system to normal.

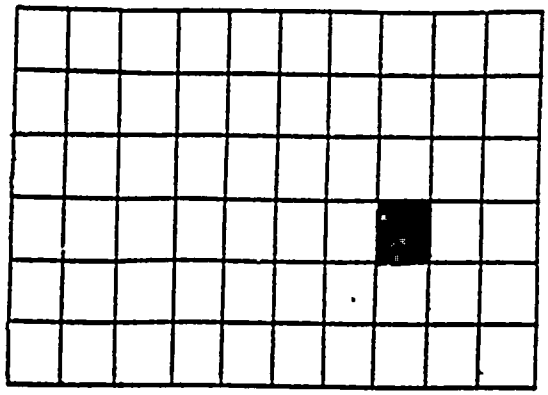
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOB 12/6/90 MS 12/6/90

10.0 852438 Load Center 2NJS-US2 Electrical Fault

Reflash: Yes





852438

10.1

	Computer Point	Computer Printout	Source
a.	NJSUC32	US2A ACB 2-3B Elect. Flt	Load Center 2NJS-US2A Air Circuit Breaker ACB 2-3B Electrical Fault as Sensed by 520C-2NJSA02
b.	NJSUC33	US2B ACB 2-12B Elect. Flt	Load Center 2NJS-US2B Air Circuit Breaker ACB 2-12B Electrical Fault as Sensed by 520C-2NJSB02
c.	NJSUC36	US2A ACB 2-6B Elect. Flt	Load Center 2NJS-US2A Air Circuit Breaker ACB 2-6B Electrical Fault as Sensed by 520C-2NJSN33
d.	NJSUC38	US2B ACB 2-9B Elect. Flt	Load Center 2NJS-US2B Air Circuit Breaker ACB 2-9B Electrical Fault as Sensed by 520C-2NJSN35

10.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US2.

10.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US2.

c. Investigate and determine reason for trip.

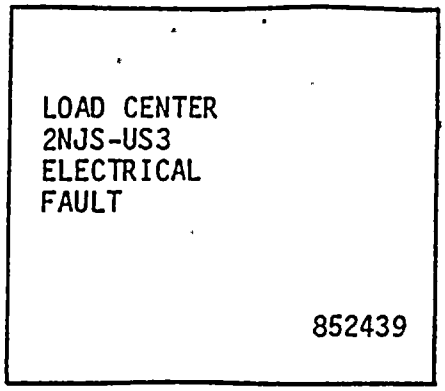
d. Return system to normal

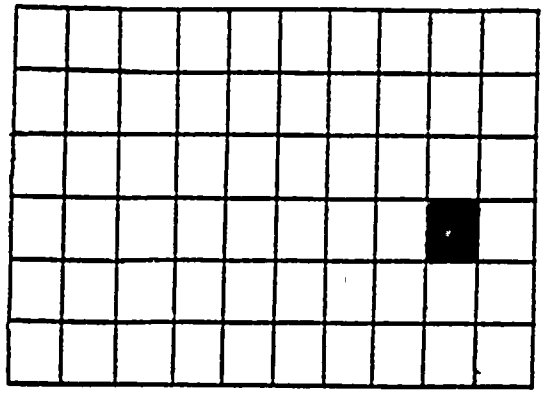
TCN-24 ECR 12/6/90 MJ 12/11/90

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

11.0 852439 Load Center 2NJS-US3 Electrical Fault

Reflash - Yes





852439

11.1	Computer Point	Computer Printout	Source
a.	NJSUC23	US3A ACB 3-3B Elect. Flt	Load Center 2NJS-US3A Air Circuit Breaker ACB 3-3B Electrical Fault as Sensed by 520C-2NJSA03
b.	NJSUC24	US3B ACB 3-14B Elect. Flt	Load Center 2NJS-US3B Air Circuit Breaker ACB 3-14B Electrical Fault as Sensed by 520C-2NJSB03
c.	NJSUC28	US3A & C ACB 3-7B Elect. Flt	Load Center 2NJS-US3A & US3C Air Circuit Breaker ACB 3-7B Electrical Fault as Sensed by 520C-2NJSN29
d.	NJSUC30	US3B&C ACB 3-11B Elect. Flt	Load Center 2NJS-US3B & US3C Air Circuit Breaker ACB 3-11B Electrical Fault as Sensed by 520C-2NJSN31

11.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US3.

11.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US3.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

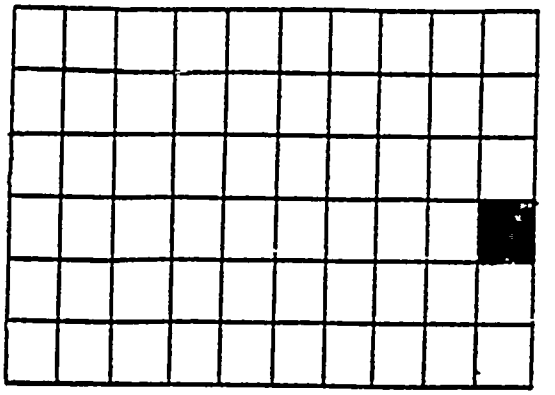
TCN-24 BCB 10/6/90 RJ 11/6/90

12.0 852440 Load Center 2NJS-US4 Electrical Fault

Refksh: Yes

LOAD CENTER
2NJS-US4
ELECTRICAL
FAULT

852440



852440

12.1

	Computer Point	Computer Printout	Source
a.	NJSUC34	US4A ACB 4-3B Elect. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-3B Electrical Fault as Sensed by 520C-2NJSA04
b.	NJSUC35	US4B ACB 4-15B Elect. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 4-15B Electrical Fault as Sensed by 520C-2NJSB04
c.	NJSUC37	US4A ACB 4-8B Elect. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-8B Electrical Fault as Sensed by 520C-2NJSN34
d.	NJSUC39	US4B ACB 4-11B Elect. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 4-11B Electrical Fault as Sensed by 520C-2NJSN36

12.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US4.

12.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US4.

c. Investigate and determine reason for trip.

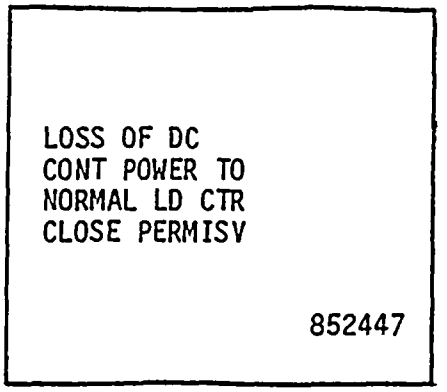
d. Return system to normal.

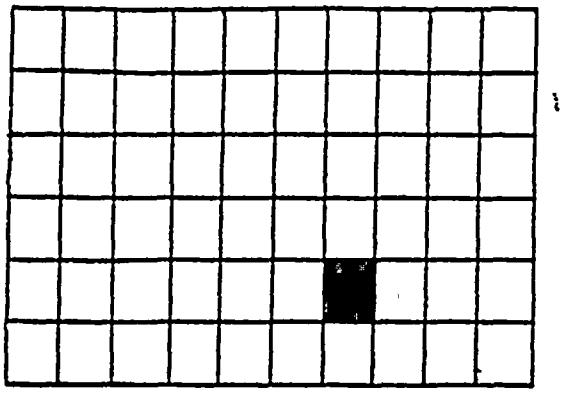
TCN-24
BCB
12/6/90
12/6/90

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

13.0 852447 Load Center DC Control Power to Normal Load Center Close Permissive

Reflash: Yes





852447

13.1

	Computer Point	Computer Printout	Source
a.	NJSBC13	LOSS of US1 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US1 as sensed by 74-2NJSN21
b.	NJSBC14	LOSS of US3 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US3 as sensed by 74-2NJSN23
c.	NJSBC15	LOSS of US2 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US2 as sensed by 74-2NJSN22
d.	NJSBC16	LOSS of US4 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US4 as sensed by 74-2NJSN24
e.	NJSBC18	LOSS of US7B NORM BRKR STATUS	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US7 as sensed by 74-2NJSB07
f.	NJSBC19	LOSS of US8 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US8 as sensed by 74-2NJSN38

13.1	Computer Point	Computer Printout	Source (cont.)
	g. NJSBC20	LOSS of US9 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US9 as sensed by 74-2NJSN39
	h. NJSBC21	LOSS of US10 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US10 as sensed by 74-2NJSN40

13.2 Automatic Response

NONE

13.3 Corrective Action

a. Check computer to determine which load center is in alarm.

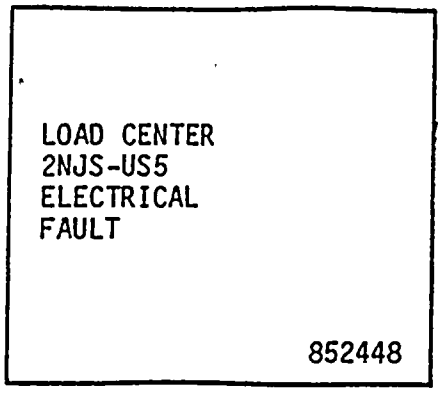
b. Move fuses to Alternate Feed position (see Section H of N2-OP-73A).

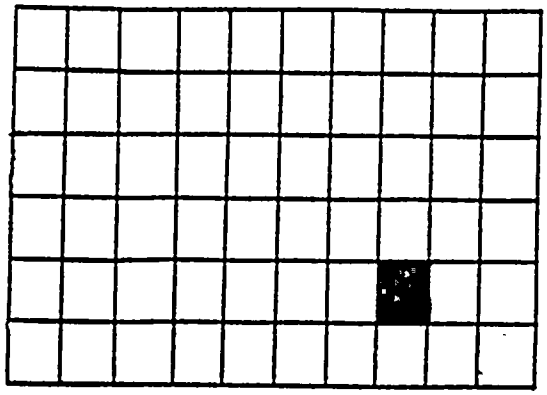
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BG 12/6/90 MJ 12/6/90

14.0 852448 Load Center 2NJS-US5 Electrical Fault

Reflash: Yes





852448

14.1	Computer Point	Computer Printout	Source
a.	NJSUC17	US5 NORM BRKR ELEC FAULT	2NJS-US5 Normal Breaker Electrical Fault as sensed by 520C-2NJSX13
b.	NJSUC19	US5 Altn BRKR ELEC FAULT	2NJS-US5 Alternate Breaker Electrical Fault as sensed by 520C-2NJSX14

14.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US5.

14.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US5.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

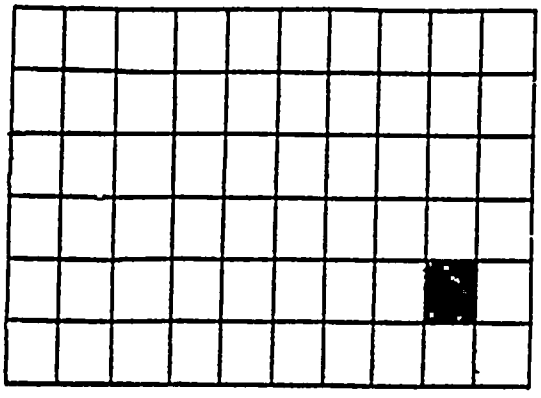
TCN-24 RCB 12/6/90 LS 12/6/90

15.0 852449 Load Center 2NJS-US6 Electrical Fault

Reflash: Yes

LOAD CENTER
2NJS-US6
ELECTRICAL
FAULT

852449



852449

15.1

	Computer Point	Computer Printout	Source
a.	NJSUC18	US6 NORM BRKR ELEC FAULT	2JNS-US6 Normal Breaker Electrical Fault as sensed by 520C-2NJSY13
b.	NJSUC20	US6 ALTN BRKR ELEC FAULT	2NJS-US6 Alternate Breaker Electrical Fault as sensed by 520C-2NJSY14

15.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US6.

15.3 Corrective Action

a. Check computer and panel 852 to determine which breaker tripped.

b. Dispatch operator to load center US6.

c. Investigate and determine reason for trip.

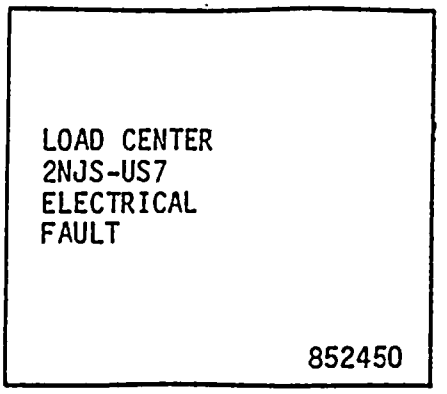
d. Return system to normal.

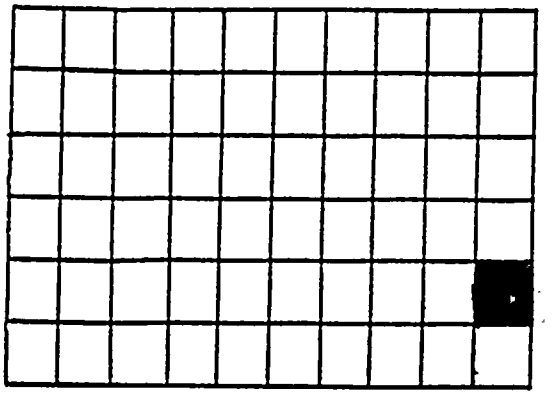
TCN-24 FOR 12/6/90 RJS 11/6/90

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

16.0 852450 Load Center 2NJS-US7 Electrical Fault

Reflash: Yes





852450

16.1

	Computer Point	Computer Printout	Source
a.	NJSUC25	US7A ACB7-3B ELEC FAULT	2JNS-US7A Brkr ACB7-3B Electrical Fault as sensed by 520C-2NJSA07
b.	NJSUC26	US7B ACB7-7B ELEC FAULT	2NJS-US7B Brkr ACB7-7B Breaker Electrical Fault as sensed by 520C-2NJSB07
c.	NJSUC31	US7A & 7B ACB7-5B EL FLT	2NJS-US7A & B, Bkr ACB7-5B Brkr Electrical Fault as sensed by 52OC-2NJSN32

16.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US7.

16.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US7.

c. Investigate and determine reason for trip.

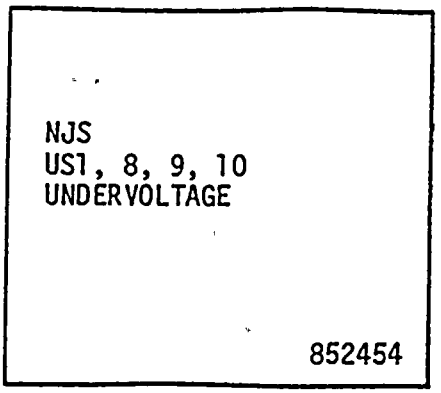
d. Return system to normal.

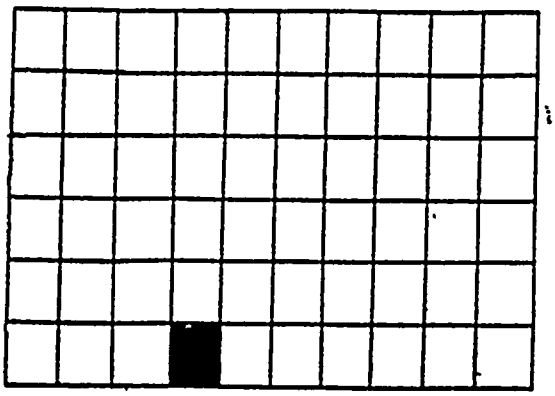
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

17.0 852454 Load Center 2NJS-US1, US8, US9, US10, Undervoltage

TCN 24
BOS 12/6/90
12/6/90

Reflash: Yes





852454

17.1

	Computer Point	Computer Printout	Source
a.	NJSEC01	US1A Norm Sply Brkr Volt	2NJS-US1A Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX15
b.	NJSEC02	US1B Norm Sply Brkr Volt	2NJS-US1B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY15
c.	NJSEC03	US1C Norm Sply Brkr Volt	2NJS-US1C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ15
d.	NJSEC17	Bus 2NJS-US8A Undv Prot	2NJS-US8A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX37
e.	NJSEC18	Bus 2NJS-US8B Undv Prot	2NJS-US8B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY40
f.	NJSEC19	Bus 2NJS-US8C Undv Prot	2NJS-US8C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ20

17.1	Computer Point	Computer Printout	Source
	g. NJSEC20	Bus 2NJS-US9A Undv Prot	2NJS-US9A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX38
	h. NJSEC21	Bus 2NJS-US9B Undv Prot	2NJS-US9B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY41
	i. NJSEC22	Bus 2NJS-US9C Undv Prot	2NJS-US9C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ21
	j. NJSEC23	Bus 2NJS-US10A Undv Prot	2NJS-US10A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX39
	k. NJSEC24	Bus 2NJS-US10B Undv Prot	2NJS-US10B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY42
	l. NJSEC25	Bus 2NJS-US10C Undv Prot	2NJS-US10C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ22

17.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05 sec. time delay.

17.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for trip.

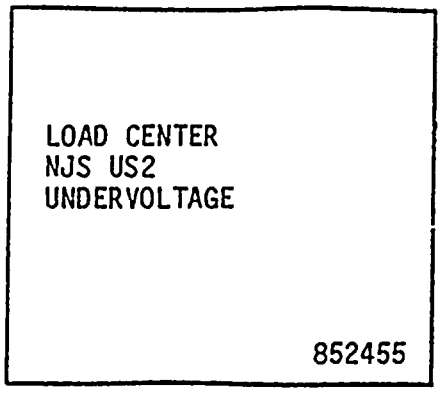
c. Return system to normal.

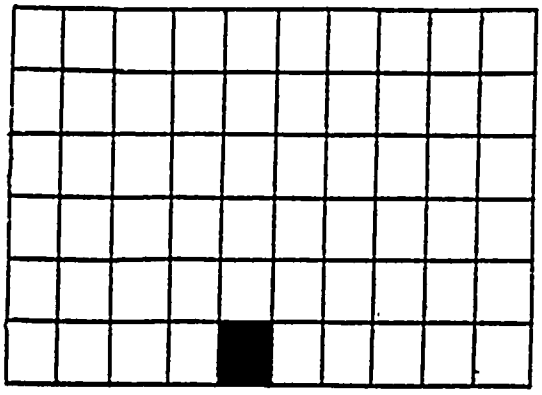
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOB 12/6/90 NB 12/6/90

18.0 852455 Load Center 2NJS-US2 Undervoltage

Reflash: Yes





852455

18.1	Computer Point	Computer Printout	Source
a.	NJSEC04	US2A NORM SPLY BRKR VOLT	2NJS-US2A Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSX16
b.	NJSEC05	US2B NORM SPLY BRKR VOLT	2NJS-US2B Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSY16
c.	NJSEC06	US2C NORM SPLY BRKR VOLT	2NJS-US2C Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSZ16

18.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 second time delay.

18.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

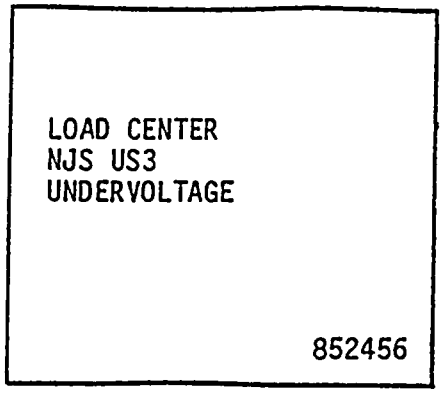
c. Identify the 86 devices, reset and return to normal.

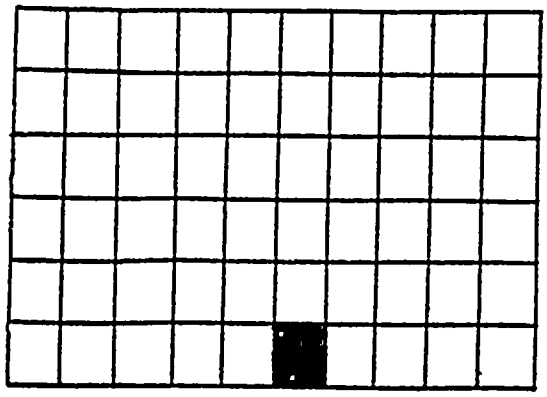
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 FCR D16/90 AM 12/6/90

19.0 852456 Load Center 2NJS-US3 Undervoltage

Reflash: Yes





852456

19.1

	Computer Point	Computer Printout	Source
a.	NJSEC07	US3A NORM SPLY BRKR VOLT	2NJS-US3A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX17
b.	NJSEC08	US3B NORM SPLY BRKR VOLT	2NJS-US3B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY17
c.	NJSEC09	US3C NORM SPLY BRKR VOLT	2NJS-US3C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ17

19.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

19.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

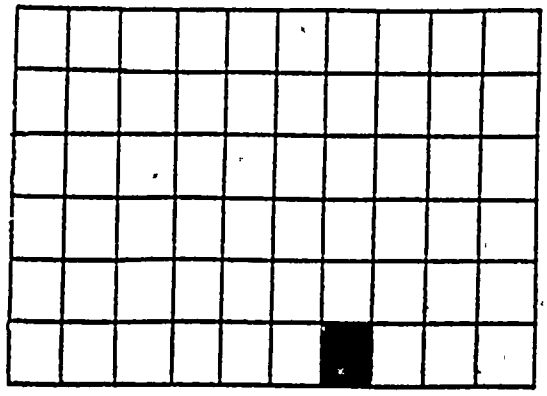
20.0 852457 Load Center 2NJS-US4 Undervoltage

TCN-24 BB 12/6/90 RJ 12/6/90

Reflash: Yes

LOAD CENTER
NJS US4
UNDERVOLTAGE

852457



852457

20.1	Computer Point	Computer Printout	Source
a.	NJSEC10	US4A NORM SPLY BRKR VOLT	2NJS-US4A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX18
b.	NJSEC11	US4B NORM SPLY BRKR VOLT	2NJS-US4B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY18
c.	NJSEC12	US4C NORM SPLY BRKR VOLT	2NJS-US4C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ18

20.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

20.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

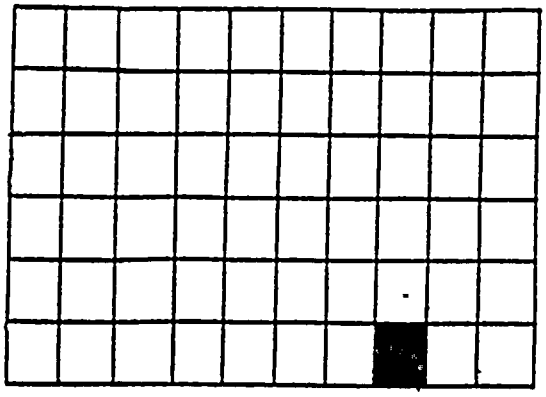
21.0 852458 Load Center 2NJS-US5 Undervoltage

SCB 12/6/90 NM 12/6/90

Reflash: No

LOAD CENTER
NJS US5
UNDERVOLTAGE

852458



852458

21.1	Computer Point	Computer Printout	Source
	NJSEC13	US5 NORM SPLY BRKR VOLT	2NJS-US5 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSX19

DRW 6/25/91 1534

21.2 Automatic Response

a. the motor feeders on 2NJS-~~US6~~ US5 are tripped after a .05-3 sec. time delay.

21.3 Corrective Action

a. Check normal or Alt. feed to bus at panel 852.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

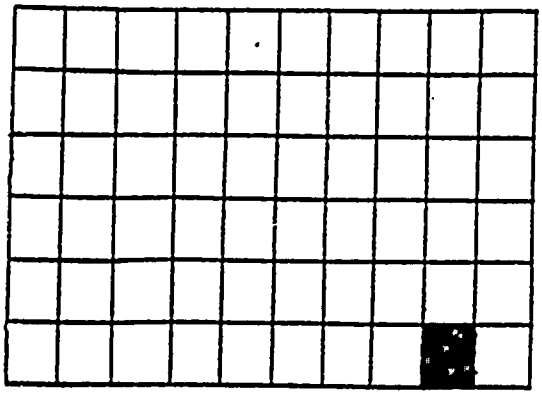
TCN-24 BCB 12/6/90 AB 12/6/91

22.0 852459 Load Center 2NJS-US6 Undervoltage

Reflash: No

LOAD CENTER
NJS US6
UNDERVOLTAGE

852459



852459

22.1	Computer Point	Computer Printout	Source
	NJSEC14	US6 NORM SPLY BRKR VOLT	2NJS-US6 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSY19

22.2 Automatic Response

a. The motor feeders on 2NJS-US6 are tripped, after a .05-3 second time delay.

22.3 Corrective Action

a. Check normal or Alt. feed to bus at panel 852.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

23.0 852505 ~~Transformer XS1 Supply ACB 1-4 Auto Trip/Fail to Close~~
XFMR XS3 SPLY ACB 3 1-4 AUTO TRIP/ FAIL TO CLOSE.

Reflash: No

TCN-24 12/6/90 14/14

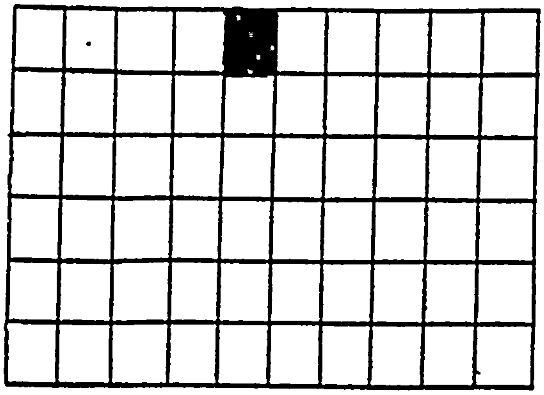
SB 10-30-90

10-30-90

TCN-22

XFMER XS1
SPLY ACB 1-4
AUTO TRIP/
FAIL TO CLOSE

852505



852505

23.1

Computer Point	Computer Printout	Source
NNSUC01	XS1 SPLY ACB1-4 AUTO TRIP	XFMR ~~Transformer~~ 2ATX-XS1 ~~(13.8 to 4.16KV) Sply~~ SUPPLY ACB ~~Air Circuit Breaker~~ 1-4 Auto ~~trip~~ or Fail to Close as sensed by 1 & 52 2NNSY07 (SW ACB 1-4 Normal After Close & ACB 1-4 Open)

23.2 Automatic Response

a. Trip or fail to close breaker ACB-1-4.

b. Loss of 4160V powerboards 2NNS-SWG011, 2NNS-SWG012, 2NNS-SWG014.

23.2 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for alarm.

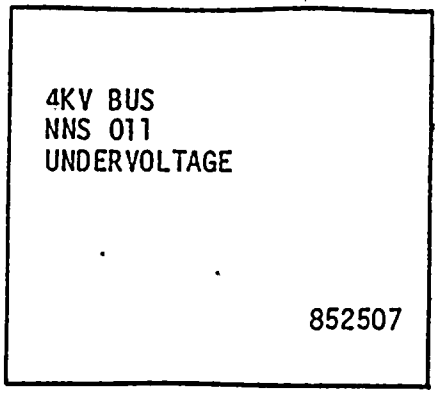
c. Return system to normal.

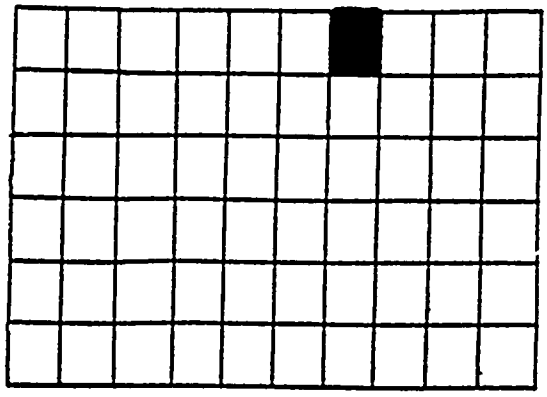
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 MH 12/6/90

24.0 852507 4KV Bus NNS011 Undervoltage

Reflash: No





852507

24.1

Computer Point	Computer Printout	Source
NNSEC01	4KV BUS NNS011 UNDERVOLTAGE	2NNS-SWG011 Undervoltage as sensed by 27A & B 2NNSX09

24.2 Automatic Response

a. Loss of voltage to 4160V bus 2NNS-SWG011.

b. Trip turb. Bldg. closed loop cooling pump A or block Auto Start.

c. Trip condensate pump C or block auto start.

d. Trip fourth point Htr drain pump A.

e. Trip condensate pump A or block auto start.

24.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

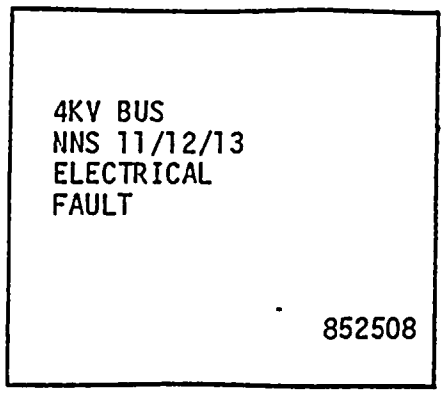
d. Return system to normal.

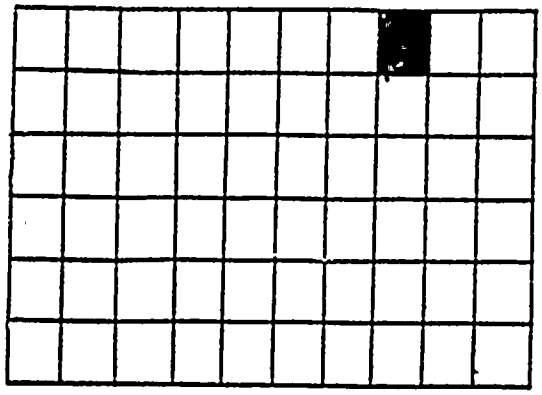
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 RB 12/6/90 [illegible] 12/6/90

25.0 852508 4KV Bus NNS 11/12/13 Electrical Fault

Reflash: Yes





852508

25.1

	Computer Point	Computer Printout	Source
a.	NNSUC14	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSZ01 on bus 11/12/13 phase time OC or grnd OC.
b.	NNSUC15	4KV BUS E11 LO RLY TRIP	2NNS-SWG011 Lock Out Relay Trip as sensed by 86-2NNSX01 on bus 11 phase time OC or grnd OC.
c.	NNSUC16	4KV BUS E13 LO RLY TRIP	2NNS-SWG013 Lock Out Relay Trip as sensed by 86-2NNSY04
d.	NNSUC17	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSX05 (Backup protection when SWG012 is being fed from SWG013).
e.	NNSUC18	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSY01 (Backup protection when SWG012 is being fed from SWG011).

25.2 Automatic Response

a. Trip and lockout (cross ties from 2NNS-SWG011 and SWG-13) ACB 11-1 and ACB 13-10; Trip or block auto start of: 2CCP-P1A, 2CCS-P1C; Fire Pump 2FPW-P2 undervoltage; trip 2HDL-P1C.

b. Trip and lockout ACB 11-1 and ACB 11-3 on 2NNS-SWG011; prevent the auto transfer of 2CNM-P1C on to 2NNS-SWG011; trip or block the auto start of: 2CCS-P1A, 2CNM-P1A and 2CNM-P1C on the 2NNS-SWG011; trip 2HDL-P1A.

c. Trip and lockout ACB 13-6 and ACB 13-10 on 2NNS-SWG013; trip or block the auto start of: 2CCS-P1B, 2CNM-P1B, 2CCP-P3A, 2CNM-P1C on to 2NNS-SWG013; trip 2HDL-P1B.

d. Trip and lockout ACB 13-6 which in this circumstance would trip the loads on busses 2NNS-SWG012 and 2NNS-SWG013 (a combination of the loads on a and c above).

e. Trip and lockout ACB 11-3 which in this circumstance would trip the loads on busses 2NNS-SWG011 and 2NNS-SWG012 (a combination of the loads on a and b above).

25.3 Corrective Action

a. Check the computer to determine which bus tripped.

b. Verify automatic response.

c. Investigate and determine the reason for the trip.

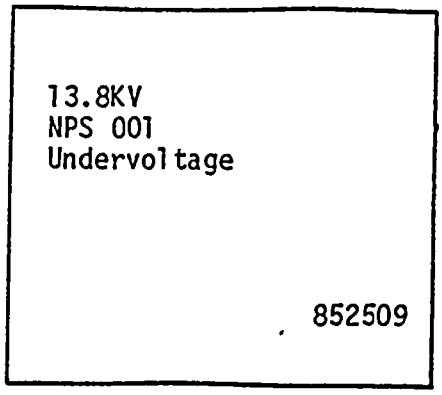
d. Return the system to normal.

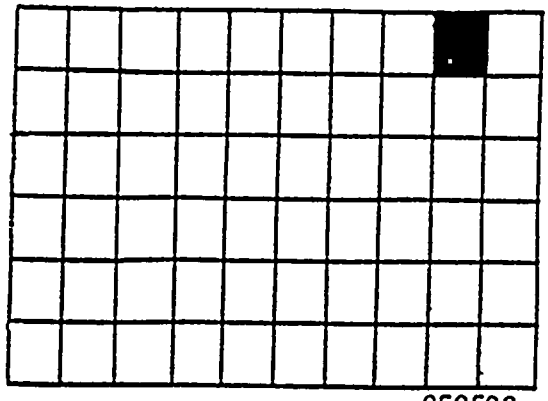
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 RJ 12/6/90

26.0 852509 13.8KV Bus NPS001 Undervoltage

Reflash: No





26.1

Computer Point	Computer Printout	Source
NPSEC01	13.8KV BUS NPS1 UNDER VLT	NPS-SWG001 Undervoltage as sensed by 27A & B - 2NPSX09

26.2 Automatic Response

a. Trip the normal supply breaker ACB 1-3 (2STX-XNS1) to 2NPS-SWG001.

b. Trip condensate booster pump 'A', ACB 1-7, on 2NPS-SWG001.

c. Trip condensate booster pump 'C', ACB 1-12 or prevent auto start.

d. Trip reactor feed pump 'A', ACB 1-8, on 2NPS-SWG001.

e. Trip reactor feed pump 'C', ACB 1-13, or prevent auto start.

f. Trip reactor recirc pump 'A', ACB 1-6 on 2NPS-SWG001.

g. Trip Circulating Water Pumps 'A', 'C', E, (ACB 1-9, 1-10, 1-11) o 2NPS-SWG001.

h. Trip the Supply breaker to 4160V bus 2NNS-SWG011, ACB 1-3 on 2NPS-SWG001.

i. Permits residual transfer to reserve breaker ACB 1-1 (2RTX-XSR1A) or ACB 1-16 (2RTX-XSR1B).

26.2 Automatic Response

j. Loss of loads on 2NPS-SWG001; 2NNS-SWG011, 12, 14; 2NJS-US1A, C & US2A, C, and US3A, C and US4A, C and US5 & US7A and US8A, C and US9A and C; US10A and C; Alternate Access substation.

26.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 65%, per N2-OP-101D Section H.1.0. * PIC 11-18-89

f. Investigate and determine the reason for the undervoltage.

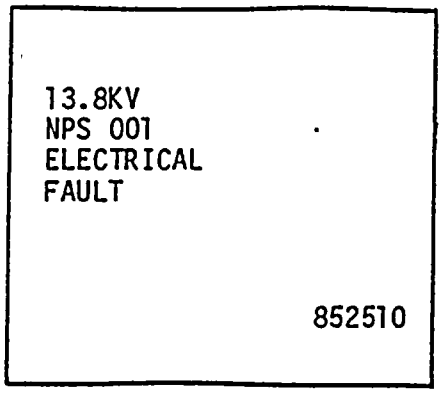
g. Return the plant to normal operation.

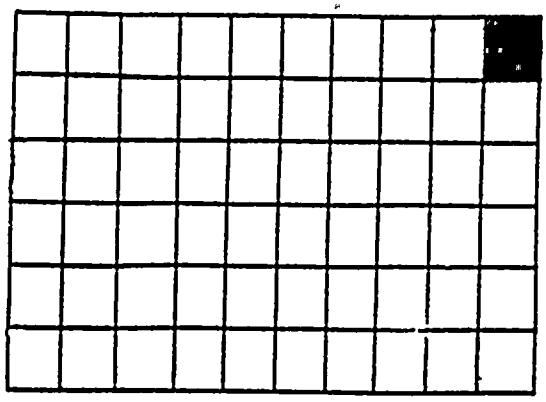
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOB 12/6/90 MJ 12/6/90

27.0 852510 13.8KV Bus NPS001 Electrical Fault

Reflash: No





852510

27.1

Computer Point	Computer Printout	Source
NPSUC09	13.8KV Bus NPS 01 LO RLY TRP	NPS-SWG001 Lock Out Relay Trips on Transformers 2ATX-XS1 Time OC & Grnd OC;SWG001 Dir Grnd OC & Time OC; Transformers 2NJS-X1C, -X1D, -X1A, -X1B or -X1G as sensed by 86-2NPSX01

27.2 Automatic Response

a. Trip and lockout reserve supply breakers ACB 1-1 and 1-16.

b. Trip and lockout normal supply breaker ACB 1-3.

c. Lockout "A" and "C" condensate booster pumps (ACB 1-7 and ACB 1-13).

d. Loss of loads on: 2NPS-SWG001, 2NNS-SWG011, 12, 14, 2NJS-US1A,C & -US2A, C & -US3A,C & -US4A,C & -US5 & -US7A & -US8A,C & US9A,C & US10A,C; Alt. Access Substation.

27.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

* PIC 11-18-89

c. Reduce power to less than 65%, per N2-OP-101D Section H.1.o.

d. Investigate and determine reason for trip.

e. Return plant to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

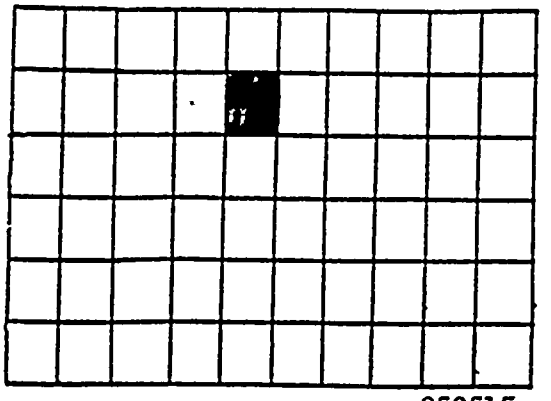
28.0 852515 ~~Transformers XS3 Supply Air Circuit Breaker 3-6 Auto Trip~~ XFMR XS3 SPLY ACB 3-6 AUTO TRIP / FAIL TO CLOSE

TCN-24 BCB 12/6/90 AB 12/6/90

Reflash - No

XFMER XS3
SPLY ACB 3-6
AUTO TRIP /
FAIL TO CLOSE

852515



852515

AB 10-30-90

TCN-22

28.1	Computer Point	Computer Printout	Source
	NNSUC02	XS3 Supply ACB 3-6 AUTO TRIP	XFMR 2 HTX-XS3 ~~Transformer XS3~~ Supply ~~Air Circuit Breaker (ACB)~~ 3-6 Auto Trip as sensed by 1 & 52 2NNSX06 (ACB 3-6 open & SW ACB 3-6 Normal After Close)

or fail to close

28.2 Automatic Response

a. Trip or fail to close of ACB 3-6.

b. Loss of power to busses NNS-SWG013 & 015.

28.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for alarm.

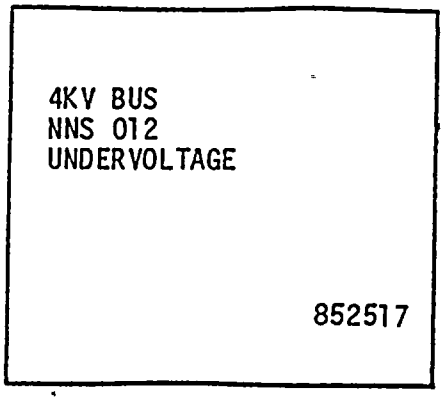
c. Return system to normal.

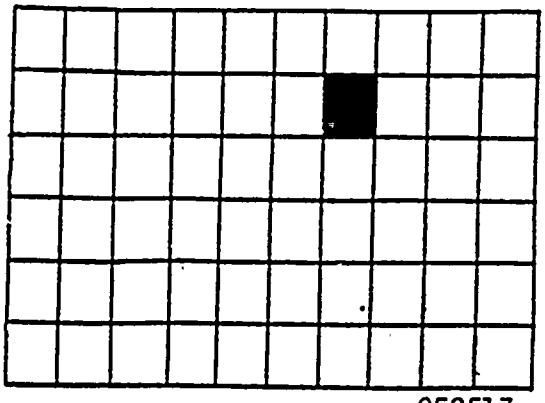
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BJB 12/6/90 BJ 12/6/90

29.0 852517 4KV Bus NNS012 Undervoltage

Reflash: No





29.1

Computer Point	Computer Printout	Source
NNSEC03	4KV bus NNS012 Undervolt	2NNS-SWG012 undervoltage as sensed by 27A&B 2NNSX18

29.2 Automatic Response

a. Loss of voltage to 4160V bus NNS-SWG012.

b. Trip or block auto start of 2CCS-P1C.

c. Trip 2HDL-P1C.

d. Trip or block auto start of 2CCP-P1A.

e. Fire pump 2FPW-P2 undervoltage.

29.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

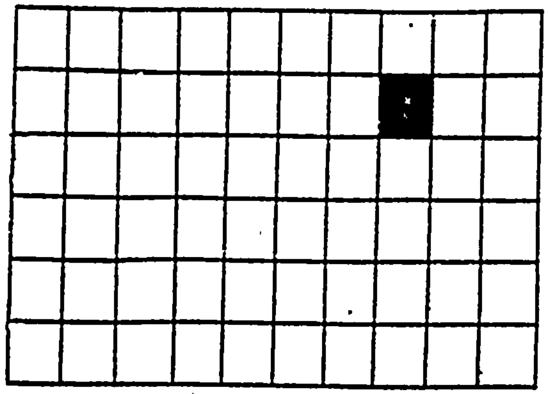
30.0 852518 4KV Stub Bus NNS 014 Electrical Fault

TCN-24
ACB 12/6/90
NS 12/6/90

Reflash: No

4KV STUB BUS
NNS 014
ELECTRICAL
FAULT

852518



852518

30.1

Computer Point	Computer Printout	Source
NNSUC19	4KV BUS E14 LO RLY TRIP	NNS-SWG014 Lockout Relay Tripped on High time or Ground Overcurrent as sensed by 86-2NNSX15

30.2 Automatic Response

a. Trips and lockout breakers 14-1 and 14-2.

b. Loss of voltage to 4160V stub bus 014.

c. Loss of voltage to 600V load center 2NJS-US5.

d. Trip or block auto start of Rx bldg. closed loop cooling pump "C", 2CCP-P1C (ACB 14-9).

e. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

f. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C", 2CCP-P3C (ACB 14-6).

30.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 014 from emergency bus ENS*SWG101.

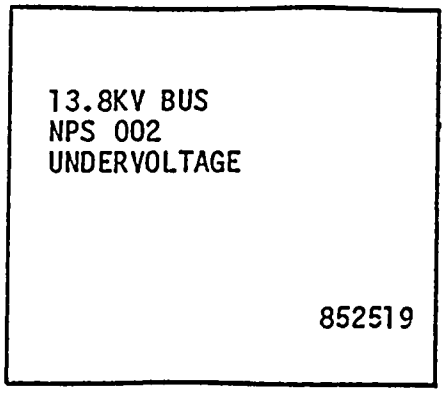
e. Return system to normal.

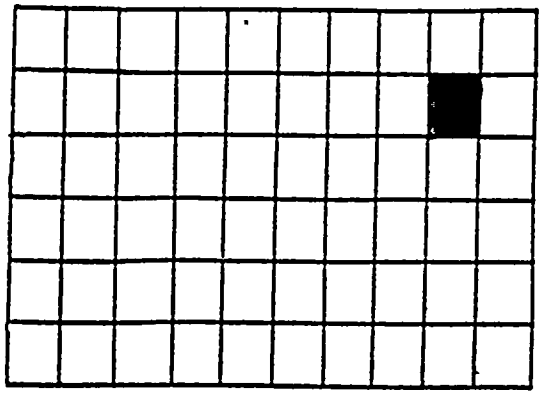
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BJB 12/6/90 MM 12/6/90

31.0 852519 13.8KV Bus NPS002 Undervoltage

Reflash: No





852519

31.1

Computer Point	Computer Printout	Source
NPSEC13	13.8KV BUS NPS 2 UNDR VLT	2NPS-SWG002 sustained bus undervoltage as sensed by 27A&B-2NPSZ18

31.2 Automatic Response

a. 2NPS-SWG002 supply air circuit breaker, ACB 2-5, Trip.

b. 2NPS-SWG002 supply air circuit breaker, ACB 2-1, Trip.

c. The loads on 2NPS-SWG002, Auxiliary Boiler A&B will trip.

d. If either 2NPS-SWG001 or SWG003 is connected to 2NPS-SWG002, they will trip their loads (unusual lineup).

e. If either emergency bus 2ENS*SWG101 or *SWG103 is being powered from 2NPS-SWG002 via 2NNS-SWG018, their emergency diesels will start (unusual line up).

31.3 Corrective Actions

a. Determine the cause of the undervoltage (loss of 115KV from Scriba or Auxiliary Boiler electrical fault).

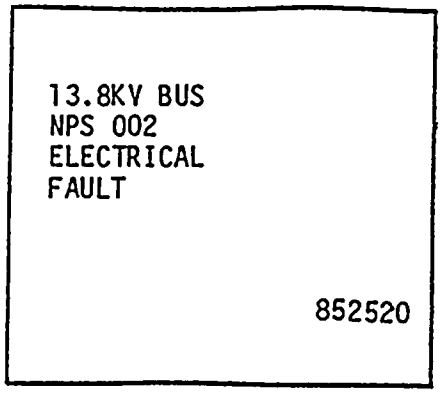
b. Restore power to 2NPS-SWG002 as required using Mds-20 (or Mds-10).

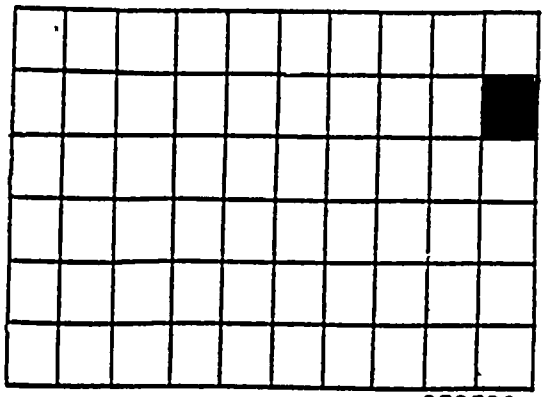
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

32.0 852520 13.8KV Bus NPS002 Electrical Fault .

TCN-24 BOS 12/6/90 NS 12/6/90

Reflash: No





32.1

Computer Point	Computer Printout	Source
NPSUC11	13.8KV BUS 02 LO RLY TRIP	NPS-SWG002 Lockout Relay Trip on time ground OC or Phase OC as sensed.by 86-2NPSZ01.

32.2 Automatic Response

a. Trip and lockout normal and alternate supply breakers to 13.8KV bus 002 (ACB 2-5, & ACB 2-1).

b. Loss of voltage to the bus.

c. Auxiliary boilers will trip if operating.

d. If either 2NPS-SWG001 or SWG003 is connected to 2NPS-SWG002 (unusual lineup), their loads will trip.

32.3 Corrective Action

a. Verify automatic response.

b. Dispatch operator to aux. boilers (if operating)

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

33.0 852525 4KV Bus NNS 11/12/13 Supply ~~Breaker~~ ACB Auto Trip/ FTC

~~FAIL TO CLOSE~~

SB 12/6/90

12/1/90

TCN-24

JB 10-30-90

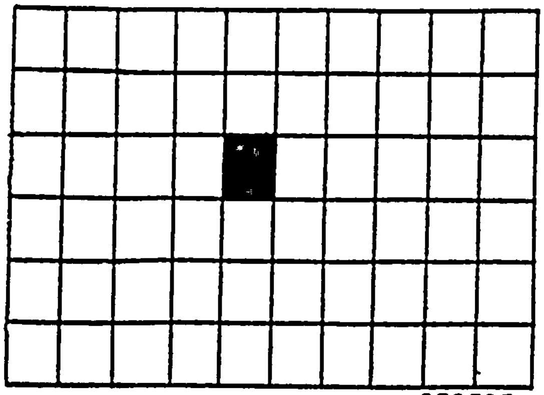
10-30-90

TCN-22

Reflash: Yes

4KV BUS
NNS 11/12/13
SUPPLY ACB
AUTO TRIP/FTC

852525



852525

33.1

	Computer Point	Computer Printout	Source
a.	NNSUC03	4KV BUS 011 ACB 11-3 AT	NNS-SWG011 ~~Air Circuit Breaker~~ ACB 11-3 Auto Trip or Fail to close as sensed by 1 & 52 2NNSX20
b.	NNSUC04	4KV BUS 13 ACB 13-6 AT	NNS-SWG013 ~~Air Circuit Breaker~~ ACB 13-6 Auto Trip or Fail to close as sensed by 1 & 52 2NNSY20
c.	NNSUC05	4KV BUS 12 ACB 13-10 AT	NNS-SWG012 ~~Supply Air Circuit Breaker~~ ACB 13-10 Auto Trip or fail to close as sensed by 1 & 52 2 NNSY08
d.	NNSUC06	SWG012 ACB 11-1 AT	NNS-SWG012 ~~Supply Air circuit breaker~~ ACB 11-1 Auto Trip or fail to close as sensed by 1 & 52 2NNSX07.

33.2 Automatic Response

a. Auto trip of supply breakers to 4160V powerboards 011, 012, 013.

b. Auto trip of the motor feeders on the respective bus:

33.3 Corrective Action

a. Verify automatic response.

b. Check computer point to determine which breaker tripped.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

34.0 852526 4KV Bus NNS016 ~~Supply Air Circuit Breaker 16-2 Auto Trip~~ SPLY ACB 16-2 Auto TRIP / FTC

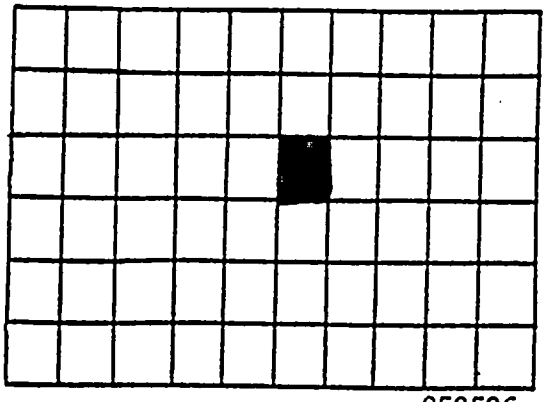
BOR 12/6/90 AOR 12/6/90 TCN-24

Reflash: No

GB 10-30-90 1φ/3φ/9φ TCN-22

4KV BUS
NNS 016
SPLY ACB 16-2
AUTO TRIP / FTC

852526



852526

34.1	Computer Point	Computer Printout	Source
	NNSUC08	4KV BUS 016 ACB 16-2 AT	NNS-SWG016 Supply ~~Air Circuit Breaker~~ ACB 16-2 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX40 (ACB 16-2 open ~~Tripped~~, SW ACB 16-2 Normal After Close)

34.2 Automatic Response

a. Trip or fail to close-breaker 16-2.

34.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 101. (If breaker 16-2 is supplying bus 102, check bus 102 energized by it's diesel generator).

c. Investigate and determine reason for trip.

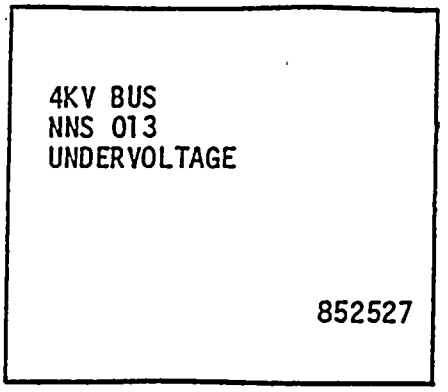
d. Return system to normal.

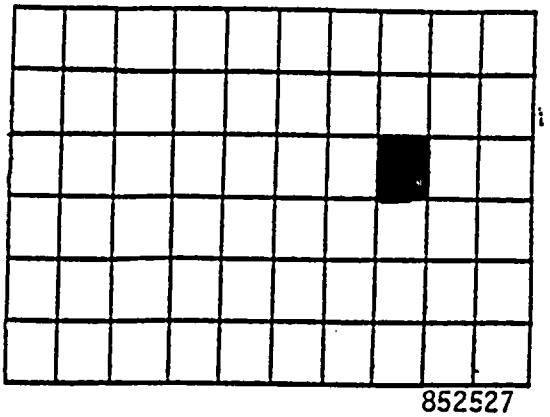
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

35.0 852527 4KV Bus NNS013 Undervoltage

TCN-24
BOB
12/6/90
RB
12/6/90

Reflash: No





35.1

Computer Point	Computer Printout	Source
NNSEC05	4KV BUS NNS013 UNDERVOLT	NNS SWG013 Undervoltage as sensed by 27 A & B 2NNSY09

35.2 Automatic Response

a. Loss of voltage to 4160V bus 2NNS-SWG013.

b. Trip turb. bldg. closed loop cooling pump "B", 2CCS-P1B, ACB-13-8.

c. Trip condensate pump "C", 2CNM-P1C, ACB-13-2.

d. Trip condensate pump "B", 2CNM-P1B, ACB 13-3.

e. Trip fourth point Htr drain pump "B", 2HDL-P1B, ACB 13-4.

f. Trip Reactor. Bldg. closed loop cooling booster pump 2CCP-P3A, ACB 13-9.

35.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

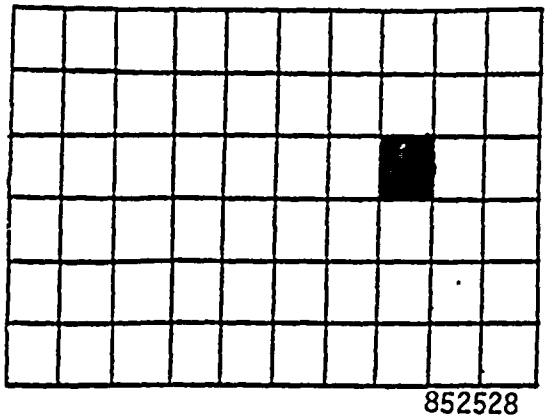
TCN-24 PB 12/6/90 MM 12/6/90

36.0 852528 4KV Stub Bus NNS015 Electrical Fault

Reflash: No

4KV STUB BUS
NNS 015
ELECTRICAL
FAULT

852528



852528

36.1	Computer Point	Computer Printout	Source
	NNSUC20	4KV BUS 015 LO RLY TRIP	NNS-SWG015 Lockout Relay tripped on phase or ground overcurrent as sensed by 86-2NNSY15

36.2 Automatic Response

a. Trip and lock out breakers 15-3 and 15-8.

b. Loss of voltage to 4160V stub bus 015.

c. Loss of voltage to 600V load center 2NJS-US6.

d. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

e. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

f. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

36.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 015 from emergency bus ENS*SWG103.

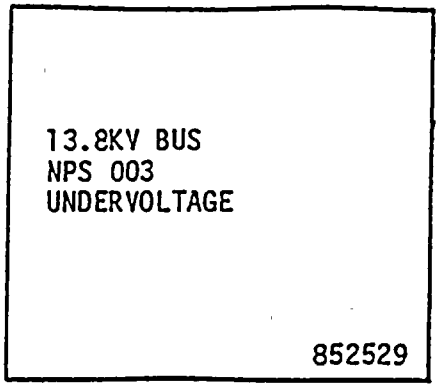
e. Return system to normal.

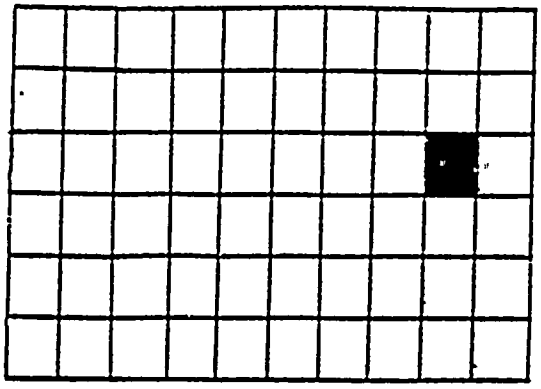
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 NH 12/6/90

37.0 852529 13.8KV Bus NPS003 Undervoltage

Refl'ash: No





852529

37.1

Computer Point	Computer Printout	Source
NPSEC05	13.8KV BUS NPS003 UNDR VLT	NPS-SWG003 Undervolt as sensed by 27 A & B-2NPSY09

37.2 Automatic Response

a. Trip normal supply breaker ACB 3-14.

b. Trip condensate booster pumps "B" & "C" (ACB 3-5, 3-11) prevent auto closure.

c. Trip reactor feed pumps "B" & "C" (ACB 3-7, 3-12).

d. Trip reactor recirc pump "B", ACB 3-4.

e. Trip circ. water pumps "B", "D", & "F" (ACB3-10, 3-9, 3-8).

f. Trip supply breaker to 4160V bus 013, ACB 3-6.

g. Permit residual transfer to reserve breaker ACB3-1 or ACB3-16.

h. Loss of loads on: 2NPS-SWG003; 2NNS-SWG013, 15; 2NJS-US1B & US-2B & US-3B & US-4B & US6 & US7B & US8B & US9B & US10B.

37.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 65% per N2-OP-101D Section H.1.0.

PIC 11-18-89 *

d. Investigate and determine reason for undervoltage.

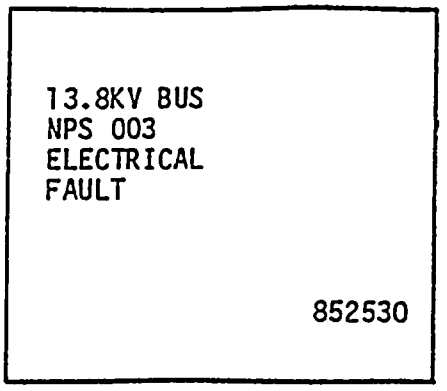
e. Return plant to normal operation.

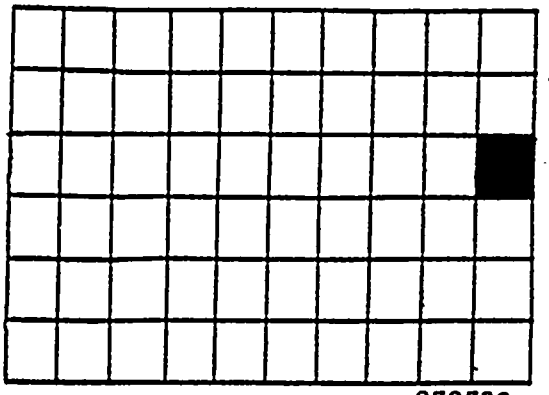
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCR 12/6/90 MH 12/6/90

38.0 852530 13.8KV Bus NPS003 Electrical Fault

Reflash: No





38.1	Computer Point	Computer Printout	Source
	NPSUC10	13.8KV BUS 03 LO RLY TRP	NPS-SWG003 Lockout Relay Trip as sensed by 86-2NPSY01.

38.2 Automatic Response

a. Trip and lockout reserve supply breakers 3-1 and 3-16.

b. Trip and lockout normal supply breaker 3-14.

c. Lockout "B" and "C" condensate booster pumps (ACB 3-5, 3-11).

d. Loss of loads on: 2NPS-SWG003; 2NNS-SWG013, 015, 2NJS-US1B & US2B & US3B & US4B & US6 & US7B & US8B & US9B & US10B.

38.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

PIC 11-18-89 *

c. Reduce power to less 65%, per N2-OP-101D Section H.1.0.

d. Investigate and determine reason for trip.

e. Return system to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

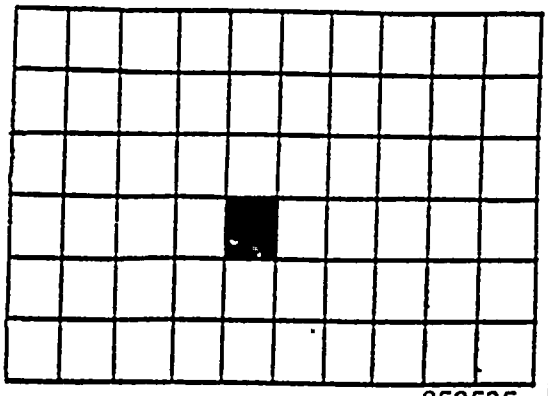
39.0 852535 4KV Bus NNS014 Supply ~~Air Circuit Breaker Auto Trip~~ ACB Auto Trip / FTC

TCN-24 9/03 12/6/90 AB 12/6/90

Reflash: Yes

4KV BUS
NNS 014
SUPPLY ACB
AUTO TRIP / FTC

852535



852535

GB 10-30-90

10/30/90

TCN-22

39.1	Computer Point	Computer Printout	Source
a.	NNSUC10	SWG014 ACB 14-2 Auto Trip	2NNS-SWG014 Supply ~~Air~~ ACB ~~Circuit Breaker~~ 14-2, or Auto Trip/Failure to Close as sensed by 1 & 52 2NNSX11 (ACB 14-2 open ~~tripped~~ & SW for ACB 14-2 normal after close).
b.	NNSUC11	SWG014 ACB 14-1 Auto Trip	2NNS-SWG014 Supply ~~Air~~ ACB ~~Circuit Breaker~~ 14-1, or Auto Trip/Fail to Close, as sensed by 1 & 52 2NNSX10 (ACB 14-1 open ~~tripped~~ & SW for ACB 14-1 normal after close).

39.2 Automatic Response

a. Trip or fail to close breaker 14-1 or 14-2.

b. Loss of voltage to 4160V stub bus 014.

c. Loss of voltage to 600V load center 2NJS-US5.

d. Trip or block auto start Rx Bldg. closed loop cooling pump "C", 2CCP-P1C (ACB 14-9).

e. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

f. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C:, 2CCP-P3C (ACB 14-6).

39.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps:

c. Investigate and determine reason for trip.

d. If necessary, supply bus 014 from emergency bus.

e. Return system to normal.

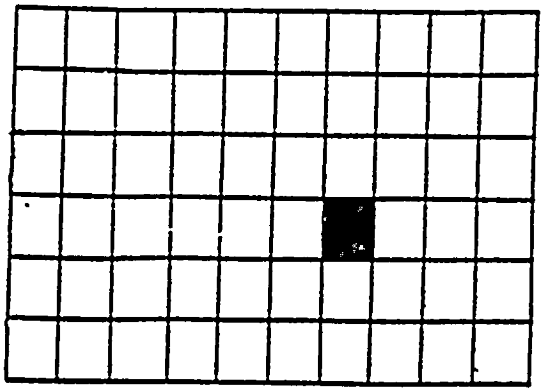
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

40.0 852536 4KV Bus NNS017 ~~Supply Air Circuit Breaker 17-2 Auto Trip~~ SPLY ACB 17-2 AUTO TRIP / FTC

Reflash: No

4KV BUS
NNS 017
~~SUPPLY~~ SPLY ACB 17-2
AUTO TRIP / FTC

852536



852536

40.1	Computer Point	Computer Printout	Source
	NNSUC09	4KV BUS 017 ACB 17-2 AT	2NNS-SWG017 Supply ~~Air Circuit Breaker~~ ACB 17-2 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSY40 (ACB 17-2 ~~tripped~~ open and Ctrl SW for 17-2 Normal after closed)

40.2 Automatic Response

a. Trip or fail to close - breaker 17-2.

40.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 103. (If breaker 17-2 is supplying bus 102, check bus 102 energized by it's diesel generator).

c. Investigate and determine reason for trip.

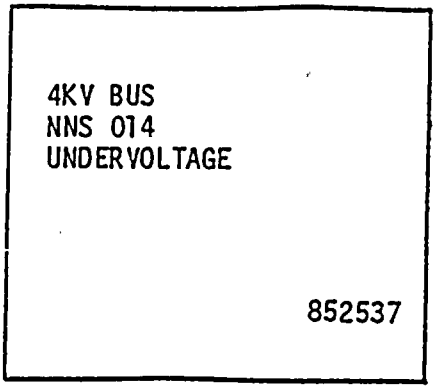
d. Return system to normal.

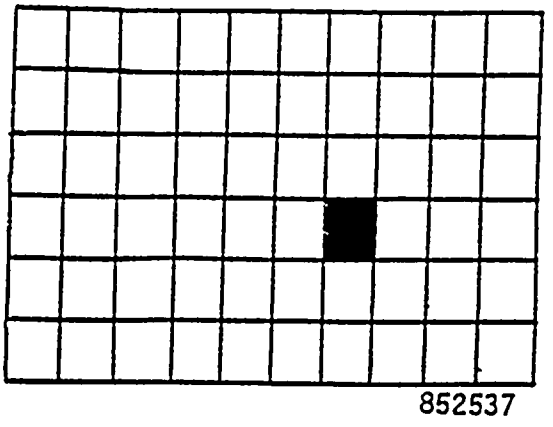
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOB 12/6/90 MS 1-16-91

41.0 852537 4KV Bus NNS014 Undervoltage

Reflash: No





41.1	Computer Point	Computer Printout	Source
	NNSEC07	4KV BUS NNS014 UNDERVOLT	NNS-SWG014 Norm Sply Brkr Undervolt, as sensed by 27 A & B 2NNSX29

41.2 Automatic Response

a. Loss of voltage to 4160V stub bus NNS014.

b. Loss of voltage to 600V load center 2NJS-US5.

c. Trip or block auto start of Rx bldg. closed loop cooling pump "C:, 2CCP-P1C (ACB 14-9).

d. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

e. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C", 2CCP-P3C (ACB 14-6).

41.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

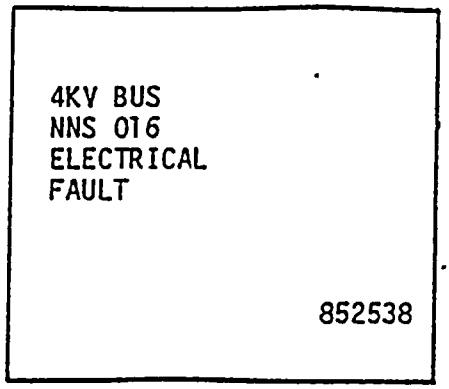
d. Return system to normal.

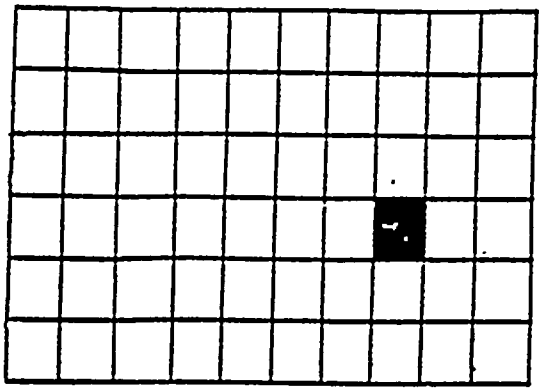
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 RB 1/16/91

42.0 852538 4KV Bus NNS016 Electrical Fault

Refbsh = Yes





852538

42.1	Computer Point	Computer Printout	Source
a.	NNSUC21	4KV BUS 016 LO RLY 1 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-1-2NNSX28
b.	NNSUC22	4KV BUS 016 LO RLY 2 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-2-2NNSX28
c.	NNSUC23	4KV BUS 016 LO RLY 3 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-3-2NNSX28

42.2 Automatic Response

a. Trip and lockout breaker 16-2.

b. Trip and lockout breaker 101-13 and 102-4.

42.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 101. (If breaker 16-2 is supplying bus 102, check bus 102 energized by it's diesel generator.

c. Investigate and determine reason for trip.

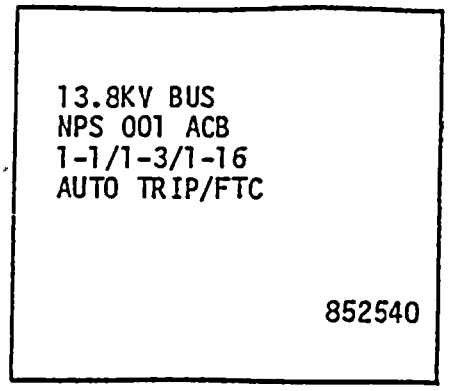
d. Return system to normal.

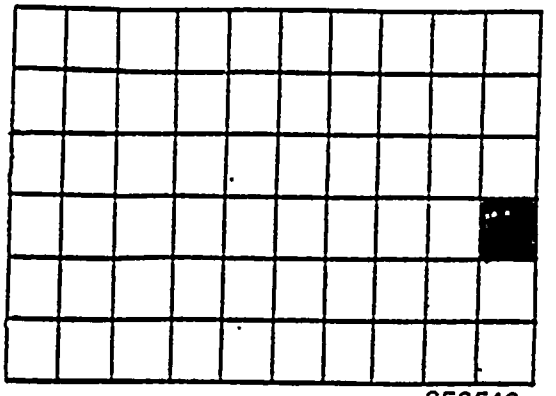
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCS 1=14/90 AD 14/6/90

43.0 852540 13.8KV Bus NPS001 Air Circuit Breaker 1-1/1-3/1-16/Auto Trip/Failure to Close

Reflash = Yes





43.1	Computer Point	Computer Printout	Source
a.	NPSUC01	SWG001 ACB 1-3 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-3 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX04
b.	NPSUC02	SWG001 ACB 1-16 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-16 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX06
c.	NPSUC07	SWG001 ACB 1-1 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-1 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX05

43.2 Automatic Response

a. Auto trip or fail to close of reserve or normal supply breaker to 13.8KV bus 001. This could result in 2NPS-SWG001 undervoltage check for annunciator 852509.

43.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

c. Return system to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

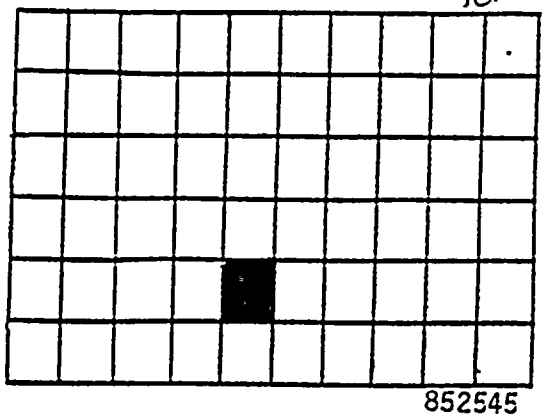
44.0 852545 4KV Bus NNS015 Supply ~~Air Circuit Breaker Auto Trip~~ ACB Auto Trip / FTC

Reflash: Yes

RCB 12/6/89 MB 12/6/89 TCN-24

4KV BUS
NNS 015
SUPPLY ACB
AUTO TRIP / FTC

852545



852545

BB 10-30-90

10-30-90 TCN-22

44.1

	Computer Point	Computer Printout	Source
a.	NNSUC12	SWG015 ACB 15-3 AUTO TRIP	NNS-SWG015 ~~Air Circuit~~ ACB ~~Breaker~~ 15-3 Auto Trip ~~FTC~~ as sensed by 1 & 52 2NNSY11 fail to close or
b.	NNSUC13	SWG015 ACB 15-8 AUTO TRIP	NNS-SWG015 ~~Air Circuit~~ ACB ~~Breaker~~ 15-8 Auto Trip as sensed by 1 & 52 2NNSY21 fail to close or

44.2 Automatic Response

a. Trip and lock out breakers 15-3 or 15-8.

b. Loss of voltage to 4160V stub bus 015.

c. Loss of voltage to 600V load center 2NJS-US6.

d. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

e. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

f. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

44.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

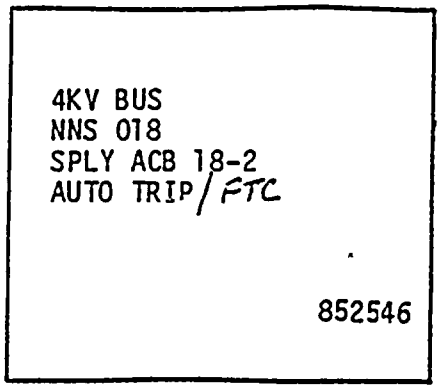
d. If necessary, supply bus 015 from emergency bus ENS*SWG103.

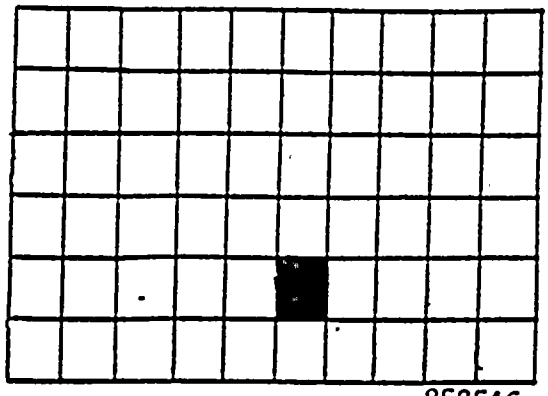
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

45.0 852546 4KV Bus NNS018 ~~Supply Air Circuit Breaker 18-2 Auto Trip~~ SPLY ACB 18-2 AUTO TRIP / FTC

TCN-34 BB 12/6/90 MG 12/6/90

Reflash: No





BB 10-30-90 10-30-90 TCN-22

45.1	Computer Point	Computer Printout	Source
	NNSUC07	4KV BUS 018 ACB 18-2 AT	NNS-SWG018 Supply ~~Air Circuit Breaker~~ ACB 18-2 Auto Trip or Failure to Close as sensed by 1 & 52 2NNSZ40 (ACB 18-2 open and s/s ACB 18-2 in Normal After Close)

45.2 Automatic Response

a. Trip or fail to close - Breaker 18-2.

45.3 Corrective Action

a. Verify automatic response.

b. If aux. boiler transformer is supplying emergency bus 2ENS*SWG101 or *SWG103, check auto start of emergency diesel gen.

c. Investigate and determine reason for trip.

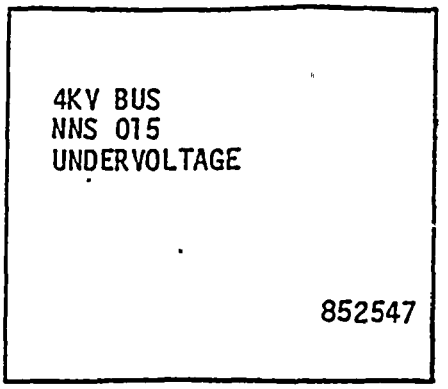
d. Return system to normal.

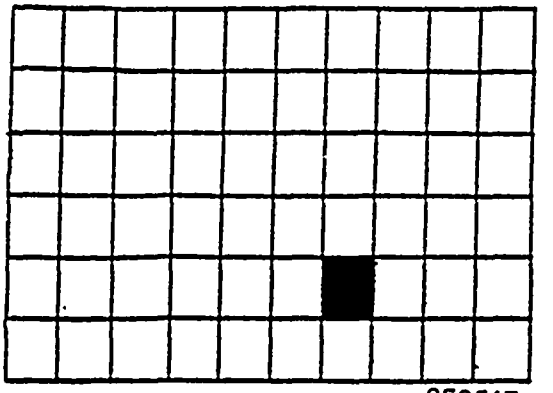
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 MS 12/6/90

46.0 852547 4KV Bus NNS015 Undervoltage

Reflash: No





46.1	Computer Point	Computer Printout	Source
	NNSEC09	4KV BUS NNS015 UNDERVOLT	2NNS-SWG015 undervoltage as sensed by 27A & B 2NNSY17

46.2 Automatic Response

a. Loss of voltage to 4160V stub bus 015.

b. Loss of voltage to 600V load center 2NJS-US6.

c. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

d. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

e. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

46.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

d. If necessary, supply bus 2NNS-SWG015 from emergency bus ENS*SWG103.

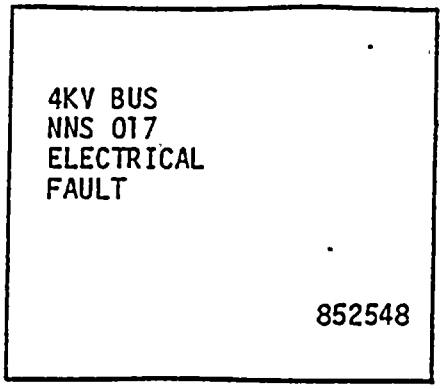
e. Return system to normal.

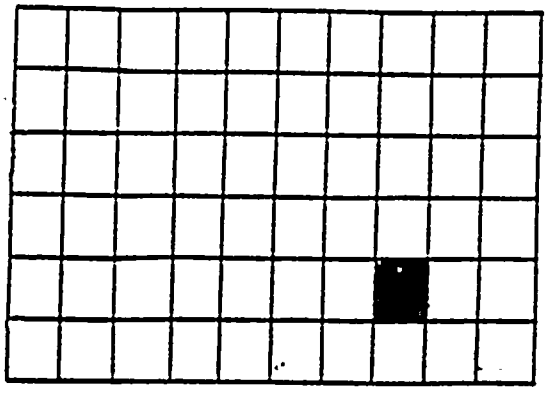
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BCB 12/6/90 AEF 12/6/90

47.0 852548 4KV Bus NNS017 Electrical Fault

Refkush: Yes





47.1

	Computer Point	Computer Printout	Source
a.	NNSUC24	4KV BUS E17 LO RLY 1 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-1 2NNSY28
b.	NNSUC25	4KV BUS E17 LO RLY 2 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-2 2NNSY28
c.	NNSUC26	4KV BUS E17 LO RLY 3 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-3 2NNSY28

47.2 Automatic Response

a. Trip and lockout breaker 17-2.

b. Trip and lockout breaker 103-4 and 102-5.

47.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 2ENS*SWG103. (If breaker 17-2 is supplying bus 2ENS*SWG*102, ensure that bus 102 is energized by it's diesel generator.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

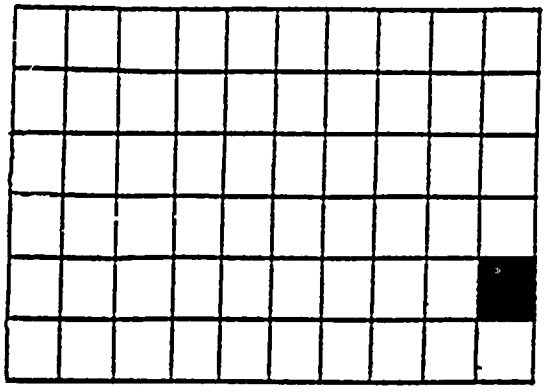
TCN-24 BCB 12/6/90 MM 12/6/90

48.0 852550 13.8KV Bus NPS002 Air Circuit Breaker 2-1/2-5 Auto Trip/Failure to Close

Reflash: Yes

13.8KV BUS
NPS 002
ACB 2-1/2-5
AUTO TRIP/FTC

852550



852550

48.1	Computer Point	Computer Printout	Source
a.	NPSUC06	SWG002 ACB 2-1 AUTO TRIP	NPS-SWG002 Air Circuit Breaker 2-1 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ13
b.	NPSUC05	SWG002 ACB 2-5 AUTO TRIP	NPS-SWG002 Air Circuit Breaker 2-5 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ15

48.2 Automatic Response

a. Trip or fail to close normal or alternate supply breakers to 13.8KV bus 002. Check for the undervoltage annunciator 852519.

48.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

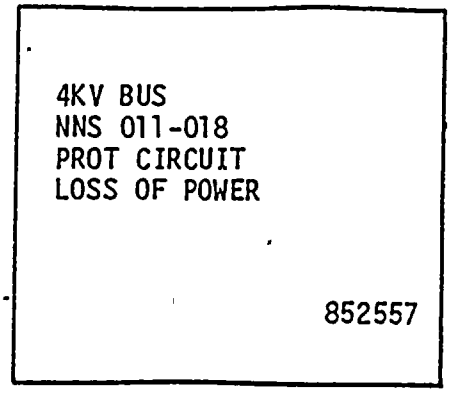
c. Return system to normal.

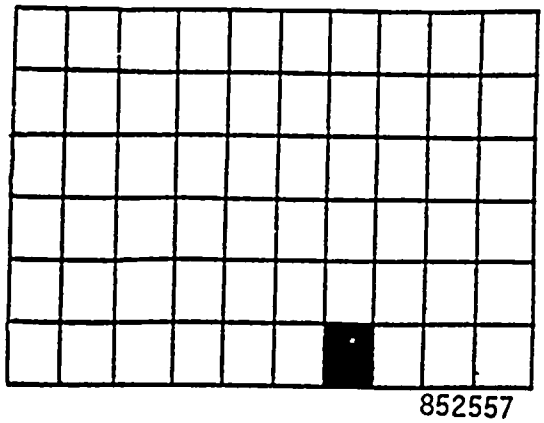
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

49.0 852557 4KV Bus NNS011 through 018 Protection Circuit Loss of Power

TCN-24 BCB 12/6/90 MM 12/6/90

Reflash = Yes





852557

49.1	Computer Point	Computer Printout	Source
a.	NNSBC14	125VDC CONT PWR PNL814	Loss of 125VDC Power to 2NNS-SWG012, Incoming from SWG011; protection circuits for: GND DIR OC, Phase OC, DIR OC, sensed by 74-2NNSZ01
b.	NNSBC15	125VDC CONT PWR PNL814	Loss of 125VDC Power to 2NNS-SWG011, Protection Circuits for: Phase OC, Gnd OC, DIR OC
c.	NNSBC16	125VDC CONT PWR PNL813	Loss of 125VDC Power to 2NNS-SWG013, Protection Circuits for: Phase OC, GND DIR OC
d.	NNSBC17	125VDC CONT PWR PNL815	Loss of 125VDC Power to 2NNS-SWG012, (incoming from SWG013) Protection Circuits for: Grnd OC, Dir OC
e.	NNSBC18	125VDC CONT PWR PNL815	Loss of 125VDC Power to 2NNS-SWG012, protection Circuits for: Grnd OC, Dir OC

49.1	Computer Point	Computer Printout	Source (cont.)
	f. NNSBC19	125VDC CONT PWR PNL 803	Loss of 125VDC Power to 2NNS-SWG014 Phase OC, Gnd OC protection circuits. Sensed by 74-2NNSX15
	g. NNSBC20	125VDC CONT PWR PNL 804	Loss of 125VDC Power to 2NNS-SWG015 Phase OC, Gnd OC protection circuits. Sensed by 74-2NNSY15
	h. NNSBC21	125VDC CONT PWR PNL 805	Loss of 125VDC Power to 2NNS-SWG016, Inst. Gnd, Overcurrent, Transformer 2RTX-XSR1A Gnd, Phase OC, Transfer Trip, Teritiary winding differential as sensed by 74-2NNSX28.
	i. NNSBC22	125VDC CONT PWR PNL808	Loss of 125VDC Power to 2NNS-SWG017, Inst Gnd OC, Xfmr 2RTX-XSR1B Gnd, Phase OC, Transfer Trip, 2RTX-XSR1A Tertiary Winding differential as sensed by 74-2NNSY28
	j. NNSBC23	125VDC CONT PWR PNL 811	Loss of 125VDC Power to 2NNS-SWG018 Prot. Ckt. Inst. Gnd OC, Xfmr 2ABSX1 Tertiary Winding Gnd, Phase OC, Transfer Trip, 2ABSX1 Tertiary Winding Differential as sensed by 74-2NNSZ28
	k. NNSBC24	4KV BUS PROT CKT LOS PWR	Loss of 125VDC Power to the paralleling light indicators for 2NNS-SWG011 as sensed by 74-2NNSN12

49.2 Automatic Response

a. Loss of prot. ckt control pwr for the respective 4160V normal switchgear 2NNS-SWG011 through 2NNS-SWG018 as indicated by the source, above.

49.3 Corrective Action

a. Check computer to determine which bus has a loss of power.

b. Move fuses (see section H of N2-OP-73A). 2NNS-SWG)16, 017, 018, move fuses to the alternate position. 2NNS-SWG011, move fuses to bus B positions.

c. NNSBC14 - check for 125VDC at panel 2CEC-P814, circuit 2BYSA16.

d. NNSBC15 - Check for 125VDC at panel 2CEC-P812, circuit 2BYSA16.

e. NNSBC16 - Check for 125VDC at panel 2CEC-P813, circuit 2BYSA01.

f. NNSBC17 - Check for 125VDC at panel 2CEC-P815, circuit 2BYSB01.

g. NNSBC18 - Check for 125VDC at panel 2CEC-P815, circuit 2BYSB01.

h. NNSBC19 - Check for 125VDC at panel 2CEC-P803, circuit 2BYSA16.

i. NNSBC20 - Check for 125VDC at panel 2CEC-P804, circuit 2BYSA01.

j. NNSBC21 - Check for 125VDC at panel 2CEC-P805, circuit 2BYSA16.

k. NNSBC22 - Check for 125VDC at panel 2CEC-P808, circuit 2BYSA01.

l. NNSBC23 - Check for 125VDC at panel 2CEC-P811, circuit 2BYSA01.

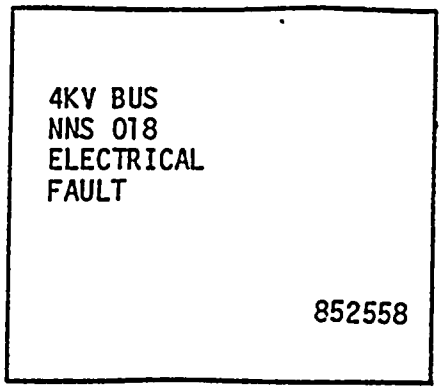
m. NNSBC24 - Check for 125VDC (Sta Bat "A") at the switchgear.

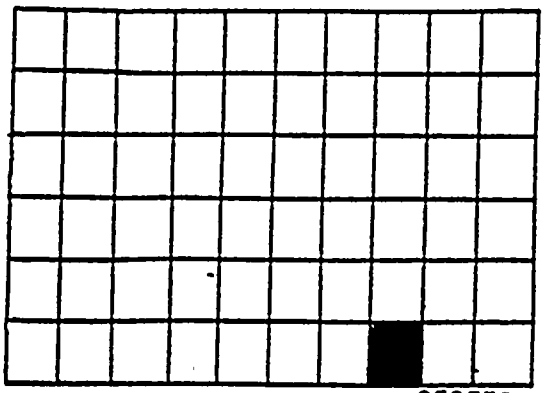
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOB 12/6/90 MJ 12/6/90

50.0 852558 4KV Bus NNS018 Electrical Fault

Reflash: Yes





50.1	Computer Point	Computer Printout	Source
a.	NNSUC27	4KV BUS E18 LO RLY 1 TRIP	2NNS-SWG018 Lockout Relay 1 Tripped as sensed by 86-1 2NNSZ28
b.	NNSUC28	4KV BUS E18 LO RLY 2 TRIP	2NNS-SWG018 Lockout Relay 2 Tripped as sensed by 86-1 2NNSZ28
c.	NNSUC29	4KV BUS E18 LO RLY 3 TRIP	2NNS-SWG018 Lockout Relay 3 Tripped as sensed by 86-1 2NNSZ28

50.2 Automatic Response

a. Trip and lockout breaker 18-2.

b. Trip and lockout breaker 101-10 and 103-2.

50.3 Corrective Action

a. Verify automatic response.

b. If aux. boiler transformer is supplying emergency bus 2ENS*SWG101 or *SWG103, check auto start of emergency diesel gen.

c. Investigate and determine reason for trip.

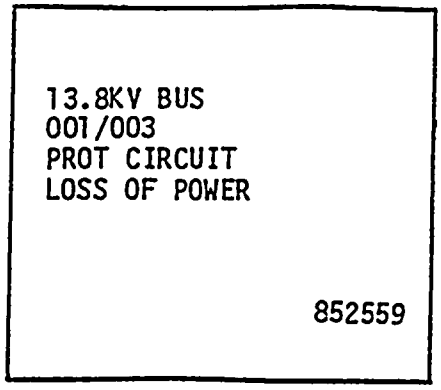
d. Return system to normal.

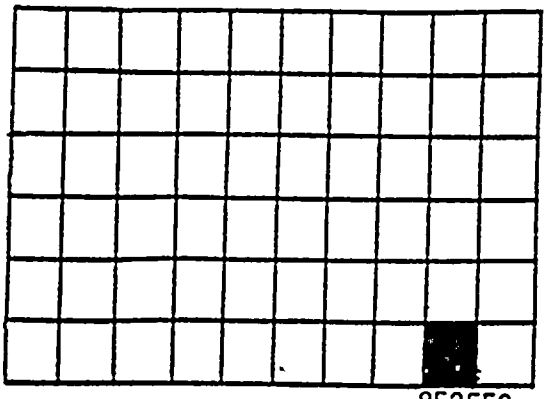
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

51.0 852559 13.8KV Bus 001/003 Protection Circuit Loss of Power

TCN-24 RCB 12/6/90. NM 12/6/90.

Reflash: Yes





51.1

	Computer Point	Computer Printout	Source
a.	NPSBC09	125VDC CONT PWR PNL812	Loss of 125VDC Protection Power for Phase OC, GND. OC, DIR OC for 2NPS-SWG001 as sensed by 74-2NPSX01
b.	NPSBC10	125VDC CONT PWR PNL813	Loss of 125VDC Protection Power for Phase OC, GND OC, DIR OC for 2NPS-SWG003 as sensed by 74-2NPSY01
c.	NPSBC11	125VDC CONT PWR PNL815	Loss of 125VDC Protection Power for Phase OC, GND OC, DIR OC for 2NPS-SWG002 as sensed by 74-2NPSZ01
d.	NPSBC12	125VDC CONT PWR PNL812	Loss of 125VDC for 2NPS-SWG001 bus load Trip and Fast Transfer Circuits as sensed by 74-2NPSX17
e.	NPSBC13	125VDC CONT PWR PNL813	Loss of 125VDC for 2NPS-SWG001 bus load Trip and Fast Transfer Circuits as sensed by 74-2NPSY21

51.2 Automatic Response

a. Loss of prot. CKT control power for 13.8 switchgear.

51.3 Corrective Action

a. Check computer to determine which bus has a loss of control power.

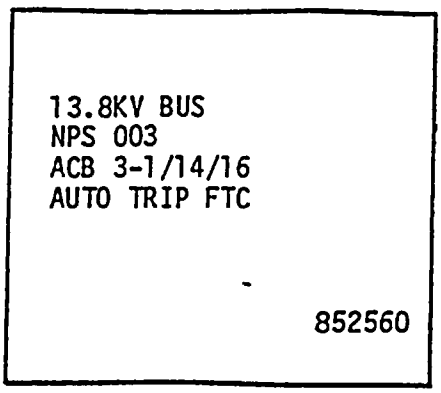
b. Restore control power as soon as possible.

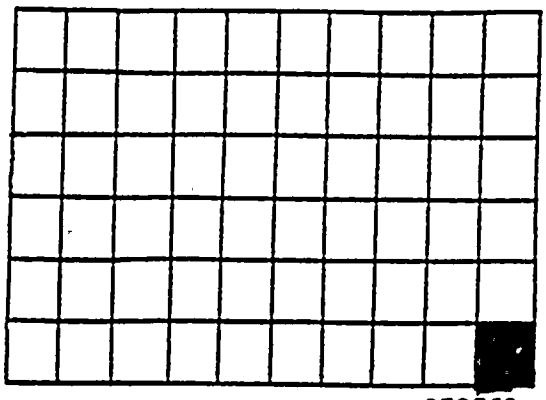
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

52.0 852560 13.8KV Bus NPS003 3-1, 3-14, 3-16, Auto Trip Failure to Close

TCN-24 BCB 12/6/90 ABY 12/6/90

Reflash: Yes





52.1

	Computer Point	Computer Printout	Source
a.	NPSUC03	SWG003 ACB 3-14 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-14 Auto Trip or Failure to Close (ACB 3-14 open & SW-ACB 3-14 Normal after close) as sensed by 1 & 52 2NPSY04
b.	NPSUC04	SWG003 ACB 3-1 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-1 Auto Trip or Failure to Close (ACB 3-1 open & SW-ACB 3-1 Normal after close) as sensed by 1 & 52 2NPSY06
c.	NPSUC08	SWG003 ACB 3-16 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-16 Auto Trip or Failure to Close (ACB 3-16 open & SW-ACB 3-16 Normal after close) as sensed by 1 & 52 2NPSY05

52.2 Automatic Response

a. Auto trip or fail to close, reserve or normal supply breakers to 13.8KV bus 003.

52.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

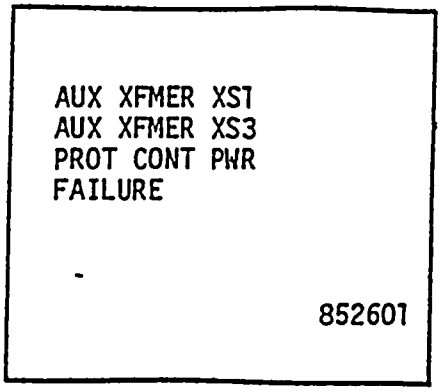
c. Return system to normal operation.

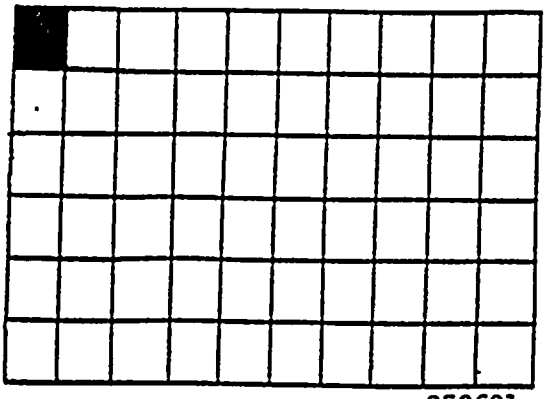
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

53.0 852601 Auxiliary Transformer XS1, Auxiliary Transformer XS3 Protection Control Power Failure

TCN-24 BCB 12/6/90 MH 12/6/90

Reflash: Yes




852601

53.1	Computer Point	Computer Printout	Source
a.	SPXBC01	XS1 PROT RLY CONT PWR	Loss of 125VDC to protect circuits: GND OC, GND INST OC, PHASE OC, AUX XFMR 2ATX-XS1 DIFF, 2ATX-XS1 Fault Press as sensed by 74-2SPXY01
b.	SPXBC02	XS3 PROT RLY CONT PWR	Loss of 125VDC to protect circuits: GND OC, PHASE OC, AUX XFMR 2ATX-XS3 DIFF, 2ATX-XS3 Fault Press as sensed by 74-2SPXX01

53.2 Automatic Response

NONE

53.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Restore control power as soon as possible.

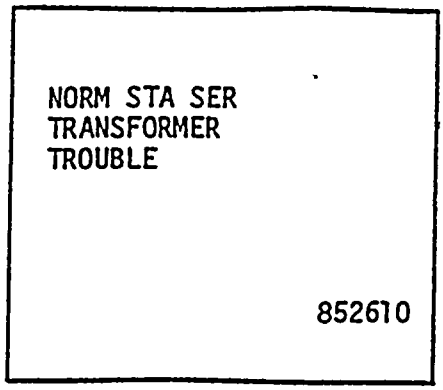
c. For computer point SPXBC01, check 125VDC PNL 2CEC-PNL807 (circuit 2BYSB16).

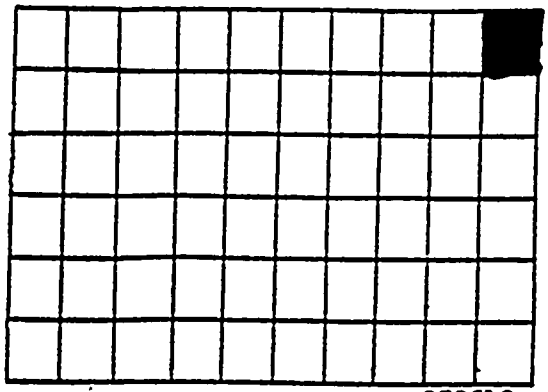
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN 24
BB 12/6/90
AG 14/6/90

54.0 852610 Normal Station Service Transformer Trouble

Reflash: Yes





54.1

	Computer Point	Computer Printout	Source
a.	SPSTC02	XNSI WDG HOT SPOT T	2STX-XNSI Winding Hot Spot Temp High as sensed by 49T, 1,2,&3-2SPSN02
b.	SPSAC01	XNSI GAS DET ACTUATED	2STX-XNSI Gas Detector Actuated as sensed by 63TCG-2SPSN02
c.	SPSFC01	XNSI CLR GP1 OIL FLOW	2STX-XNSI Cooler Oil Flow Low as sensed by 74-1-2SPSN02
d.	SPSLC01	2STX-XNSI RSVR OIL LEVEL	2STX-XNSI Reservoir Oil Level Low as sensed by 71 QL (TR)-2SPSN02
e.	SPSLC02	XNSI LTC RSVR OIL LEVEL	2STX-XNSI LTC Reservoir Oil Level Low as sensed by 71 QL (LTC)-2SPSN02
f.	SPSPC01	XNSI PR RLF ACTUATED	2STX-XNSI Pressure Relief actuated as sensed by 63 PR (TR)-2SPSN02
g.	SPSPC02	XNSI FLT PR HE SIDE	2STX-XNSI Fault Pressure HE side as sensed by 30X-2SPSY01
h.	SPSPC03	XNSI FLT PR GR SIDE	2STX-XNSI Fault Pressure GR side as sensed by 30Y-2SPSY01

54.1	Computer Point	Computer Printout	Source (cont.)
	i. SPSPC04	XNSI LTC PR RLF ACT	2STX-XNSI LTC Pressure Relief Valve actuated as sensed by 63PR (LTC)-2SPSN02
	j. SPSPC05	2STX-XNSI LTC FP GR SIDE	2STX-XNSI LTC Fault Pressure GR side as sensed by 30LX-2SPSY03
	k. SPSTC01	XFMR 2STX-XNS1 OIL TEMP	2STX-XNSI Oil Temp High as sensed by 26Q-2SPSN02
	l. SPSPC07	XNSI FAULT PRESS MID	2STX-XNSI Fault Pressure as sensed by 30C-2SPSY01
	m. SPCPC08	2STX-XNSI LTC FAULT PRESS	2STX-XNSI Fault Pressure as sensed by 30C-2SPSY03.

54.2 Automatic Response

NONE

54.3 Corrective Action

a. Check the computer to determine which point is alarming.

b. Dispatch an operator to the Normal Station Service Transformer to investigate and determine the cause.

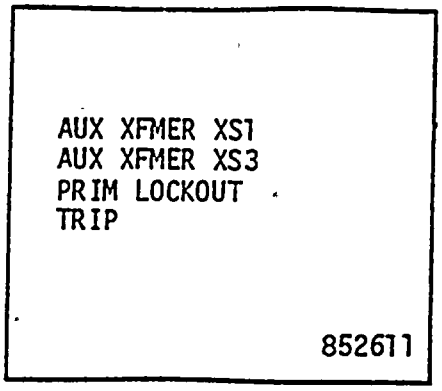
c. Monitor the alarming parameters and take corrective action as required.

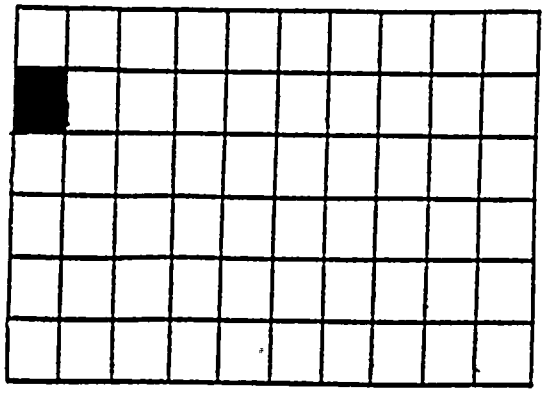
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

55.0 852611 Auxiliary Transformer XS1 Auxiliary Transformer XS3 Primary Lockout Trip

TCN 24 SOR 12/6/90 MS 12/6/90

Reflash: Yes





852611

55.1	Computer Point	Computer Printout	Source
a.	SPXUC01	XS1 PRIM LOCKOUT RLY	2ATX-XS1 Primary Lockout Relay Trip as sensed by 86-2SPXY01
b.	SPXUC02	XS3 PRIM LOCKOUT RLY	2ATX-XS3 Primary Lockout Relay Trip as sensed by 86-2SPXX01

55.2 Automatic Response

a. If 86-2SPXY01, trip 13.8KV supply breaker 1-4, 4160V breakers 11-3 and 14-2.

b. If 86-2SPXX01, trip 13.8KV supply breaker 3-6, 4160V breakers 13-6 and 15-3.

55.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 85%, per N2-op-101D Section H.1.0.

JPIC 11-18-89

d. Investigate and determine reason for trip.

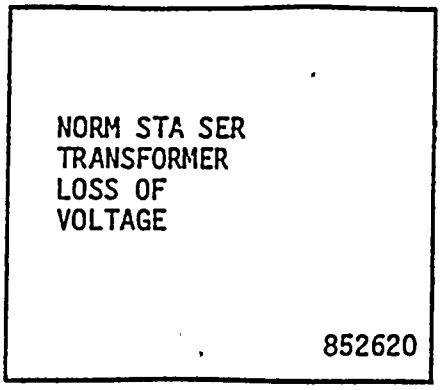
e. Return plant to normal operation.

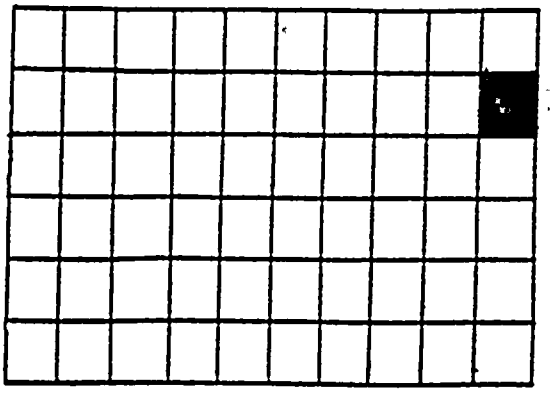
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-34 BO3 12/6/90 NB 12/6/90

56.0 852620 Normal Station Service Transformer Loss of Voltage

Reflash: Yes





852620

56.1	Computer Point	Computer Printout	Source
a.	NPSEC09	BUS SWG001 AUTO -XFR BLK	2NPS-SWG001 Transfer Blocked as sensed by 59-2NPSX18
b.	NPSEC10	BUS SWG003 AUTO -XFR BLK	2NPS-SWG003 Transfer Blocked as sensed by 59-2NPSY22

56.2 Automatic Response

a. Block closing of the Normal Supply Breaker 1-3 to 2NPS-SWG001.

b. Block closing of the Normal Supply Breaker 3-14 to 2NPS-SWG003.

56.3 Corrective Action

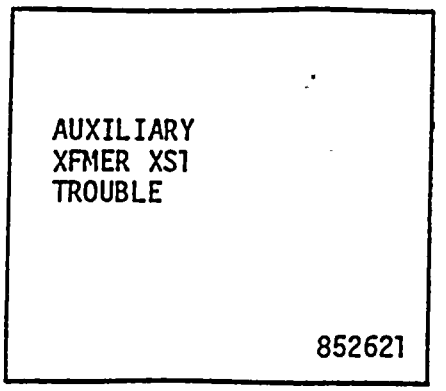
NONE

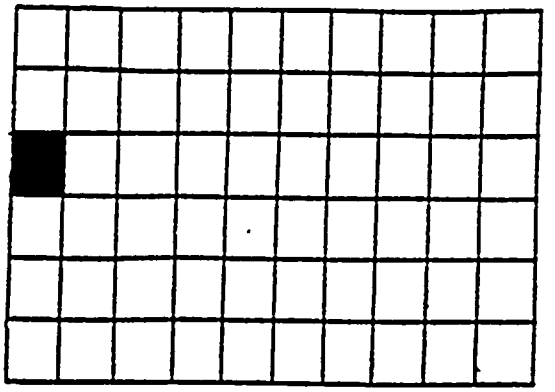
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

57.0 852621 Auxiliary Transformer XS1 Trouble

TCN-24 GD 12/6/90 MS 12/6/90

Reflash: Yes





852621

57.1

	Computer Point	Computer Printout	Source
a.	SPXAC01	XS1 GAS DETECTOR ACTUATED	2ATX-XS1 Gas Detector Actuated as sensed by 63 GD-2SPXA01
b.	SPXLC01	2ATX-XS1 RSVR OIL LEVEL	2ATX-XS1 Reservoir Oil Level Low as sensed by 710-2SPXA01
c.	SPXPC01	XS1 PR RELIEF ACTUATED	2ATX-XS1 Pressure Relief Actuated as sensed by 63 PR-2SPXA01
d.	SPXTC01	XFMR 2ATX-XS1 OIL TEMP	2ATX-XS1 Oil Temperature High as sensed by 26Q-2SPXA01
e.	SPXTC03	XS1 WDG HOT SPOT	2ATX-XS1 Winding Hot Spot Temperature High as sensed by 49-2SPXA01

57.2 Automatic Response

NONE

57.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Dispatch operator to transformer.

c. Investigate and determine reason for alarm.

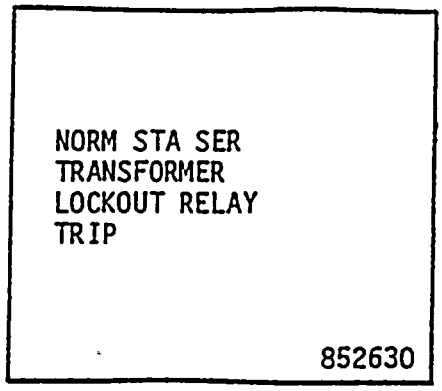
d. Return system to normal operation or consider removing transformer from service.

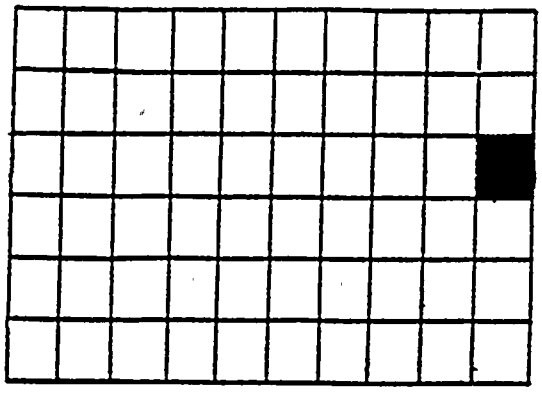
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

58.0 852630 Normal Station Service Transformer Lockout Relay Trip

TCN-24 RCB 12/4/90 AG 12/6/90

Reflash: No





852630

58.1	Computer Point	Computer Printout	Source
	SPGUC02	NSS XFMR LOCKOUT RELAY TRP	2STX-XNS1 Lockout Relay Trip as sensed by 86-2-2SPGZ01

58.2 Automatic Response

a. Lockout reserve breakers ACB 1-1, 1-16, 3-1, 3-16.

b. Blocks fast and modified transfer.

c. Trips normal supply breakers.

58.3 Corrective Action

a. Check power available to emergency buses 2ENS*SWG101, 102, 103.

b. Verify turbine trip and Rx scram.

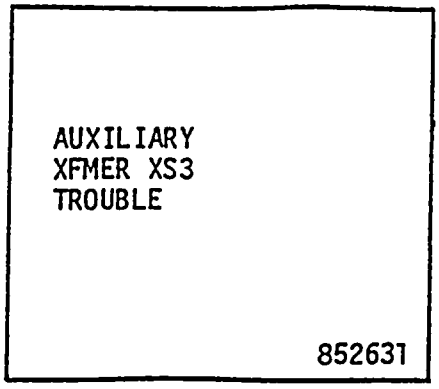
c. Determine the cause of the trip and correct any problems.

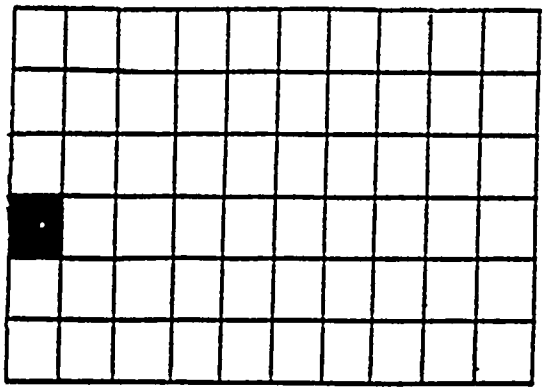
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 SCS P/6/90 AM 12/6/90

59.0 852631 Auxiliary Transformer XS3 Trouble

Reflash: yes





852631

59.1

	Computer Point	Computer Printout	Source
a.	SPXAC02	XS3 GAS DET ACTUATED	2ATX-XS3 Gas Detector Actuated as sensed by 63GD-2SPXB01
b.	2SPXLC02	2ATX-XS3 RSVR OIL LEVEL	2ATX-XS3 Reservoir Oil Level Low as sensed by 71Q-2SPXB01
c.	SPXPC02	XS3 PR RELIEF ACTUATED	2ATX-XS3 Pressure Relief Actuated as sensed by 63PR-2SPXB01
d.	SPXTC02	XFMR 2ATX-XS3 OIL TEMP	2ATX-XS3 Oil Temperature High as sensed by 26Q-2SPXB01
e.	SPXTC04	XS3 WDG HOT SPOT	2ATX-XS3 Winding Hot Spot Temperature High as sensed by 49-2SPXB01

59.2 Automatic Response

NONE

59.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Dispatch operator to transformer.

c. Investigate and determine reason for alarm.

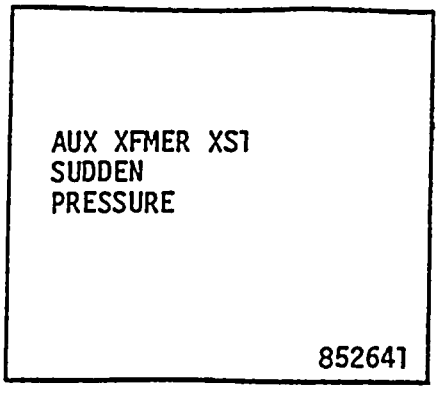
d. Return system to normal operation or consider removing transformer from service.

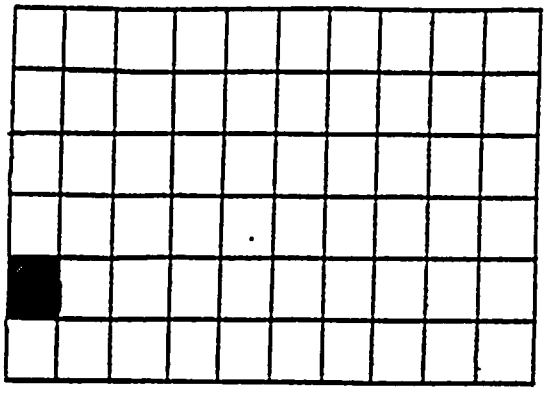
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BJB 12/6/90 MY 12/6/90

60.0 852641 Auxiliary Transformer XS1 Sudden Pressure

Reflash: Yes





852641

60.1

	Computer Point	Computer Printout	Source
a.	SPXBC03	2ATX-XS1 SUDD PR CKT PWR	2ATX-XS1 Sudden Pressure Circuit Power as sensed by 74-2SPXX05
b.	SPXPC03	XS1 SUDDEN PRE LEFT	2ATX-XS1 Sudden Pressure Left as sensed by 30X-2SPXX05
c.	SPXPC06	XS1 SUDDEN PRE RIGHT	2ATX-XS1 Sudden Pressure Right as sensed by 30Y-2SPXX05

60.2 Automatic Response

a. Trip 13.8KV supply breaker ACB 1-4, to 2NPS-SWG001 and 4160V breaker ACB 11-3 to 2NNS-SWG011 and ACB 14-2 to 2NNS-SWG014, OR loss of sudden pressure control circuit.

60.3 Corrective Action

a. Verify automatic response.

b. If control power loss, restore as soon as possible.

c. If breakers tripped, check auto start of standby equipment.

PIC * 11-16-89

d. Reduce power to less than 85%, per N2-OP-101D Section H.1.0

e. Investigate and determine reason for trip.

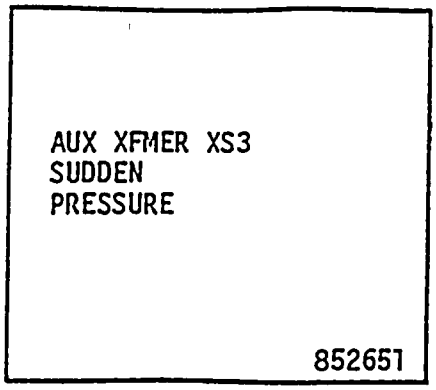
f. Return plant to normal operation.

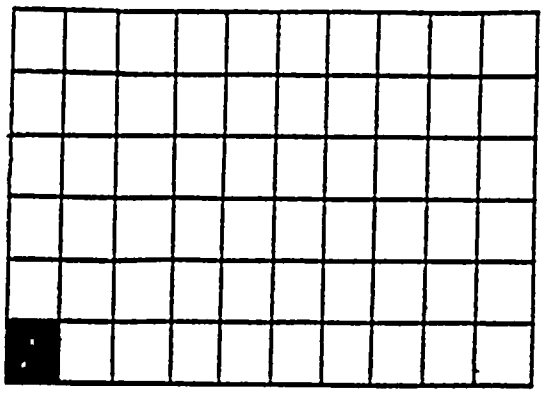
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

TCN-24 BOT 12/6/90 MY 12/6/90

61.0 852651 Auxiliary Transformer XS3 Sudden Pressure

Reflash = Yes





852651

61.1	Computer Point	Computer Printout	Source
a.	SPXBC04	2ATX-XS3 SUDD PR CKT PWR	2ATX-XS3 Loss of Sudden Pressure DC Circuit Power as sensed by 74-2SPXY05
b.	SPXPC05	XS3 SUDDEN PRE LEFT	2ATX-XS3 Sudden Pressure Left as sensed by 30X-2SPXY05
c.	SPXPC07	XS3 SUDDEN PRE RIGHT	2ATX-XS3 Sudden Pressure Right as sensed by 30Y-2SPXY05

61.2 Automatic Response

a. Trip 13.8KV supply breaker ACB 3-6 to 2NPS-SWG003 and 4160V breakers ACB 13-6 to 2NNS-SWG0013 and ACB 15-3 to 2NNS-SWG015 OR loss of sudden pressure control circuit.

61.3 Corrective Action

a. Verify automatic response.

b. If control power loss, restore as soon as possible.

c. If breakers tripped, check auto start of standby equipment.

d. Reduce power to less than 85%, per N2-OP-101D Section H.1.0.

PIC 4-18-95

e. Investigate and determine reason for trip.

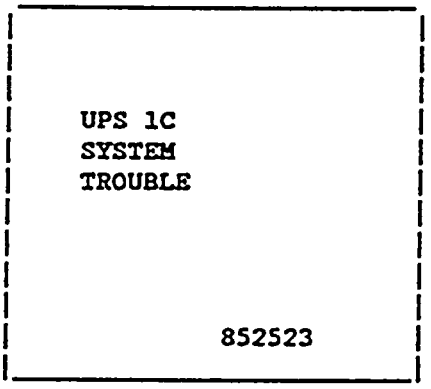
f. Return plant to normal operation.

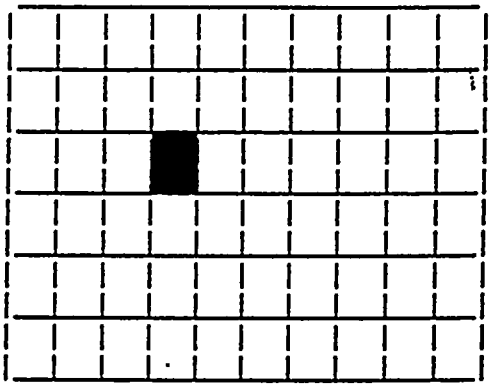
TCN-24 GB 12/6/90 MG 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

62.0 852523 Uninterruptable Power Supply 2VBB-UPS1C System Trouble

Reflash : No





62.1 Computer Point	Computer Printout	Source
VBBTC05	UPS1C SYSTEM TROUBLE	2VBB-UPS1C Relay K-6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

62.2 Automatic Response

UPS1C will realign power supplies to provide power to vital bus.

62.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1C panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

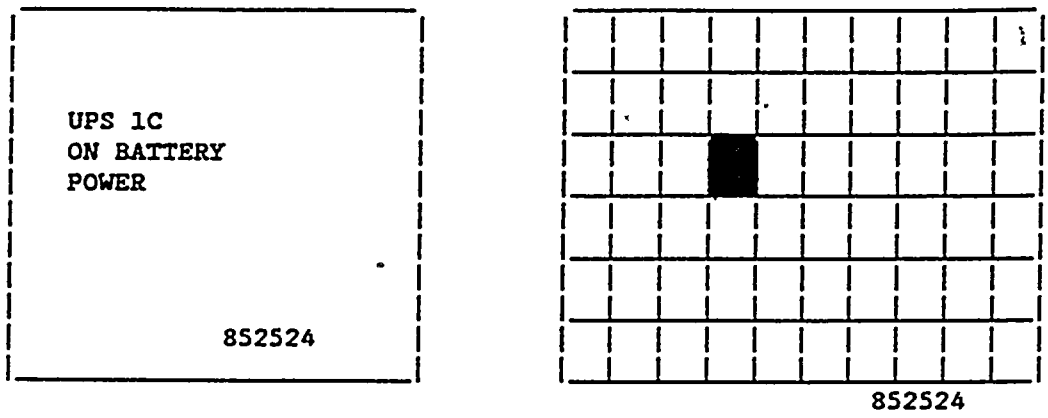
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

63.0 852524 Uninterruptable Power Supply 2VBB-UPS1C on Battery Power

TCN 34 BCD 12/6/90 NJ 12/6/90

Refresh: No



63.1 Computer Point	Computer Printout	Source
VBBTC06	UPS1C ON BATT PWR	2VBB-UPS1C Relay K-2; (On Battery Power)

63.2 Automatic Response

2VBBUPS1C Auto Transfer to DC battery power.

63.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1C to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

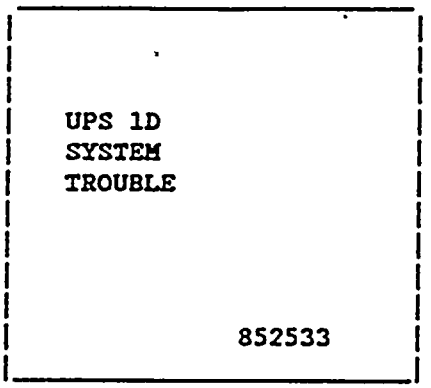
c. Initiate maint. activities if the unit needs repair.

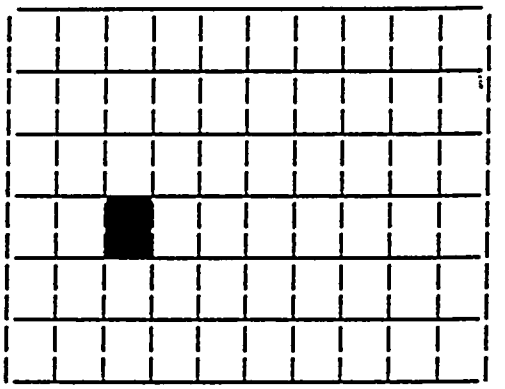
TCN-24 BCB 12/6/90 MB 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

64.0 852533 Uninterruptable Power Supply 2VBB-UPS1D System Trouble

Reflash: No





64.1 Computer Point	Computer Printout	Source
VBBTC07	UPS1D SYSTEM TROUBLE	2VBB-UPS1D Relay K-6 sensing: Ground on battery, over temperature on the inverter or charger, ove current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

64.2 Automatic Response

UPS1D will realign power supplies to provide power to vital bus.

64.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1D panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

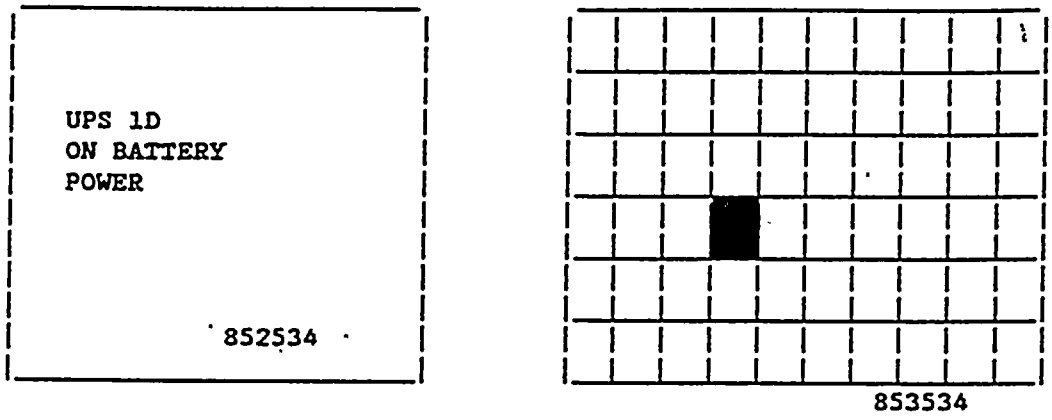
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

65.0 852534 Uninterruptable Power Supply 2VBB-UPS1D on Battery Power

TCN 24 BOB 12/5/90 AH 12/6/90

Reflash: No



65.1

Computer Point	Computer Printout	Source
VBBTC08	UPS1C ON BATT PWR	2VBB-UPS1D Relay K-2; (On Battery Power)

3

65.2 Automatic Response

2VBBUPS1C Auto Transfer to DC battery power.

3

65.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1D to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

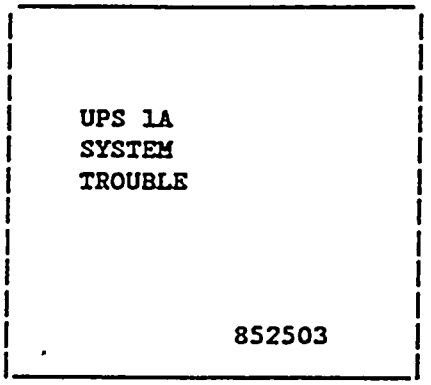
c. Initiate maint. activities if the unit needs repair.

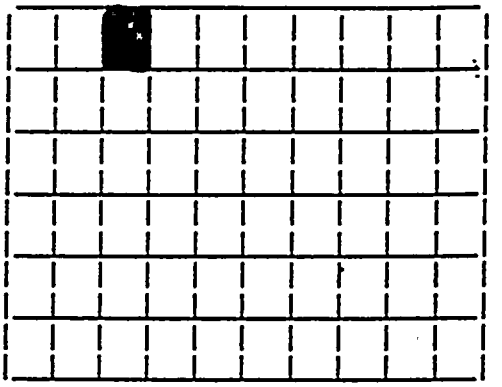
TCN-24 RCP 12/4/90 MS 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

66.0 852503 Uninterruptable Power Supply 2VBB-UPS1A System Trouble

Reflash: No





66.1 Computer Point	Computer Printout	Source
VBBTC09	UPS1A SYSTEM TROUBLE	UPS1A-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

66.2 Automatic Response

UPS1A will realign power supplies to provide power to vital bus.

66.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1A panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

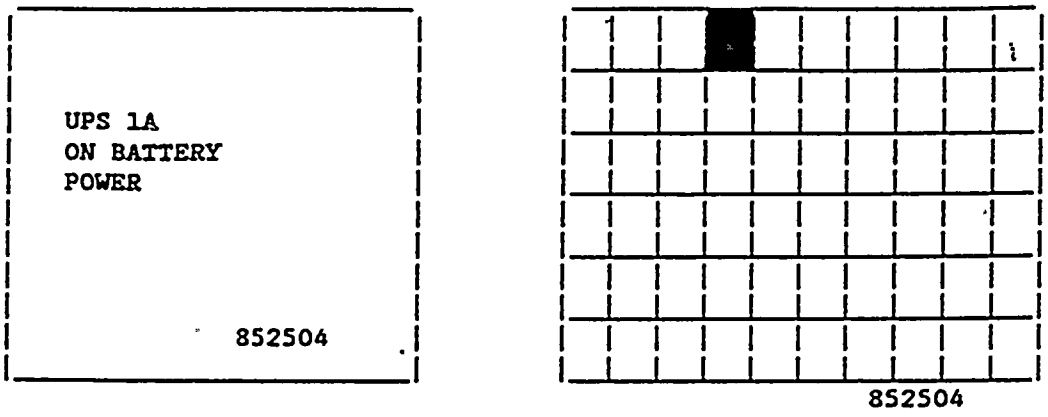
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 QB 12-16/90 NB 12/1/90

67.0 852504 Uninterruptable Power Supply UPS1A on Battery Power

--Reflash: NO



67.1 Computer Point	Computer Printout	Source
VBSTC10	UPS1A ON BATT PWR	UPS1A-K2 (On Battery Power)

3

67.2 Automatic Response

2VBB-UPS1A Auto Transfer to DC battery power.

67.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1A to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

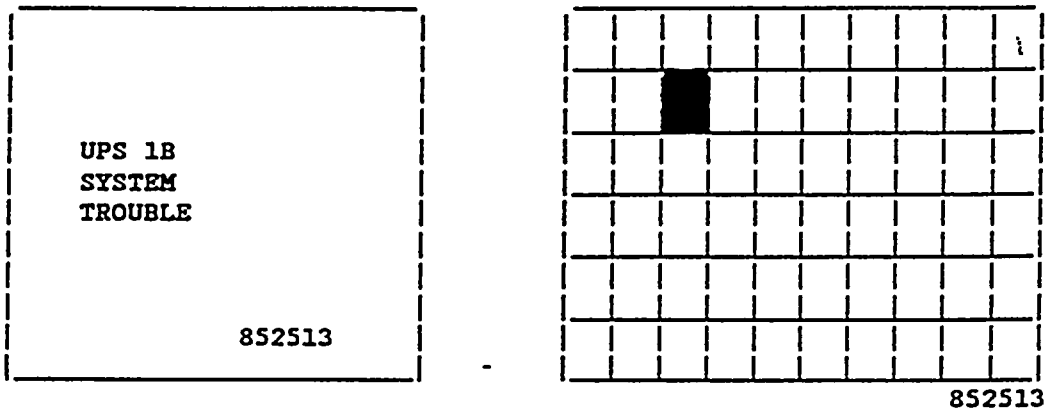
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BB 12/6/90 MS 12/6/90

68.0 852513 Uninterruptable Power Supply 2VBB-UPS1B System Trouble

Reflash: No



68.1

Computer Point	Computer Printout	Source
VBBTC11	UPS1B SYSTEM TROUBLE	UPS1B-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

68.2 Automatic Response

UPS1B will realign power supplies to provide power to vital bus.

68.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1B panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

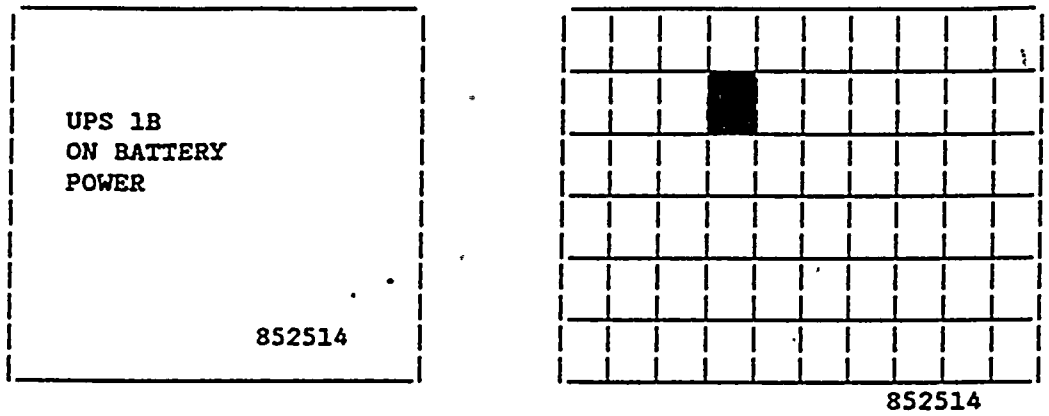
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BCB 12/6/90 AH 12/6/90

69.0 852514 Uninterruptable Power Supply UPS1B on Battery Power

Reflash: No



69.1

Computer Point	Computer Printout	Source
VBBTC12	UPS1B ON BATT PWR	UPS1B-K2 (On Battery Power)

S

69.2 Automatic Response

2VBB-UPS1B Auto Transfer to DC battery power.

S

69.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1B to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

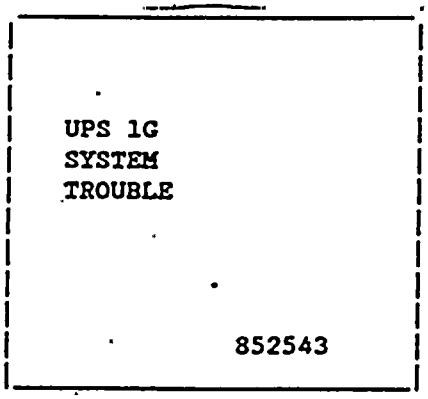
c. Initiate maint. activities if the unit needs repair.

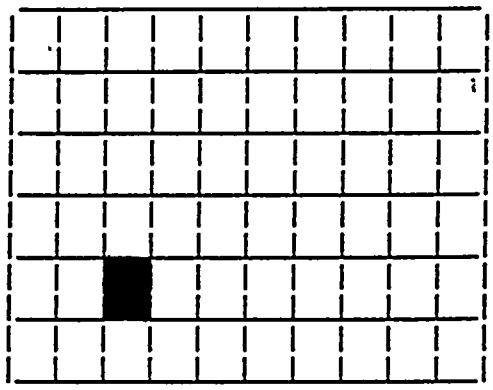
TCN-24 FOB 12/6/90 MM 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

74.0 852543 Uninterruptable Power Supply 2VBB-UPS1G System Trouble

Reflash: No





74.1 Computer Point	Computer Printout	Source
VBBTC01	UPS1G SYSTEM TROUBLE	UPS1G-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

3

74.2 Automatic Response

UPS1G will realign power supplies to provide power to vital bus. 3

74.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1G panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

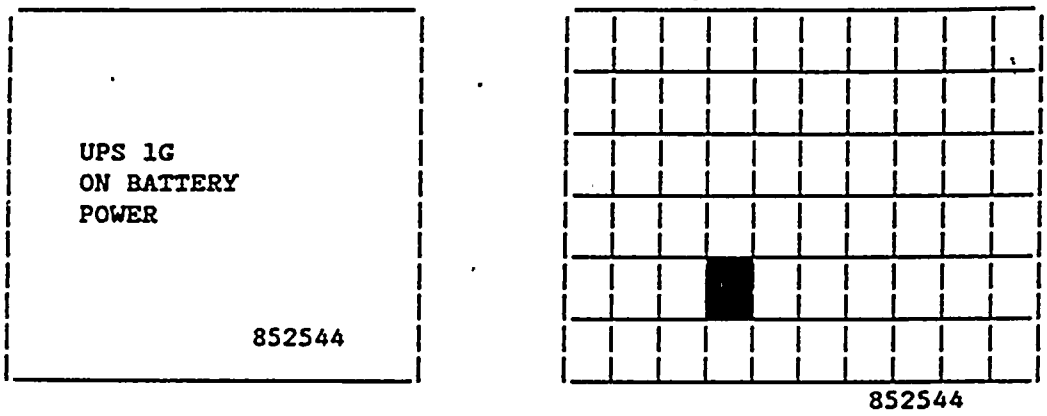
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BG 12/6/90 MG 12/6/90

75.0 852544 Uninterruptable Power Supply UPS1G on Battery Power

Reflash: No



75.1

Computer Point	Computer Printout	Source
VBBTC02	UPS1G ON BATT PWR	UPS1G-K2 (On Battery Power)

3

75.2 Automatic Response

2VBB-UPS1G Auto Transfer to DC battery power.

3

75.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1G to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

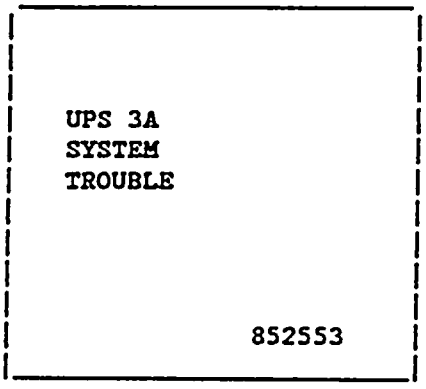
c. Initiate maint. activities if the unit needs repair.

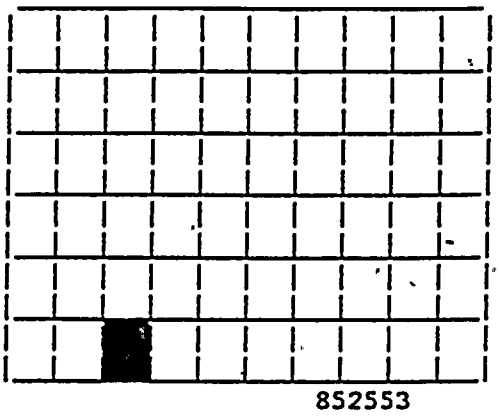
TCN-24 BCB 12/6/90 MJ 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

76.0 852553 Uninterruptable Power Supply 2VBB-UPS3A System Trouble

Reflash: No





76.1

Computer Point	Computer Printout	Source
VBBEC13	UPS3A SYSTEM TROUBLE	UPS3A-K2

NOTE: UPS3A-K2 is energized by initiation of any local alarm (See Section 76.3). | 3

76.2 Automatic Response

UPS3A wil realign power supplies to provide power to vital bus.

76.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS3A panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. | 3

c. Initiate maint. activities if the unit needs repair.

76.3 Corrective Action (Cont'd)

d. Evaluate local alarm indication per description below:

Local Alarm Description - Corrective Action

Alarm	Description	Corrective Action
Sync Loss	a) Maintenance AC is out of frequency tolerance	Notify maintenance
	b) Maintenance AC is not present	Restore Alt. AC (if fuse is blown in maintenance supply regulator, notify maintenance)
	c. UPS inverter out of freq. tolerance	Verify Freq. meter - notify maintenance
Low Inverter Voltage	UPS inverter output voltage is 15% low	Verify on voltmeter - Notify maintenance - if EPA was tripped with this alarm in, manually transfer to maintenance A.C. power
Inverter Overtemp	Unit overheating	Maintenance required
Fuse Blown	Fuse within UPS blown	Maintenance to replace fuses
Rectifier DC Grounded	UPS internal D.C. Bus grounded	Maintenance required
Low D.C. Bus	UPS internal D.C. Bus voltage is low	Notify Elec./I&C for Repair/adjustment
Overload	UPS inverter supplying over 100% rating of unit	Check output ammeter - if unit loaded, clear non-essential load If alarm false, contact Elec./I&C
Low Battery	UPS internal D.C. Bus voltage is below 110 volts	If batteries connected, (CB-2 Closed) Check battery volts, if battery volts OK, contact Elect/I&C
Battery Drain/Charge	Current being drawn from batteries caused by: a) Loss of normal A.C. to UPS b) Voltage on associated D.C. switchgear higher than UPS internal D.C. voltage	a) Restore normal AC b) If associated charger on equalize, verify UPS D.C. setpoint @ 140.5, charger @ 139.9 VDC - notify Elect./I&C

3

Local Alarm Description - Corrective Action (Cont'd)

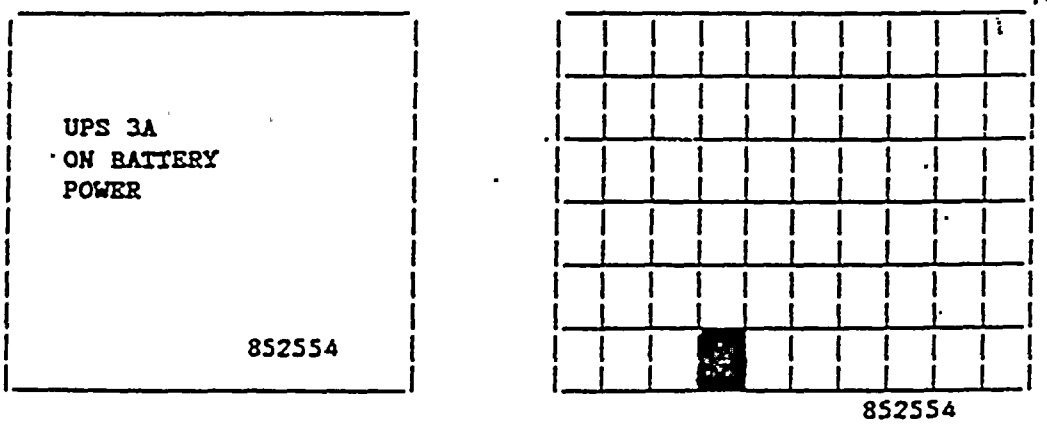
Alarm	Description	Corrective Action
Rectifier AC Loss	Loss of normal AC to Unit	a) Verify CB-1 not tripped - if tripped, notify Elect/I&C b) If CB-1 is closed, restore upstream, normal AC supply
Reverse Transfer	Static switch is in maintenance position	a) If other alarms present, correct other alarms first b) If all other alarms clear, verify UPS AC output voltage present (meter), then push forward transfer (to inverter) push button

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 308 12/6/90 RS 12/6/90

77.0 852554 Uninterruptable Power Supply UPS3A on Battery Power

Reflash: No



77.1

Computer Point	Computer Printout	Source
VBBBC11	UPS3A ON BATT PWR	UPS3A-K3

TCN-14

NOTE: UPS3A-K3 initiated by local alarm "Battery drain/charge" (See Section 76.3)

77.2 Automatic Response

2VBB-UPS3A will operate on DC battery power.

77.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS3A to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required.

c. Initiate maint. activities if the unit needs repair.

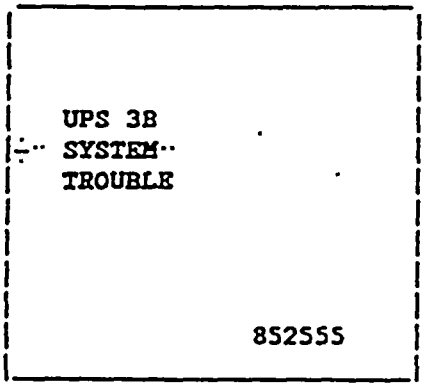
d. Evaluate cause of local alarm "Battery drain/charge" per Section 76.3.

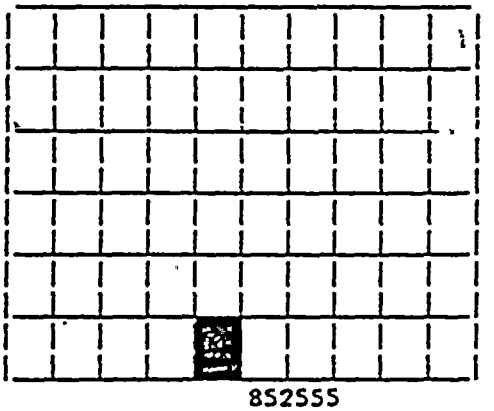
TCN-24 RCB 12-K-90 MH 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

78.0 852555 Uninterruptable Power Supply 2VBB-UPS3B System Trouble

Reflash: No





78.1 Computer Point | Computer Printout | Source

Computer Point	Computer Printout	Source
VBBEC14	UPS3B SYSTEM TROUBLE	UPS3B-K2

NOTE: UPS3B-K2 initiated by any local alarm (See Section 76.3) | 3

78.2 Automatic Response

UPS3B will realign power supplies to provide power to vital bus. | 3

78.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS3B panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. | 3

c. Initiate maint. activities if the unit needs repair.

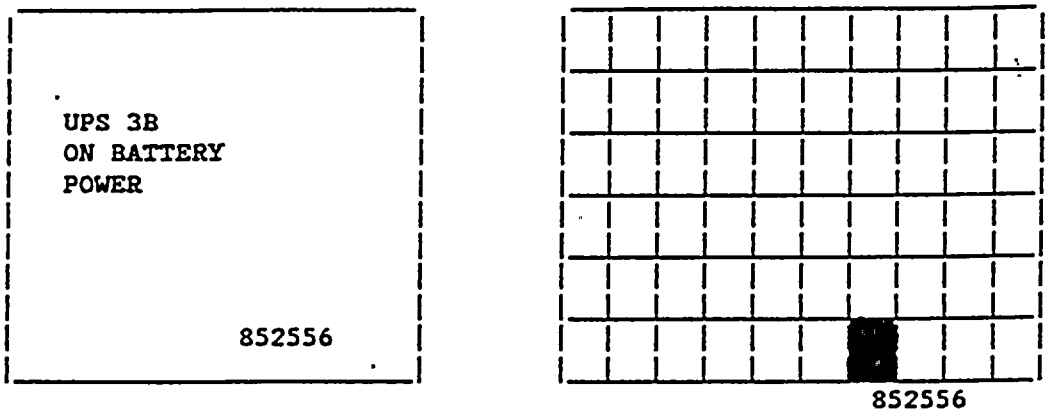
d. Evaluate local alarm indication per Section 76.3. | 3

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BJB 12/6/90 MA 12/6/90

79.0 852556 Uninterruptable Power Supply UPS3B on Battery Power

Refksh: No



79.1

Computer Point	Computer Printout	Source
VBBBC12	UPS3B ON BATT PWR	UPS3B-K3

NOTE: UPS3B-K3 is initiated by local alarm: "Battery drain/charge" (See Section 76.3). | 3

79.2 Automatic Response

2VBB-UPS3B will operate on DC battery power. | 3

79.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS3B to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. | 3

c. Initiate maint. activities if the unit needs repair.

d. Evaluate local alarm "Battery drain/charge" per Section 76.3. | 3

TCN-24 BCB 12/6/90 MM 12/6/90

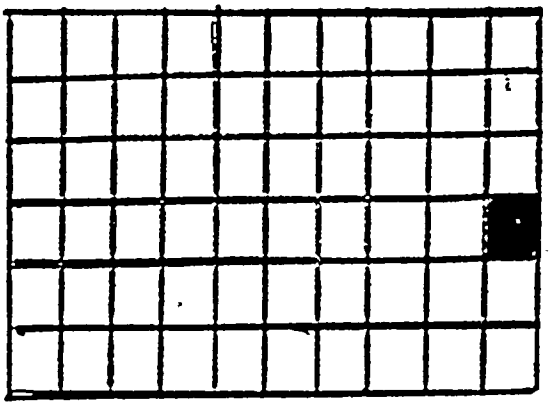
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

80.0 852640 Normal Station Service Transformer Fault Pressure Loss of D.C. Control

Reflash: No

NORM STA SER
XFMR FAULT
PRESS LOSS OF
DC CONTROL

852640



852640

80.1	Computer Point	Computer Printout	Source
	SPSBC01	125VDC CONT PWR PNL865	74-2SPSY01 Control Power Relay in panel 2CEC-PNL865

80.2 Automatic Response

None

80.3 Corrective Action

a. Check fuses in panel 2CEC-PNL865 circuit 2SPSY01.

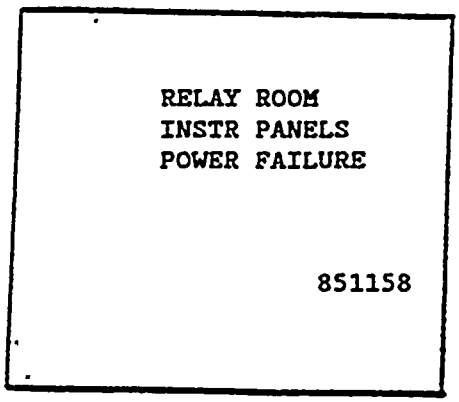
b. Check battery switchgear 2BYS-SWG001B circuit 29 (2BYSB17)

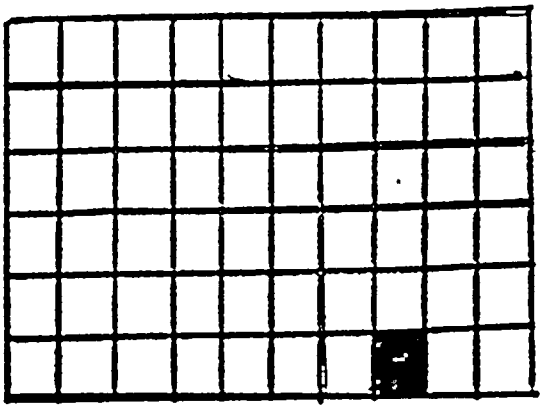
TCN-24
BOB
12/6/90
NS
12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

81.0 851158 Relay Room Instrument Panels Power Failure

Reflash = Yes





851158

81.1

Computer Point	Computer Printout	Source
CECBC01	P825 PWR SUPPLY FAIL	Panel Power Supply relays K2 & K3
CECBC02	P826 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC04	P827 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC05	P828 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC06	P829 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC08	P830 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC10	P831 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC11	P883 PWR SUPPLY FAIL DIV III	Panel power supply relays K2 & K3
CECBC13	P884 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC15	P885 PWR SUPPLY FAIL	Panel power supply relays K2 & K3

81.0 851158 Relay Room Instrument Panels Power Failure (Cont'd)

81.1

Computer Point	Computer Printout	Source
CECBC16	P886 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC17	P887 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC19	P888 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC21	P890 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC22	P891 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC23	P894 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC24	P895 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC26	P896 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC27	P897 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3

81.2 Automatic Response

None

81.3 Corrective Action

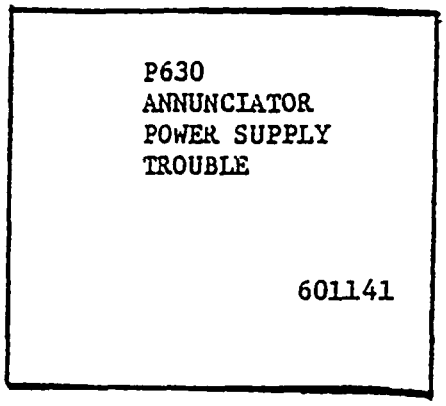
a. Notify I&C of the alarm.

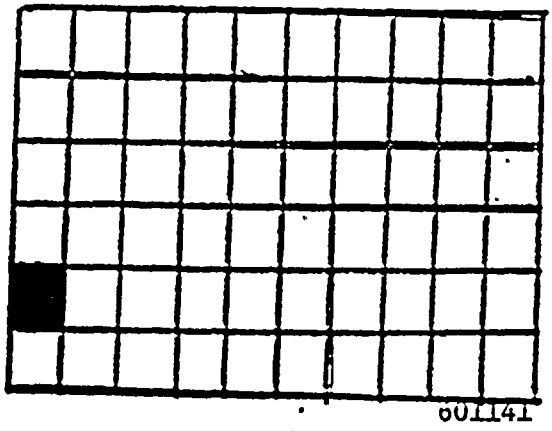
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

82.0 601141 Panel 630 Annunciator Power-Supply Trouble

BOB 12/6/90 MJ 12/6/90

Reflash: Yes





82.1

Computer Point	Computer Printout	Source
IHABC13	NSS ANN PW GROUND	Panel 630 internal power supply ground
IHABC18	NSS ANN PWR SUPPLY FAILURE	Panel 630 circuit 2IHAA06 circuit breaker A8CB2 or UPS1A 2VBS-PNLA101 circuit 3

82.2 Automatic Response

None

82.3 Corrective Action

TCN-26

a. Check panel circuits and breaker shown as "source".

b. Notify I&C of the alarm.

c. Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators," if applicable

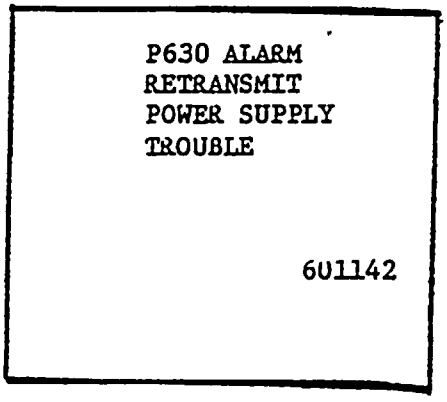
BMM 2/6/91 ME 2-6-91

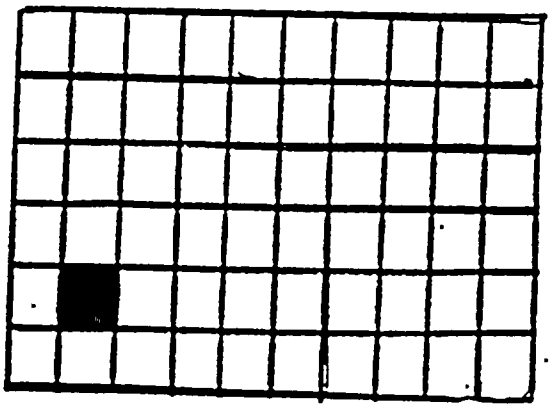
TCN-24 BR 12/6/90 MM 12/6/90

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

83.0 601142 Panel 630 Alarm Retransmit Power Supply Trouble

Reflash: Yes





601142

83.1

Computer Point	Computer Printout	Source
IHABC14	NSS ANN PWR SUPPLY FAIL	Panel 630 circuit 2IHAN06 circuit breaker A8CB3 or UPS1B 2VBS-PNLB101 circuit 4
IHABC15	ALM REFL PS LOSS OF PWR	Panel 630 circuit 2IHAN05 loss of power

83.2 Automatic Response

None

83.3 Corrective Action

a. Check circuits and breaker shown as "source".

b. Notify I&C of the alarm if unable to restore power to annunciator isolators, or retransmitter relays.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

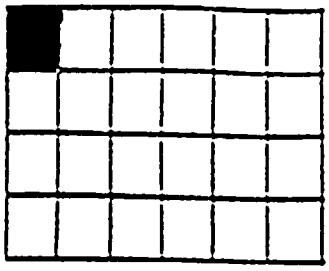
84.0 842101 Balance of Plant - Division I Isolation Card Out-of-File/Loss of Power

TCN-71 BCB 12/6/90 MJ 12/6/90

Reflash: Yes

BOP DIV I
ISOLATOR CARD
OUT-OF-FILE
LOSS OF POWER

842101



842101

84.1

Computer Point	Computer Printout	Source
CECBC29	P837 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 837 circuit 2CECA01 Fuse F1
CECBC35	P838 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 838 circuit 2CEC801 Fuse F1
CECBC39	P874 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 874 circuit 2CECC01 Fuse F1

mnl 4/3/91 *1

84.2 Automatic Response

None

84.3 Corrective Action

a. Check the fuse in the circuit and panel shown as the "source".

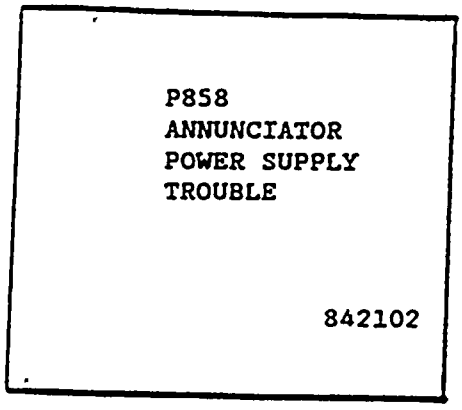
b. Contact I&C if unable to restore power to isolator cards.

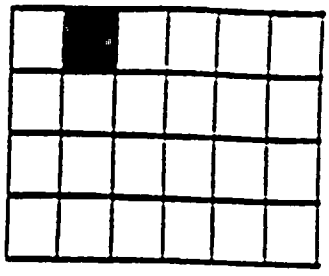
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

BOP 12/6/90 MM 12/6/91

85.0 842102 Panel 858 Annunciator Power Supply Trouble

Reflash: Yes





842102

85.1

Computer Point	Computer Printout	Source
IHABC04	BOP ANN PWR SUPPLY FAIL	Vital Bus 2VBS-PNLA101 ckt 8 Panel 858 ckt 2IHAA02 circuit breaker CB1
IHABC10	ANN PS GROUNDED	Panel 858 ground detector for: 2VBS-PNLA01 ckt 8 or 2VBS-PNLB101 ckt 37

85.2 Automatic Response

None

85.3(a) Corrective Action

IHABC04 - 1. Check panel 858 circuit 2IHAA02 circuit breaker A13CB1.

2. Check UPS1A panel 2VBS-PNLA101 circuit 8.

3. Notify I&C if unable to restore power to annunciators.

(b) IHABC10 - 1. Check panel 858 circuit 2IHAA02 circuit breaker A13CB1 and 2IHAN02 circuit breaker A13CB3.

BMM 2/6/91 MM 2-6-91

(c) Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators, if applicable

TCN 26

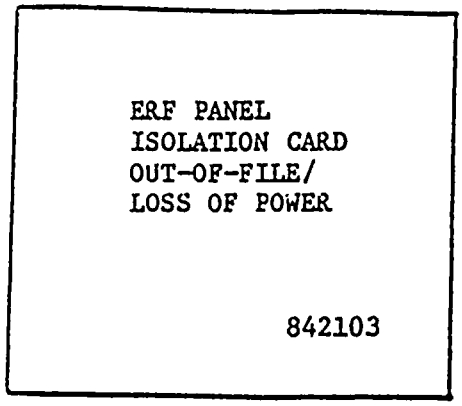
85.0	842102	Panel 858 Annunciator Power Supply Trouble (Cont'd)
85.3(b)	(Cont'd)	2. Check UPS1A panel 2VBS-PNLB101 circuit 37 and 2VBS-PNLA101 circuit 8.
		3. Notify I&C if unable to restore power to annunciators.

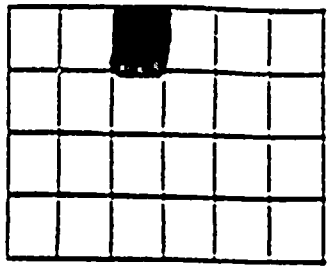
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BCR 12/6/90 MS 12/6/90

86.0 842103 Emergency Response Facility Panel Isolation Card Out-of-File/Loss of Power

Reflash: Yes





842103

86.1

Computer Point	Computer Printout	Source
CECBC45	P899D1 ERF ISOL CD OOF	Panel 899 circuit 2CECA03 Fuse F1 or UPS2A 2VBS*PNL101A circuit 3
CECBC46	P899D2 ERF ISOL CD OOF	Panel 899 circuit 2CECB02 Fuse F1 or UPS2B 2VBS*PNL301B circuit 20
CECBC47	P899 ~~BLK~~ ERF ISOL CD OOF	Panel 899 circuit 2CECB04 Fuse F1 or 2SCI-PNLA102 circuit 17

* mrt 1/3/91

86.2 Automatic Response

None

86.3 Corrective Action

a. Check fuses and breakers in panels listed as "source".

b. Notify I&C if unable to restore power to isolator circuits.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

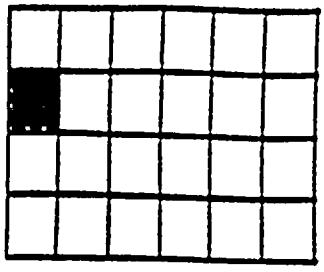
87.0 842107 Balance of Plant Division II Isolator Card Out-of-File/Loss of Power .

Reflash = Yes

TCN-124 BCR 12/6/90 AK 12/6/90

BOP DIV II ISOLATOR CARD OUT-OF-FILE/ LOSS OF POWER

842107



842107

86.1

Computer Point	Computer Printout	Source
CECBC30	P874 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 874 Isol cards ZG-A, B, C, D
CECBC36	P837 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 837 Isol cards ZAJ-A, B, C, D
CECBC40	P838 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 838 Isol cards ZAH-A, B, C, D or panel 838 circuit 2CECB01 Fuse F1
IHABC02	DIV 2 ISOL INP CARD OUT	Panel 838 Div 2 Isol input card(s) from 99-1A through 99-11B any card(s) out of file

mk 1/3/91 *1

87.2 Automatic Response

None

87.3 Corrective Action

a. Check panel cards and fuse as shown as "source".

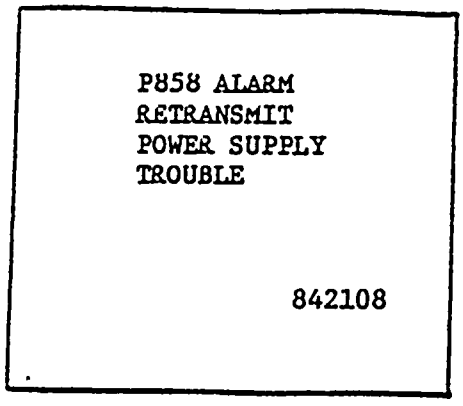
b. Notify I&C if unable to restore power to isolator circuits.

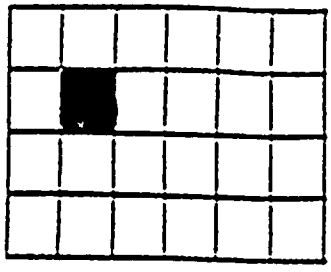
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-24 BCB 12/6/90 KH 12/6/90

88.0 842108 Panel 858 Alarm Retransmit Power Supply Trouble

Reflash: Yes





842108

88.1

Computer Point	Computer Printout	Source
IHABC11	BOP ANN PWR SUPPLY FAIL	74-2IHAN02 Panel 858 circuit 2IHAN02 circuit breaker A13CB3 or UPS1A 2VBS-PNLB101 ckt 37
IHABC12	ALM REFL PS LOSS	74B-2IHAN03 Panel 858 power supply to alarm retransmit relay circuit 2IHAN03

88.2 Automatic Response

None

88.3 Corrective Action

a. Check breakers in panels listed as "source".

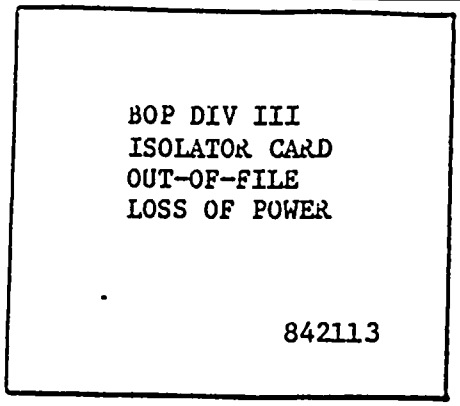
b. Notify I&C if unable to restore power to retransmission circuits.

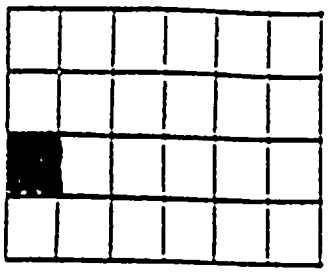
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

TCN-04 3.8 12/6/90 NA 12/6/90

89.0 842113 Balance of Plant Division II Isolator Card Out-of-File/Loss of Power

Reflash: yes





842113

89.1

Computer Point	Computer Printout	Source
IHABC03	DIV 3 ISOL INP CARD OUT	Panel 874 Div 3 Isol input card 99-1 or 99-2 any card(s) out-of-file (DC)
CECBC31	P874 ~~DIV 3~~ BOP ISOL ~~CARD~~ CD 03 OOF	Panel 874 Div 3 isol input card analog or digital (HC) out-of-file

*1 11/3/91

89.2 Automatic Response

None

89.3 Corrective Action

a. Notify I&C that panel 874 Div 3 isolator input card(s) is (are) out-of-file.

b. Check panel 2CES-IPNL414 circuit 18.

c. Check panel 874 circuit 2IHAC01 Fuse F1.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

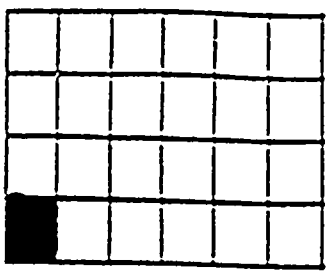
TCN-124 GCB 12/6/90 MA 12/6/90

90.0 842119 Balance of Plant Non-Divisional/Reactor Protection System Isolation Card Out-of-File/Loss of Power

Reflash: Yes

BOP NON-DIV
RPS ISOL CARD
OUT-OF-FILE
LOSS OF POWER

842119



842119

90.1

Computer Point	Computer Printout	Source
CECBC32	P837 ~~BLK-BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 837 analog or digital isolator output card out-of-file
CECBC33	P838 ~~BLK-BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 838 analog or digital isolator output card out-of-file
CECBC34	P874 ~~BLK-BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 874 analog or digital isolator output card out-of-file
CECBC37	P837 RPS D1 ~~BOP~~ ISOL ~~CARD~~ CD OOF	Power from panel 856 circuit 2SCIA06 fuse F1
CECBC38	P838 RPS D2 ~~BOP~~ ISOL ~~CARD~~ CD OOF	Power from panel 857 circuit 2SCIB06 fuse F1
IHABC07	DIV 1 ISOL OUTP CARD OUT	Panel 857 optic Isol output card out-of-file

MA 1/3/91 *1

90.1	Computer Point	Computer Printout	Source (Cont'd)
	IHABC08	DIV 2 ISOL OUTP CARD OUT.	Panel 838 optic Isol output card out-of-file
	IHABC09	DIV 3 ISOL OUTP CARD OUT	Panel 874 optic Isol output card out-of-file

90.2 Automatic Response

None

90.3 Corrective Action

a. Check panel cards and fuses listed as "source".

b. Notify I&C of tne alarm.

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2RTX-XSR1A	13.8KV Reserve Station Service XFMR	2NPS-SWG001	1-1	Open			~~DG Power Fuses in MAIN FEED~~ Note 1
2STX-XNS1	13.8KV Normal Station Service XFMR Breaker (Norm Sta Svce XFMR 2STX-XNS1)	2NPS-SWG001	1-3	Closed			Note 1
2RTX-XSR1B	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1B)	2NPS-SWG001	1-16	Cubicle Only			
2RTX-XSR1A	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1A)	2NPS-SWG002	2-1	Cubicle Only			
2ABS-X1	13.8KV Aux Boiler Service XFMR Breaker (Aux Blr Svce XFMR 2ABS-X1)	2NPS-SWG002	2-5	Closed			~~DG Power fuses in MAIN FEED~~
2RTX-XSR1B	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1B	2NPS-SWG003	3-1	Open			Note 1
2STX-XNS1	13.8KV Normal Station Service XFMR Breaker (Norm Sta Svce XFMR 2STX-XNS1)	2NPS-SWG003	3-14	Closed			Note 1
2NPS-SWG003	Metering Cubicle DC Control Power Fuses	2NPS-SWG003	3-15	Fuses Installed			DC Power fuses in MAIN FEED
2NPS-SWG001	Metering Cubicle DC Control Power Fuses	2NPS-SWG001	1-2	Fuses Installed			DC Power fuses in MAIN FEED
2NPS-SWG002	Metering Cubicle DC Control Power Fuses	2NPS-SWG002	2-4	Fuses Installed			DC Power fuses in UA and UD

Note 1: Bkr. may be Open or Closed depending upon plant status.

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TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2RTX-XSR1A	13.8KV Reserve Station Service XFMR (Breaker (RSV Sta Svce XFMR 2RTX-XSR1A)	2NPS-SWG003	3-16	Cubicle Only			
2ATX-XS3	13.8KV Feed to Aux Stepdown transformer 2ATX-XS3	2NPS-SWG003	3-6	Closed			
2RCS-MG1A	Slow speed breaker for Reactor Recirc Pump 2RCS-P1A	2NPS-SWG004	4-1	Open			
2RCS-MG1B	Slow speed breaker for Reactor Recirc Pump 2RCS P1B	2NPS-SWG005	5-1	Open			
2NJS-X1H,J,K	13.8KV/600V Aux transformer 2NJS-X1H, 2NJS-X1J, 2NJS-X1K	2NPS-SWG001	1-1A	Closed			
2NJS-X1C,D	13.8KV/600V Aux transformer 2NJS-X1C, 2NJS-X1D	2NPS-SWG001	1-5	Closed			
2NJS-X1A,B,G	13.8KV/600V Aux transformer 2NJS-X1A, 2NJS-X1B, 2NJS-X1G	2NPS-SWG001	1-14	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2ATX-XS1	13.8KV/4.16KV Aux Stepdown XFMR (Aux stepdown XFMR 2ATX-X51)	2NPS-SWG001	1-4	Closed			
2NJS-X3, H,J,K	13.8KV/600 Aux XFMR 2NJS-X3H, 2NJS-X3J, 2NJS-X3K	2NPS-SWG003	3-1A	Closed			
2NJS-X3C,D	13.8KV/600V Aux XFMR 2NJS-X3C,2NJS-X3D	2NPS-SWG003	3-3	Closed			
2NJS-X3A,B,G	13.8KV/600V Aux XFMR 2NJS-X3A,2NJS-X3B, 2NJS-X3G	2NPS-SWG003	3-13	Closed			
2ATX-XS1	4.16KV to 2NNS-SWG011 (Aux stepdown XFMR 2ATX-XS1)	2NNS-SWG011	11-3	Closed			DC Fuses in BAT A Bus A and BAT B Bus B
2NNS-SWG012	4.16KV to 2NNS-SWG012 (Bus tie to 2NNS-SWG011)	2NNS-SWG011	11-1	Closed			~~DC Fuses In BAT A Bus A, BAT B, Bus B~~
2ATX-XS1	4.16KV feed to 2NNS-SWG-014 (TAG) (Aux Stepdown XFMR 2ATX-XS1)	2NNS-SWG014	14-2	Closed			
2ENS-SWG101	4.16KV Tie to emergency Bus 2ENS-SWG101 (TAG) (4.16KV emergency switchgear 2ENS-SWG101	2NNS-SWG014	14-1	Open			

TCN-16

TABLE (I

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X1F	4.16KV/600V Aux transformer (TAG) (Aux stepdown XFMR 2NJS-X1F)	2NNS-SWG014	14-4	Closed			
2NJS-X1E	4.16KV/600V Aux transformer (TAG) (Aux stepdown XFMR 2NJS-X1E)	2NNS-SWG014	14-8	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B
2ATX-XS3	4.16KV to 2NNS-SWG013 (TAG) (Aux transformer 2ATX-XS3)	2NNS-SWG013	13-6	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B
2NNS-SWG012	4.16KV Tie Breaker to 2NNS-SWG012 (TAG) (Bus Tie Breaker Cubicle)	2NNS-SWG013	13-10	Open			
2ATX-XS3	4.16KV to 2NNS-SWG015 (TAG) (Aux transformer 2ATX-XS3)	2NNS-SWG015	15-3	Closed			
2ENS-SWG103	4.16KV Tie Breaker emerg. Bus 2ENS-SWG103 (TAG)(4.16KV Emerg. Switchgear 2ENS-SWG103)	2NNS-SWG015	15-8	Open			
2NJS-X3F	4.16KV/600V Aux transformer (TAG) (4.16KV/600V Aux stepdown XFMR 2NJS-X3F)	2NNS-SWG015	15-1	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3E	4.16KV/600V Aux transformer (TAG) (4.16KV/600V Aux stepdown XFMR 2NJS-X3E)	2NNS-SWG015	15-7	Closed			
2RTX-XSR1A	4.16KV to 2NNS-SWG016 (TAG) (RSV Sta Svce XFMR 2RTX-XSR1A)	2NNS-SWG016	16-2	Closed			
2RTX-XSR1B	4.16KV to 2NNS-SWG017 (TAG) (RSV Sta Svce XFMR 2RTX-XSR1B)	2NNS-SWG017	17-2	Closed			
2ABS-X1	4.16KV to 2NNS-SWG018 (TAG) (Aux BLR Svce XFMR 2ABS-X1)	2NNS-SWG-18	18-2	Closed			
Aux XFMR 2NJS-X1C	600V to 2NJS-US1 Bus A	2NJS-US1	3B	Closed			
Aux XFMR 2NJS-X3C	600V to 2NJS-US1 Bus B	2NJS-US1	14B	Closed			
2NJS-US1A&C	600V Tie Breaker between Bus A & Bus C	2NJS-US1	8B	Closed			
2NJS-US1B&C	600V Tie Breaker between Bus B & Bus C	2NJS-US1	10B	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC003	600V to 2NHS-MCC003 Bus A (TAG) (2NHS-MCC003 Bus A)	2NJS-US1 Bus A	3C	Closed			
2NHS-MCC003	600V to 2NHS-MCC003 Bus B (TAG) (2NHS-MCC003 Bus B)	2NJS-US1 Bus B	13D	Closed			
2LAT-PNL100	600V to distribution panel 2LAT-PNL100 (TAG)(600V Normal Dist. PNL 2LAT-PNL100)	2NJS-US1 Bus C	9C	Closed			
2NJS-PNL100	600V to distribution Panel 2NJS-PNL100 (TAG)(600V Normal Dist. PNL 2NJS-PNL100)	2NJS-US1 Bus C	9B	Closed			
2WPS-PNL100	600V to distribution Panel 2WPS-PNL100 (TAG)(600V welding Distr PNL 2WPS-PNL100)	2NJS-US1 Bus C	8D	Closed			
Aux XFMR 2NJS-X1D	600V to 2NJS-US2 Bus A	2NJS-US2A	3B	Closed			
Aux XFMR 2NJS-X3D	600V to 2NJS-US2 Bus B	2NJS-US2B	12B	Closed			
2NJS-US2	600V Tie Breaker between Bus A and Bus C	2NJS-US2	6B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2	600V Tie Breaker between Bus B and Bus C	2NJS-US2	9B	Open			
2NHS-MCC005	600V to 2NHS-MCC005 Bus A	2NJS-US2 Bus A	5C	Closed			
2NHS-MCC005	600V to 2NHS-MCC005 Bus B	2NJS-US2 Bus B	12C	Closed			
2NHS-MCC014	600V to 2NHS-MCC014 Bus A	2NJS-US2 Bus A	3C	Closed			
2NHS-MCC014	600V to 2NHS-MCC014 Bus B	2NJS-US2 Bus B	10B	Closed			
~~2LAR-PNL200~~ 2NJS-PNL201	600V Feed to Norm Dist Panel ~~2LAR-PNL200~~ 2NJS-PNL201	2NJS-US2 Bus C	~~7C~~ 6D	Closed			TCN-[illegible]
2NJS-PNL200	600V Feed to Norm Dist Panel 2NJS-PNL200	2NJS-US2 Bus C	8B	Closed			
2WPS-PNL200	600V Feed to welding distribution Panel 2WPS-PNL200	2NJS-US2 Bus C	8D	Closed			
2NJS-X1B	600V Feed to Load Center 2NJS-US3 Bus A	2NJS-US3A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3B Aux transformer	600V Feed to Load Center 2NJS-US3 Bus B	2NJS-US3 B	14B	Closed			
2NJS-US3 Bus C	600V Tie Breaker between Bus A & Bus C	2NJS-US3 Bus A	7B	Closed			
2NJS-US3 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US3 Bus B	11B	Open			
2NHS-MCC006 Bus A	600V Feed to motor control center 2NHS-MCC006 Bus A	2NJS-US3 Bus A	3C	Closed			
2NHS-MCC006 Bus B	600V Feed to motor control center 2NHS-MCC006 Bus B	2NJS-US3 Bus B	12D	Closed			
2NJS-PNL300	600V Feed to normal distribution Panel 2NJS-PNL300	2NJS-US3 Bus C	9B	Closed			
2NJS-PNL301	600V Feed to normal distribution Panel 2NJS-PNL301	2NJS-US3	9D	Closed			
2WPS-PNL300	600V Feed to welding distribution Panel 2WPS-PNL300	2NJS-US3 Bus C	7D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2LAT-PNL300	600V Feed to normal distribution Panel 2LAT-PNL300	2NJS-US3 Bus B	12B	Closed			
2VBB-TRS1	600V Feed to automatic transfer switch 2VBB-TRS1	2NJS-US3 Bus B	13A	Closed			
2VBB-TRS1	600V Feed to switchgear room automatic transfer switch 2VBB-TRS1	2NJS-US4 Bus A	6C	Closed			
2NJS-X1A Aux Transformer	600V Feed to load center 2NJS-US4 Bus A	2NJS-US4A	3B	Closed			
2NJS-X3A. Aux transformer	600V Feed to load center 2NJS-US4 Bus B	2NJS-US4B	15B	Closed			
2NJS-X3A Aux transformer	600V Tie Breaker between Bus A & Bus C	2NJS-US4B	8B	Closed			
2NJS-US4 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US4 Bus B	11B	Open			
2NHS-MCC007 Bus A	600V Feed to motor control center 2NHS-MCC007 Bus A	2NJS-US4 Bus A	3C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	- Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC007 Bus B	600V Feed to motor control center 2NHS-MCC007 Bus B	2NJS-US4 Bus B	15C	Closed			
2NHS-MCC013 Bus A	600V Feed to motor Control Center 2NHS-MCC013 Bus A	2NJUS4 Bus A	6D	Closed			
2NHS-MCC013 Bus B	600V Feed to motor control center 2NHS-MCC013 Bus B	2NJS-US4 Bus B	14D	Closed			
2NJS-PNL401	600V Feed to normal distribution Panel 2NJS-PNL401	2NJS-US4 Bus A	4B	Closed			
2NJS-PNL400	600V Feed to normal distribution Panel 2NJS-PNL400	2NJS-US4 Bus C	9B	Closed			
2LAS-PNL400	600V Feed to normal distribution Panel 2LAS-PNL400	2NJS-US4 Bus C	9C	Closed			
2WPS-PNL402	600V Feed to welding distribution Panel 2WPS-PNL 400	2NJS-US4 Bus C	8D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL402	600V Feed to normal distribution Panel 2NJS-PNL402	2NJS-US4 Bus B	14A	Closed			
Aux XFMR 2NJS-X1E	600V Feed to load center 2NJS-US5	2NJS-US5	3B	Closed			
Aux XFMR 2NJS-X1F	600V Feed to load center 2NJS-US5	2NJS-US5	8B	Open			
2NHS-MCC008	600V Feed to motor control center 2NHS-MCC008	2NJS-US5	3D	Closed			
2NHS-MCC008	600V Feed to motor control center 2NHS-MCC008	2NJS-US5	5A	Closed			
2NHS-MCC011	600V Feed to motor control center 2NHS-MCC011	2NJS-US5	4A	Closed			
2NHS-MCC011 Bus B	600V Feed to motor control center 2NHS-MCC011	2NJS-US5	5C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL500	600V Feed to normal distribution Panel 2NJS-PNL500	2NJS-US5	6B	Closed			
Aux XFMR. 2NJS-X3E	600V Feed to load center 2NJS-US6	2NJS-US6	3B	Closed			
Aux XFMR 2NJS-X3F	600V Feed to load center 2NJS-US6	2NJS-US6	7B	Open			
2NHS-MCC009	600V Feed to motor control center 2NHS-MCC009	2NJS-US6	3C	Closed			
2NHS-MCC009	600V Feed to motor control center 2NHS-MCC009	2NJS-US6	5D	Closed			
2NHS-MCC012	600V Feed to motor control center 2NHS-MCC012	2NJS-US6	4D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC012	600V Feed to motor control center 2NHS-MCC012	2NJS-US6	5A	Closed			
2NJS-PNL600	600V Feed to normal distribution Panel 2NJS-PNL600	2NJS-US6	6B	Closed			
Aux XFMR 2NJS-X1G	600V Feed to load center 2NJS-US7 Bus A	2NJS-US7A	3B	Closed			
Aux XFMR 2NJS-X3G	600V Feed to load center 2NJS-US7 Bus B	2NJS-US7B	7B	Closed			
2NJS-US7	600V Tie Breaker between Bus A & Bus B	2NJS-US7	5B	Open			
2NJS-PNL702	600V Feed to normal distribution Panel 2NJS-PNL702	2NJS-US7 Bus A	3C	Closed			
2NJS-PNL700	600V Feed to normal distribution panel 2NJS-PNL 700	2NJS-US7 Bus A	4B	Closed			
2NJS-PNL704	600V Feed to normal distribution Panel 2NJS-PNL 704	2NJS-US7 Bus A	4C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL706	600V Feed to normal distribution Panel 2NJS-PNL706	2NJS-US7 Bus A	4D	Closed			
2NJS-PNL701	600V Feed to normal distribution Panel 2NJS-PNL701	2NJS-US7 Bus B	6B	Closed			
2NJS-PNL705	600V Feed to normal distribution Panel 2NJS-PNL705	2NJS-US6 Bus B	6C	Closed			
2NJS-PNL707	600V Feed to normal distribution Panel 2NJS-PNL707	2NJS-US7 Bus B	6D	Closed			
2NJS-PNL703	600V Feed to normal distribution Panel 2NJS-PNL703	2NJS-US7 Bus B	7C	Closed			
2NJS-X1H Aux. Transformer	600V Feed to Load Center 2NJS-US8 Bus A	2NJS-US8B	3B	Closed			
2NJS-X3H Aux. Transformer	600V Feed to Load Center 2NJS-US8 Bus B	2NJS-US8B	13B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number - Cubicle/ Breaker		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US8 Bus C	600V Tie Breaker between Bus A & Bus C	2NJS-US8 Bus A	7B	Closed			
2NJS-US8 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US8 Bus B	9B	Open			
2NHS-MCC002 Bus A	600V Feed to motor control center 2NHS-MCC002 Bus A	2NJS-US8 Bus A	3C	Closed			
2NHS-MCC002 Bus B	600V Feed to motor control center 2NHS-MCC002 Bus B	2NJS-US8 Bus B	13C	Closed			
2NHS-MCC015 Bus A	600V Feed to motor control center 2NHS-MCC015 Bus A	2NJS-US8 Bus A	4D	Closed			
2NHS-MCC015 Bus B	600V Feed to motor control center 2NHS-MCC015 B	2NJS-US8 Bus B	12D	Closed			
2NJS-X1J Aux Transformer	600V Feed to load center 2NJS-US9 Bus A	2NJS-US9A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3J Aux Transformer	600V Feed to load center 2NJS-US9 Bus B	2NJS-US9B	13B	Closed			
2NJS-US9 Bus B	600V Bus Tie between Bus A & Bus C	2NJS-US9 Bus A	7B	Closed			
2NJS-US9 Bus C	600V Bus Tie between Bus B & Bus C	2NJS-US9 Bus B	9B	Open			
2NHS-MCC001 Bus A	600V Feed to motor control center 2NHS-MCC001 Bus A	2NJS-US9 Bus A	4D	Closed			
2NHS-MCC001 Bus B	600V Feed to motor control center 2NHS-MCC001 B	2NJS-US9 Bus B	12D	Closed			
2NHS-MCC016 Bus A	600V Feed to motor control center 2NHS-MCC016 Bus A	2NJS-US9 Bus A	6B	Closed			
2NHS-MCC002	600V Tie Breaker between Bus B & Bus C	2NHS-MCC002	11A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US8 Bus B	600V incoming feed to motor control center 2NHS MCC002 Bus B	2NHS-MCC002B	18A	Closed			
2NJS-US1 Bus A	600V incoming feed to motor control center 2NHS MCC003 Bus A	2NHS-MCC003A	1A	Closed			
2NHS-MCC003	600V tie breaker between Bus A & Bus C	2NHS-MCC003	8A	Closed			
2NHS-MCC003	600V Tie Breaker between Bus B & Bus C	2NHS-MCC003	18A	Open			
2NJS-US1 Bus B	600V incoming feed to motor control center 2NHS MCC003 Bus B	2NHS-MCC003B	19A	Closed			
2NJS-PNL402	600V emergency feed to motor control center 2NHS MCC004	2NHS-MCC004	1A	Closed			
2NJS-PNL401	600V normal feed to motor control center 2NHS MCC004	2NHS-MCC004	1C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2 Bus A	600V incoming feed to motor control center 2NHS-MCC004 Bus A	2NHS-MCC005A	1A	Closed			
2NHS-MCC005	600V Tie Breaker between Bus A & Bus C	2NHS-MCC005	5A	Closed			
2NHS-MCC005	600V Tie Breaker between Bus B & Bus C	2NHS-MCC005	8A	Open			
2NJS-US2 Bus B	600V incoming feed to motor control center 2NHS-MCC005 Bus B	2NHS-MCC005B	12A	Closed			
2NJS-US3 Bus A	600V incoming feed to motor control center 2NHS-MCC006 Bus A	2NHS-MCC006A	1A	Closed			
2NHS-MCC006	600V tie breaker between Bus A & Bus C	2NHS-MCC006	9A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC006	600V tie breaker between Bus B & Bus C	2NHS-MCC006	14A	Open			
2NJS-US3 Bus B	600V incoming feed to motor control center 2NHS-MCC006 Bus B	2NHS-MCC006B	15A	Closed			
2NJS-US4 Bus A	600V incoming feed to motor control center 2NHS-MCC007 Bus A	2NHS-MCC007A	1A	Closed			
2NHS-MCC016 Bus B	600V feed to motor control center 2NHS-MCC016 Bus B	2NJS-US9 Bus B	10B	Closed			
2NJS-PNL101	600V feed to normal distribution Panel 2NJS-PNL101	2NJS-US9 Bus C	7D	Closed			
2LAN-PNL900	600V feed to normal distribution Panel 2LAN-PNL900	2NJS-US9 Bus C	8D	Closed			
2NJS-X1K Aux transformer	600V feed to load center 2NJS-US10 Bus A	2NJS-US10A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3K Aux transformer	600V feed to load center 2NJS-US10 Bus B	2NJS-US10B	12B	Closed			
2NJS-US10	600V tie breaker between Bus A & Bus C	2NJS-US10	6B	Closed			
2NJS-US10	600V tie breaker between Bus B & Bus C	2NJS-US10	9B	Open			
2NHS-MCC010 Bus A	600V feed to motor control center 2NHS-MCC010 Bus A	2NJS-US10 Bus A	3C	Closed			
2NHS-MCC010 Bus B	600V feed to motor control center 2NHS-MCC010 Bus B	2NJS-US10 Bus B	12C	Closed			
2NHS-MCC017 Bus A	600V feed to motor control center 2NHS-MCC017 Bus A	2NJS-US10 Bus A	4B	Closed			
2NHS-MCC017 Bus B	600V feed to motor control center 2NHS-MCC017 Bus B	2NJS-US10 Bus B	11B	Closed			

TABLE (I

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US9 Bus A	600V incoming feed to motor control center 2NHS-MCC001 Bus A	2NHS-MCC001A	1A	Closed			
2NHS-MCC001	600V tie breaker between Bus A & Bus C	2NHS-MCC001	7A	Closed			
2NHS-MCC001	600V tie breaker between Bus B & Bus C	2NHS-MCC001	13A	Open			
2NJS-US9 Bus B	600V incoming feed to motor control center 2NHS-MCC001 Bus B	2NHS-MCC001B	19A	Closed			
2NJS-US8 Bus A	600V incoming feed to motor control center 2NHS MCC002 Bus LA	2NHS-MCC002A	1A	Closed			
2NHS-MCC002 Bus C	600V tie breaker between Bus A & Bus C	2NHS-MCC002 Bus A	8A	Closed			
2NHS-MCC007	Tie Breaker Bus A and C 2NHSMCC007	2NHS-MCC007	5A	Closed			
2NHS-MCC007	Tie Breaker Bus B and C 2NHSMCC007	2NHS-MCC007	10A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC007	14A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC008	1A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC008	9A	Open			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC009	1A	Closed			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC009	7A	Open			
2NJS-US10	600V from 2NJS-US10A (incoming main)	2NHS-MCC010	1A	Closed			
2NHS-MCC010	Tie Breaker Bus A and C 2NHS-MCC010	2NHS-MCC010	13A	Closed			
2NHS-MCC010	Tie Breaker Bus B and C 2NHS-MCC010	2NHS-MCC010	24A	Open			
2NJS-US10	600V from 2NJS-US10B (incoming main)	2NHS-MCC010	36A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC011	1A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC011	10A	Open			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC012	1A	Closed			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC012	10A	Open			
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC013	1A	Closed			
2NHS-MCC013	Tie breaker Bus A and C 2NHS-MCC013	2NHS-MCC013	5A	Closed			
2NHS-MCC013	Tie breaker Bus B and C 2NHS-MCC013	2NHS-MCC013	9A	Open			
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC013	13A	Closed			
2NJS-US2	600V from 2NJS-US2 (incoming main)	2NHS-MCC014	1A	Closed			
2NHS-MCC014	Tie breaker Bus A and C 2NHS-MCC014	2NHS-MCC014	5A	Closed			
2NHS-MCC014	Tie breaker Bus B and C 2NHS-MCC014	2NHS-MCC014	8A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2	600V feed from 2NJS-US2 (incoming main)	2NHS-MCC014	12A	Closed			
2NJS-US8	600V feed from 2NJS-US8 (incoming main)	2NHS-MCC015	1A	Closed			
2NHS-MCC015	Tie breaker 2NHS-MCC015 Bus A and C	2NHS-MCC015	7A	Closed			
2NHS-MCC015	Tie breaker Bus B and C 2NHS-MCC015	2NHS-MCC015	12A	Open			
2NJS-US8	600V feed from 2NJS-US8 (incoming main)	2NHS-MCC015	18A	Closed			
2NJS-US8	600V feed from 2NJS-US9 (incoming main)	2NHS-MCC016	1A	Closed			
2NHS-MCC016	Tie breaker Bus A-C 2NHS-MCC016	2NHS-MCC016	6A	Closed			
2NHS-MCC016	Tie breaker Bus B and C 2NHS-MCC016	2NHS-MCC016	9A	Open			
2NJS-US9	600V feed from 2NJS-US9 (incoming line)	2NHS-MCC016	14A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	- Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US10	600V feed from 2NJS-US10 (incoming line)	2NHS-MCC017	1A	Closed			
2NHS-MCC017	Tie breaker Bus A and C 2NHS-MCC017	2NHS-MCC017	5A	Closed			
2NHS-MCC017	Tie breaker Bus B and C 2NHS-MCC017	2NHS-MCC017	8A	Open			
2NJS-US10	600V feed from 2NJS-US10 (incoming line)	2NHS-MCC017	12A	Closed			
2VBB-UPS3B	600V normal supply to 2VBB-UPS3B	2NJS-PNL402	32	Closed			
2VBB-XRC603	600V supply to 2VBB-XRC603 (UPS3B)	2NJS-PNL600	2	Closed			
2VBB-UPS3B	120V maintenance supply to 2VBB-UPS3B	2VBB-XRC603	CB1	Closed			
2VBB-UPS3B	125VDC supply to 2VBB-UPS3B	2BYS-SWG001B	3D	Closed			
2VBS*ACB1B 2VBS*ACB2B	120V supply breaker from 2VBB-UPS-3B to 2VBS-*ACB1B & *ACB2B	2VBB-BKR3B	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number - Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2VBS*PNLB~~101~~ 100	120V supply breaker from 2VBB-UPS3B ~~2VBS-PNLB101-~~ 2VBS*PNLB100	2VBS ~~2VBB~~*ACB1B 1B ~~2VBB~~*ACB2B 2B 2VBS	Closed			
2VBB-UPS3A	600V normal supply to 2VBB-UPS3A	2LAT-PNL100 26	Closed			
2VBB-XRC503	600V supply to 2VBB-XRC503 (UPS3A)	2NJS-PNL500 2	Closed			
2VBB-UPS3A	120V maintenance supply 2VBB-UPS3A	2VBB-~~XD503~~ XRC503 CB1	Closed			
2VBB-UPS3A	125VDC supply to 2VBB-UPS3A	2BYS-SWG001C 2D	Closed			
2VBS*ACB1A 2VBS*ACB2A	120V supply breaker from 2VBB-UPS3A to 2VBS*ACB1A & 2VBS*ACB2A	2VBB-BKR3A 3A	Closed			
2VBS*PNLA~~101~~ 100	120V supply breaker from 2VBB-UPS3A to 2VBS*PNLA~~101~~ 100	2VBS ~~2VBB~~*ACB1A 1A ~~2VBB~~*ACB2A 2A 2VBS	Closed			
2VBB-UPS1C	600V normal supply to 2VBB-UPS1C	2LAT-PNL300 ~~45~~ Sub Feed	Closed			

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May 1987

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2VBB-XD501	600V supply to 2VBB-XD501 (UPS1C)	2NJS-US5	4B	Closed			
2VBB-UPS1C	120V maintenance supply to 2VBB-UPS1C	2VBB-XD501	CB1	Closed			
2VBB-UPS1C	125VDC supply to 2VBB-UPS1C	2BYS-SWG001A	2D	Closed			
2VBB-UPS1A	600V normal supply to 2VBB UPS1A	2VBB-PNL301	1	Closed			
2VBB-XD500	600V supply to 2VBB-XD500 (UPS1A)	2NJS-US5	8D	Closed			
2VBB-UPS1A	125VDC backup power to 2VBB-UPS1A	2BYS-SWG001A	2C	Closed			
2VBB-UPS1B	600V normal supply to 2VBB-UPS1B	2VBB-PNL301	2	Closed			
2VBB-UPS1G	600V normal supply to 2VBB-UPS1G	2VBB-PNL301	7	Closed			
2VBB-UPS1A	120V maintenance supply to 2VBB-UPS1A	2VBB-XD500	CB1	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS	
2VBB-XD601	600V maintenance supply to 2VBB-XD601 (UPS1B)	2NJS-US6	4B	Closed				3
2VBB-UPS1B	125VDC supply to 2VBB UPS1B	2BYS-SWG001C	2A	Closed				
2VBB-UPS1D	600V normal supply to 2VBB UPS1D	2NHS-MCC006	8A	Closed				
2VBB-XD600	600V supply to 2VBB-XD600 (UPS1D)	2NJS-US6	6C	Closed				3
2VBB-UPS1D	125VDC supply to 2VBB-UPS1D	2BYS-SWG001B	2D	Closed				3
2VBB-UPS1B	120V maintenance supply to 2VBB-UPS1B	2VBB-XD601	CB1	Closed				3
2VBB-UPS1D	120V maintenance supply to 2VBB-UPS1D	2VBB-XD600	CB1	Closed				3
2VBB-UPS1G	125VDC supply to 2VBB-UPS1G	2BYS-SWG001C	2C	Closed				3
2VBB-UPS1G	120VAC maintenance supply to 2VBB-UPS1G	2VBB-XD602	CB1	Closed				3
2VBB-XD602	600VAC supply to 2VBB-XD602 (UPS1G)	2NJS-US6	6D	Closed				3
2VBB-UPS1H	Normal supply to 2VBB-UPS1H	2NJS-PNL901	26	Closed				

NIAGARA MOHAWK

PROCEDURE CHANGE EVALUATION (PCE)

PCE No. 01-765-91

1. Initiation

Procedure No.	Rev. No.	Title
N2-OP-71	3	13.8KV/4160V/600V A.C. POWER DISTRIBUTION

Describe Change: Change typo in Computer Printout from USC to USS For Automatic response carry out.

Reason for Change:

☐ NCTS No. ______ ☐ DER No. ______ ☐ Mod/SDC No. ______

☒ Other (Explain): typo error

2. Method of Change

☒ Immediate Change

Change Is: ☒ Permanent ☐ One Time Only

☐ Technical Change to TSR Procedure ☒ NTSR Procedure OR Editorial Change

Pages Affected: 94

Initiator (Print & Initial): Don Newman DN Date: 6/25/91

RPO App'l: (Both if Site) ☒ Accept ☐ Reject ☐ Redirect to Future

Date: 6/25/91 Date:

[signature]

Safety Review Req'd ☐ Yes TSR or Temp Alteration ☒ No NTSR or Editorial

Interim Approval (Technical TSR Changes Only)

Add'l Technical Review: ☐ Accept ☐ Reject ☐ N/A Date

SRO: ☐ Accept ☐ Reject Date

SRO (Site Only): ☐ Accept ☐ Reject ☐ N/A Date

Plant Manager (Technical TSR Changes Only)

Signature Date

Signature (Site Only) Date

☐ Future Change

Initiator (Print)		
Mail Location	Phone	Date

Disposition

RPO Name ______ PPU

☐ Redirect to IMMEDIATE Change (To RPO)

☐ Inactivate Procedure (To PPU)

☐ Future Revision or New Procedure (To PPU)

☐ Reject (To PPU)

PPU

RPO Approval Date

Implementation

☐ Incorp'd Rev. ______, Proc No.: ______

☐ Cancel, ☐ Transfer to Proc. No.: ______

PPU Closeout Date

9305040168

NIAGARA MOHAWK | PROCEDURE CHANGE EVALUATION (PCE) | PCE No.

1. Initiation

Procedure No.	Rev. No.	Title
N2-OP-71	3	13.8 KV / 4160 V / 600 A.C. POWER DISTRIBUTION

Describe Change: ADD THE FOLLOWING NOTE TO N2-OP-71 STEP H.23.0 :

"NOTE: THIS PROCEDURE WILL RESULT IN UPS CRITICAL LOADS BEING SUPPLIED FROM THE MAINTENANCE SOURCE. THE UPS INVERTER AND UPS LOGIC POWER WILL BE DE-ENERGIZED. WITH UPS LOGIC POWER DE-ENERGIZED CONTROL ROOM ANNUNCIATION FOR THE ASSOCIATED UPS WILL BE INHIBITED."

Reason for Change:

☐ NCTS No. _____ ☐ DER No. _____ ☐ Mod/SDC No. _____

☒ Other (Explain): CLARIFY DESCRIPTION AND FINAL CONDITIONS OF PROCEDURE SECTION FOR TRANSFER OF UPS 1 SERIES TO THE MAINTENANCE POWER SUPPLY AND SHUTDOWN OF THE UPS INVERTER AND LOGIC POWER

2. Method of Change

☒ **Immediate Change**

Change Is: ☒ Permanent ☐ One Time Only

☐ Technical Change to TSR Procedure | ☒ NTSR Procedure OR Editorial Change

Pages Affected: pg 63

Initiator (Print & Initial): RICHARD S. CONWAY Date: 6-16-91

RPO Appl. (Both if Site): ☒ Accept ☐ Reject ☐ Redirect to Future

Date: 6-16-91 RS Conway | Date:

Safety Review Req'd: ☐ Yes TSR or Temp Alteration ☒ No NTSR or Editorial

Interim Approval (Technical TSR Changes Only)

Add'l Technical Review: ☐ Accept ☐ Reject ☐ N/A | Date

SRO: ☐ Accept ☐ Reject | Date

SRO (Site Only): ☐ Accept ☐ Reject ☐ N/A | Date

Plant Manager (Technical TSR Changes Only)

Signature | Date

Signature (Site Only) | Date

☐ **Future Change**

Initiator (Print)

Mail Location | Phone | Date

Disposition

RPO Name _____ PPU

☐ Redirect to IMMEDIATE Change (To RPO)
☐ Inactivate Procedure (To PPU)
☐ Future Revision or New Procedure (To PPU)
☐ Reject (To PPU)

PPU

RPO Approval | Date

Implementation

☐ Incorp'd Rev. ____, Proc No.: _____

☐ Cancel, ☐ Transfer to Proc. No.: _____

PU Closeout | Date

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. ____________

.e attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 kV/4160/600 AC Power Distribution
____
Reason(List Assoc. PEFs) Add Generic steps to deal with an inadvertent loss of Elec. Buss

Page Numbers
Affected By TCN iii 66h

MODIFICATION RELATED
CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER ____________

And is recommended to be:

- TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE............ ☐
- TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE......... ☒
- TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE........ ☐
- TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..... ☐
- PUBLICATION CHANGE.. ☐

The intent of the original procedure is not altered.

Printed Name James G. Bradeston Extension 7729
Author Signature [signature] Date 5/2/91

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature [signature] Date 5/2/91
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES*

SRO Signature [signature] Time 1337 Date 5/2/91

NOTE: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Manager's Office Date ____________ Initials ____________

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☐	☐	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1.			
2.			
3.			
4.			
5.			

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature ____________________ Date ____________

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0-3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. _____

The attached change was made to procedure No. N2-OP-71 Rev. 3
Title 13.8KV/4160V/600V A.C. Power Distribution
Reason(List Assoc. PEFs) Correct Typo

Page Numbers Affected By TCN 66

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE.....☐
PUBLICATION CHANGE.....☒

The intent of the original procedure is ~~not~~ altered

Printed Name James Burr Extension 2168
Author Signature James Burr Date 3/2/91

The temporary procedure revision/publication change was approved by:
Ownership Dept: Head Signature [signature] Date 3-2-91
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES*

SRO Signature _____ Time _____ Date _____

NOTE: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Manager's Office Date _____ Initials _____

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change <u>does not</u> change the intent of the original procedure and <u>does not</u> involve an unreviewed safety question.	☐	☐	☐	☐	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1.			
2.			
3.			
4.			
5.			

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature _____ Date _____

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 27

The attached change was made to
Procedure No. N2-OP-71 Rev. 03
Title 13.8KV/4160V/600V A.C. Power Distribution

Reason Add to procedure for placing UPS (1Series) in service that breaker circuit card slot 5 is empty

Page Numbers Affected By TCN 26, 28, 30, 32, 33

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER ______

And is recommended to be:

- TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE................☐
- TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..............☒
- TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE............☐
- TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..........☐
- PUBLICATION CHANGE ....☐

The intent of the original procedure is not altered.

Printed Name Michael J. [signature] Extension 2170
Author Signature [signature] Date 2-27-91

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature [signature] Date 2/27/91
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature [signature] Time 0125 Date 2-27-91

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date 2/28/91 Initials [initials]

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☒	☒

SORC Member Signatures	Date
alt 1. [signature] (Dorer)	3/1/91
2. [signature]	3-6-91
3. [signature]	3/7/91
4. [signature]	3-14-91
5. [signature]	3/1/91

or SORC Meeting Number (if required) ______

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature [signature] Date 3/12/91

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

(AP-2.0, Form 2, Rev 00)

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 26

A attached change was made to
Procedure No. NZ-OP-71 Rev. 3
Title 13.8 KV / 4160V / 600V A.C. Power Distribution.

Page Numbers Affected By TCN 165, 168

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

Reason To provide a Cross reference between Annunciators 601141, 842103 and a new off normal titled "Loss of ALL Annunciators" in NZ-OP-91A.

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..... ☒
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..... ☐
PUBLICATION CHANGE ..... ☐

The intent of the original procedure is not altered.

Printed Name Alfred T. Denny Extension 7446
Author Signature Alfred T. Denny Date 2-5-91

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature _____ Date 2/6/91
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature _____ Time 0911 Date 2-6-91

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date 2/7/91 Initials mal

.SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☒	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
Alt 1.	_____ (Dept)	2/7/91	_____
2.	_____	2-8-91	
3.	_____	2-9-91	
4.	_____	2/11/91	
5.	_____	2/12/91	

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature _____ Date 2/12/91

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. _____

The attached change was made to procedure No. N2-OP-71 Rev. 03
Title 13.8 KV / 4160V / 600V A.C POWER DISTRIBUTION

Page Numbers Affected By TCN 167, 170, 171, 173, 174

Reason HUMAN FACTORS MOD - CHANGES COMPUTER POINT DESCRIPTIONS

MODIFICATION RELATED CHANGE ☑ YES ☐ NO
MOD CONTROL NUMBER 87-035
MWR 20922 EDC 2E00581

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.....☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE.....☐
PUBLICATION CHANGE .....☑

The intent of the original procedure is not altered.

Printed Name MICHAEL SHINEGO Extension 4584
Author Signature _____ Date 1/3/91

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature _____ Date 1/3/91
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature _____ Time _____ Date _____

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date _____ Initials _____

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☐	☐	☐

SORC Member Signatures	Date	or SORC Meeting Number (if required)
1. _____	_____	_____
2. _____	_____	
3. _____	_____	
4. _____	_____	
5. _____	_____	

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature _____ Date _____

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 25

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 KV/4160V/600V A.C. POWER DISTRIBUTION
Reason CLARIFY PROCEDURE FOR REMOVING UPS3A/3B MAINTENANCE SUPPLY AND ADD STEPS FOR RESTORING MAINTENANCE SUPPLY.

Page Numbers Affected By TCN 65, 66a

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..... X
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..... ☐
PUBLICATION CHANGE ..... ☐

The intent of the original procedure is not altered.
Printed Name Robert W. Bullock Extension 2168
Author Signature Robert W. Bullock Date 12/10/90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature [signature] Date 12/10/90
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature [signature] Time 0310 Date 12-10-90
M HEIKEN

Note: Deliver TCN to Plant Manager's office by the end of the next business day.
Received in Plant Managers Office Date 12/11/90 Initials PSC

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☒	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1.	[signature]	12/12/90	
2.	[signature]	12/14/90	
Alt 3.	[signature] SR Dept (Dodt)	12/17/90	
4.	[signature]	12-18-90	
5.	[signature]	12/18/90	

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature [signature] for RBA Date 12/18/90

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

(AP-2.0, Form 2, Rev 00)

TE[redacted] PUBLICATION CHANGE NOTICE

TCN No. 1M 24

I. PROCEDURE

The attached change was made to
Procedure No. NP-OP-71 Rev. 3
Title 13.8 kV/4160 V/600 V A.C. Power Distribution

Reason Identify Reflash windows
NCTS 700187-79

Page Numbers Affected By TCN 67, 68, 70, 71, 72, 74, 75, 76, 77, 78, 81, 82, 83, 84, 86, 87, 88, 89, 91, 92, 93, 94, 95, 96, 97, 98, 100, 102, 103, 104, 105, 106, 107, 108, 110, 111, 112, 113, 114, 115, 117, 118, 119, 120, 121, 123, 124, 125, 126, 127, 130, 131, 133, 134, 135, 137, 138, 139, 141, 142, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 159, 160, 161, 162, 163, 165, 166, 167, 168, 170, 171, 172, 173, 174

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER N/A

And is recommended to be:

- TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE..... ☐
- TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..... ☒
- TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE..... ☐
- TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..... ☐
- PUBLICATION CHANGE ..... ☐

The intent of the original procedure is not altered.

Printed Name Brian Booth Extension 7061
Author Signature BCBooth Date 12/5/90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature BCBooth Date 12/6/90
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature Roy Green Time 1700 Date 12/6/90

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date 12/7/90 Initials PJC

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☐	☒	☒	☒

SORC Member Signatures		Date	or SORC Meeting Number (if required)
1.		12-11-90	
2.		12-12-90	
3.		12-13-90	
4.		12/14/90	
Alt 5.	(DORC)	12/17/90	

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature John T. Conway for RBA Date 12/17/90

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 23

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 Kv/4160v/600v AC POWER DISTRIBUTION
Reason TO CORRECT UPS SHUTDOWN SEQUENCE

Page Numbers Affected By TCN 63

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..... ☒
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE..... ☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..... ☐
PUBLICATION CHANGE ..... ☐

The intent of the original procedure is not altered.

Printed Name: ROBERT J. CRANDALL Extension 4640
Author Signature: [signature] Date 11/12/90

The temporary procedure revision/publication change was approved by:

Ownership Dept. Head Signature or Designee: [signature] Date 11/12/90

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature: [signature] Time 1150 Date 11/12/90

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date 11/13/90 Initials PSC

SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☐	☐	☒	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1.	[signature]	11/13/90	
2.	[signature] (DORT)	11/16/90	
3.	[signature]	11-16-90	
4.	[signature]	11-16-90	
5.	[signature]	11/17/90	

Plant Manager (or designee) Approval

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature [signature] for RBA Date 11/19/90

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

(AP-2.0, Form 2, Rev 00)

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 22

e attached change was made to
ocedure No. N2-OP71 Rev. 3
Title 13.8KV/4160V/600V A.C. Power Distribution

Reason Human Factors - Annunciator Window Nomenclature Changes

Page Numbers Affected By TCN 96, 103, 108, 115, 121, 110, 117, 123

MODIFICATION RELATED CHANGE ☒ YES ☐ NO
MOD CONTROL NUMBER 87-035 M20886 2E00577

And is recommended to be:

- TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.................☐
- TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..............☒
- TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.............☐
- TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..........☐
- PUBLICATION CHANGE ....☐

The intent of the original procedure is not altered.

Printed Name Gerald Bobka Extension 7519
Author Signature Gerald Bobka Date 10-30-90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature Gerald Bobka Date 10-30-90
or Designee

·PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

SRO Signature [signature] Time 1542 Date 10-30-90

Note: Deliver TCN to Plant Manager's office by the end of the next business day.

Received in Plant Managers Office Date 10/31/90 Initials PDC

.SORC MEMBER RECOMMENDATIONS (Minimum of 3 regular members)

	1	2	3	4	5
Recommend full SORC committee review this temporary change	☐	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☒	☒

	SORC Member Signatures	Date
1.	[signature]	11/2/90
2.	[signature]	11/6/90
3.	[signature] (DOET)	11/7/90
4.	William H. Thomson	11/7/90
5.	Preston Swafford	11/13/90

or SORC Meeting Number (if required) ______

Plant Manager (or designee) Approval
The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature John T. Conway for RBA Date 11/13/90

* Procedures requiring signature of the Plant Manager are Technical Specification related procedures.

FIGURE 2.0.3 SH 1 OF 1

(AP-2.0, Form 2, Rev ...)

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 21

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8KV/4160V/600V AC POWER DISTRIBUTION

Reason provide means to supply USS/USG from alternate supply, and remove "racked out" so that the bus can be energized

Page Numbers
Affected By TCN 19,20,21

MODIFICATION RELATED
CHANGE ☐ YES ■ NO
MOD CONTROL NUMBER ______

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE................☐
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE..............■
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.............☐
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE..........☐
PUBLICATION CHANGE ....☐

The intent of the original procedure is not altered.

Printed Name David M. Ranalli Extension 2169
Author Signature D Ranalli Date 9/8/90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature George E. [signature] Date 9/8/90
or Designee

---PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES*

TO: STATION SUPERINTENDENT, UNIT 2

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature D Ranalli Date 9/8/90
Station Supt. N/A Date 9/10/90
9-10-90 Heuer

SORC MEMBER RECOMMENDATIONS (Minimum of 2 regular members)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☒

SORC Member Signatures	Date
1 [signature]	9/10/90
2 John T. Conway	9/11/90
3 [signature]	9/12/90
4 R. E. [signature]	9-17-90

or SORC Meeting Number (if required) ______

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature R.B. Abbott Date 9/20/90

* Procedures requiring signature of the General Superintendent, Nuclear Generation are Technical Specification related procedures.

1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. ____________

The attached change was made to
Procedure No. NA-OP-71 Rev. 3
Title 13.8 KV, Secondary A C Power Distribution
Reason When TCN-1A was typed, last line on ___ was omitted.

Page Numbers Affected By TCN 47

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER ____________

And is recommended to be:

- TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE..................☐*
- TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE................☐*
- TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE...............☐**
- TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE............☐**
- PUBLICATION CHANGE ....☒**

The intent of the original procedure is not altered.

Printed Name S. Sweet Extension 1268
Author Signature A. Sweet Date 4/27/90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature ____________ Date ____________
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT____

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature ____________ Date ____________
Station Supt. ____________ Date ____________

SORC MEMBER RECOMMENDATIONS (Minimum of 2 regular members)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval - this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☐	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1			
2			
3			
4			

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature ____________ Date ____________

* Process entire form
** Process form through department head approval, forward to procedures

FIGURE 2.0-3 SH 1 OF 1

white copy OK

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. 90

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 KV/4160V/600VAC POWER DISTRIBUTION

Page Numbers Affected By TCN 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 63, 65, 6

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

Reason 1) ADD UPS POWER PLUG DISCONNECT
2) CORRECT WRONG INSTRUCTION (MAINTENANCE VS. INVERTER)
3) TYPO - A27-(52) TO (51)

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.....☐*
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE.....☒*
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.....☐**
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE.....☐**
PUBLICATION CHANGE .....☐**

The intent of the original procedure is not altered.

Printed Name ROBERT J. GRAINGER Extension 1281
Author Signature [signature] Date 2/26/90

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature [signature] Date 2-28-90
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT 2

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature [signature] Date 2/28/90
Station Supt. [signature] Date 3/1/90
WH

SORC MEMBER RECOMMENDATIONS (Minimum of 2 regular members)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☐	☒	☒

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1	[signature]	3/5/90	
2	[signature]	3/6/90	
3	[signature]	3/7/90	
4	[signature]	3/8/90	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature [signature] Date 3/9/90

* Process entire form
** Process form through department head approval, forward to procedures

FIGURE 2.0-3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. _____

The attached change was made to
Procedure No. N2-OP71 Rev. 3
Title 13.8 KV / 4160 V / 600 V A.C. POWER DISTRIBUTION
Reason TYPOGRAPHICAL ERRORS

Page Numbers
Affected By TCN 18

MODIFICATION RELATED
CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.....☐*
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE.....☐*
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.....☐**
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE.....☐**
PUBLICATION CHANGE .....☒**

The intent of the original procedure is not altered.

Printed Name DON ROSNIC Extension 2169
Author Signature Don P Rosnic Date 12/27/89

The temporary procedure revision/publication change was approved by:
Ownership Dept. Head Signature [signature] HELKEN Date 12-27-89
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT_____

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature_____ Date_____
Station Supt._____ Date_____

SORC MEMBER RECOMMENDATIONS (Minimum of 2 regular members)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☐	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1	_____	_____	_____
2	_____	_____	
3	_____	_____	
4	_____	_____	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature _____ Date _____

* Process entire form
** Process form through department head approval, forward to procedures

FIGURE 2.0-3 SH 1 OF 1

TEMPORARY/PUBLICATION CHANGE NOTICE

TCN No. _____

The attached change was made to
Procedure No. DZ-OP-71 Rev. 03
Title 13.8 KV/416 0V/600V A.C. Power Distribution
Reason Provide guidance in Section E (ANN. Response) FAW DZ-OP-1011

Page Numbers Affected By TCN 101, 102, 113, 114, 137, 144, 145
MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be:

TEMPORARY CHANGE, ONE TIME ONLY TECH SPEC PROCEDURE.....☐*
TEMPORARY CHANGE, PERMANENT CHANGE TECH SPEC PROCEDURE.....☒* SH
TEMPORARY CHANGE, ONE TIME ONLY NON-TECH SPEC PROCEDURE.....☐**
TEMPORARY CHANGE, PERMANENT CHANGE NON-TECH SPEC PROCEDURE.....☐**
PUBLICATION CHANGE .....☒** SORC 89-53

The intent of the original procedure is not altered.

Printed Name J. T. Hwu Extension 4938
Author Signature J. T. Hwu Date 11-18-89

The temporary procedure revision/publication change was approved by:

Ownership Dept. Head Signature W. D. Ward Date 11-18-89
or Designee

PROCESS TO HERE FOR PUBLICATION CHANGE OR NON-TECHNICAL SPECIFICATION RELATED PROCEDURE TEMPORARY CHANGES, CONTINUE FOR TECHNICAL SPECIFICATION RELATED PROCEDURES TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT_____

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature_____ Date_____
Station Supt:_____ Date_____

SORC MEMBER RECOMMENDATIONS (Minimum of 2 regular members)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☐	☐

	SORC Member Signatures	Date	or SORC Meeting Number (if required)
1	_____	_____	_____
2	_____	_____	
3	_____	_____	
4	_____	_____	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature _____ Date _____

Process entire form
Process form through department head approval, forward to procedures

FIGURE 2.0.5 SH 1 OF 1

White Copy OK TCN-19

TEMPORARY/PUBLICATION CHANGE NOTICE

pg. 59, 60

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 KV / 4160V / 600V A.C. Power Distribution

Reason Clarify steps needed to transfer Division II Switchgear (Reenergizing) from 2RTX-XSR1B to the Aux. Boiler Transformer (2ABS-X1)

MODIFICATION RELATED
CHANGE [ ] YES [x] NO
MOD CONTROL NUMBER ______

And is recommended to be:
- TEMPORARY CHANGE, ONE TIME ONLY . . . . . [ ] *
- TEMPORARY CHANGE, PERMANENT CHANGE . . . [x] *
- PUBLICATION CHANGE . . . . [ ] **

The intent of the original procedure is not altered.

Printed Name Donald Richards Extension 2169
Author Signature [illegible] Date 9/15/89

The temporary procedure revision was approved by:

Dept. Supv. Signature [illegible] Date 9/15/89

———PROCESS TO HERE FOR PUBLICATION CHANGE, CONTINUE FOR TEMPORARY CHANGES———

TO: STATION SUPERINTENDENT, UNIT 2

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature [illegible] Date 9/15/89
Station Supt. [illegible] Date 9/18/89

SORC MEMBER RECOMMENDATIONS (Minimum 2 regular members, 2 alternates)

	1	2	3	4
Recommend full SORC committee review this temporary change	[ ]	[ ]	[ ]	[ ]
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	[x]	[ ]	[x]	[x]

	SORC Member Signatures	Date
1	[illegible]	9/21/89
2	[illegible]	9/21/89
3	[illegible]	9-22-89
4	[illegible]	9/22/89

or SORC Meeting number (if required) ______

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

Signature [illegible] Date 9/28/89

* Process entire form
** Process form through department supervisor approval, forward to procedures

White Copy OK

TCN-17

TEMPORARY/PUBLICATION CHANGE NOTICE

The attached change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8 KV/4160 V/600V A.C. Power Distribution

pg. 56, 57, 58

MODIFICATION RELATED
CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

Reason Remove steps in section H.13 which were written when NNS-SWG018 was a cubicle only switchgear. (Clarify steps needed to transfer 2ENS*SWG101 to 2A65-X1, Aux. Boiler Transformer)

And is recommended to be: TEMPORARY CHANGE, ONE TIME ONLY . . . . . ☐ *
TEMPORARY CHANGE, PERMANENT CHANGE . . . ☒ *
PUBLICATION CHANGE . . . . . ☐ **

The intent of the original procedure is not altered.
Printed Name Douglas Richards Extension 2169
Author Signature Douglas Richards Date 9/14/89

The temporary procedure revision was approved by:

Dept. Supv. Signature _____ Date 9/14/89

PROCESS TO HERE FOR PUBLICATION CHANGE, CONTINUE FOR TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT 2

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature Douglas Richards Date 9/14/89
Station Supt. _____ Date 9/15/89

SORC MEMBER RECOMMENDATIONS (Minimum 2 regular members, 2 alternates)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☐	☐	☒	☒

	SORC Member Signatures	Date	or SORC Meeting number (if required)
1	_____	9/20/89	_____
2	_____	9/21/89	
3	_____	9-21-89	
4	_____	9/21/89	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

_____ 9/22/89
Signature Date

* Process entire form
** Process form through department supervisor approval, forward to procedures

FIGURE 2.0.5 SH 1 OF 1
AP-2.0 -36 April 1989

TEMPORARY/PUBLICATION CHANGE NOTICE

Pg 67
68 TCW-17

The attached change was made to
Procedure No. AP-OP-71 Rev. 3
Title 13.8 KV/4160V/600V AC Power Distribution
Reason Clarity, Corrective Action Steps

MODIFICATION RELATED
CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be: TEMPORARY CHANGE, ONE TIME ONLY . . . . . ☐ *
TEMPORARY CHANGE, PERMANENT CHANGE . . . ☒ *
PUBLICATION CHANGE . . . . . ☐ **

The intent of the original procedure is not altered.
Author Signature _____ Date 4/25/89

The temporary procedure revision was approved by:

Dept. Supv. Signature _____ Date 4/25/89

PROCESS TO HERE FOR PUBLICATION CHANGE, CONTINUE FOR TEMPORARY CHANGES

TO: STATION SUPERINTENDENT, UNIT 2

This TEMPORARY CHANGE shall be documented and approved by The General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

SRO Signature _____ Date 4-29-89
Station Supt. _____ Date 5/1/89

SORC MEMBER RECOMMENDATIONS (Minimum 2 regular members, 2 alternates)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☐	☐

	SORC Member Signatures	Date	or SORC Meeting number (if required)
1	_____	5/3/89	_____
2	_____	5/8/89	
3	_____	5/5/89	
4	_____	5/5/89	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

_____ 5/8/89
Signature Date

* Process entire form
** Process form through department supervisor approval, forward to procedures

FIGURE 2.0.5 SH 1 OF 1

TEMPORARY CHANGE NOTICE

This temporary change shall be documented and approved by the General Superintendent-Nuclear Generation based upon recommendation of SORC members within 14 days in accordance with Technical Specification 6.8.3.

TCN-16

TO: STATION SUPERINTENDENT, UNIT 2

The attached Temporary Change was made to
Procedure No. N2-OP-71 Rev. 3
Title 13.8KV/4160V/600V A.C. Power Distribution
Reason To correct electrical line-up pages 176, 178, 178, 182 & 201

MODIFICATION RELATED CHANGE ☐ YES ☒ NO
MOD CONTROL NUMBER _____

And is recommended to be: ONE TIME ONLY . . . . . ☐
PERMANENT CHANGE . . . . . ☒

The intent of the original procedure is not altered.
Author Signature D Tomber Date 1/10/89

The temporary procedure revision was approved by:

Dept. Supv. Signature [signature] Date 1/10/89
SRO Signature [signature] Date 1-10-89
Station Supt. [signature] Date 1/11/89

SORC MEMBER RECOMMENDATIONS (Minimum 2 regular members, 2 alternates)

	1	2	3	4
Recommend full SORC committee review this temporary change	☐	☐	☐	☐
Recommend Approval – this temporary change does not change the intent of the original procedure and does not involve an unreviewed safety question.	☒	☒	☒	☐

	SORC Member Signatures	Date	or SORC Meeting number (if required)
1	[signature]	1/11/89	
2	John T. Conway	1/16/89	
3	[signature]	1/20/89	
4	[signature]	1/30/89	

GENERAL SUPERINTENDENT (or designee) APPROVAL

The temporary change is approved in accordance with Technical Specification 6.8.3.

[signature] 1/23/89
Signature Date

FIGURE 2.0.5 SH 1 OF 1

SATELLITE MASTER COPY SM-5

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-71

13.8KV/4160V/600V A.C. POWER DISTRIBUTION

MASTER COPY

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APPROVALS	SIGNATURES	DATE AND INITIALS REVISION 2	REVISION 3	REVISION 4
Superintendent Operations NMP Unit #2 R. G. Smith	R.G. Smith	10/2/87 RGS	12/4/87 RGS	
Station Superintendent NMPNS Unit 2 R. B. Abbott	R.B. Abbott	10/3/87 RBA	12/4/87 RBA	
General Superintendent Nuclear Generation T. J. Perkins	T.J. Perkins	10/3/87 RECEIVED	12/11/87 TJP	

Summary of Pages

Revision 3 (Effective 12/11/87)

Pages	Date
i,iv-vii,1	August 1986
iii,3-25,38,39,41,43,44, 46,51,53,56,67-145	May 1987 (TCN's 3,6,7,&8)
55	June 1987 (TCN-9)
viii,2,26-37,62-64,146-158,160-203	December 1987
40	December 1987 (TCN-11)
42,47,49,57-59,61,54	December 1987 (TCN-12)
48,50,52,60	March 1988 (TCN-13)
* ii,45	October 1988 (Reissue)
159	October 1988 (TCN-14)
*65,66	December 1988 (TCN-15 and Reissue)

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED AFTER December 1991 SUBJECT TO PERIODIC REVIEW

*Changes per Section 11.5, AP-2.0 R.G. Smith 11/29/88 Date

*Changes per Section 11.5, AP-2.0 R.G. Smith 12/2/88 Date

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-71

13.8KV/4160V/600V A.C. POWER DISTRIBUTION

Cover Sheet Continuation (Page 2)

Summary of Pages (Cont'd)

Pages	Date
	Handwritten Pages
69,176,178,182,201	May 1989 (TCN-16 and TCN-17)
56-58	September 1989 (TCN-18 Handwritten Pages)
59,60	October 1989 (TCN-19 Handwritten Pages)
i-iii,18,101	December 1989 (Publication Changes Handwritten Pages)
27,29,31,34,35	March 1990 (TCN-20 Handwritten Pages)
47	June 1990 (Publication Change Handwritten Page)
19-21	September 1990 (TCN-21 Handwritten Pages)
65	November 1990 (TCN-23 Handwritten Page)
65,66a,67,68,70,72,74-78,81-84, 86-89,91-98,100,102-108,110-115, 117-121,123-127,130,131,133-135, 137-139,141,142,144-156,159-163, 166,172	December 1990 (TCN-24 and TCN-25 Handwritten Pages)
167,170,171,173,174	February 1991 (Publication Change *1 Handwritten Pages)
165,168	February 1991 (TCN-26 Handwritten Pages)
66	March 1991 (Publication Change *2 Handwritten Page)
26,28,30,32,33	March 1991 (TCN-27 Handwritten Pages)

Sm-5

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NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-71

13.8KV/4160V/600V A.C. POWER DISTRIBUTION

CONTROLLED

APPROVALS SIGNATURES	DATE AND INITIALS REVISION 2	REVISION 3	REVISION 4
Superintendent Operations NMP Unit #2 R. G. Smith	10/2/87	12/4/87	
Station Superintendent NMPNS Unit 2 R. B. Abbott	10/13/87	12/11/87	
General Superintendent Nuclear Generation T. J. Perkins	10/13/87	12/11/87	

Summary of Pages (Cont'd on Cover Sheet 2)

Revision 3 (Effective 12/11/87)

Pages	Date
iv-vii,1	August 1986
3-17,22-25,38,39,41,43,44,46,51, 53,71,73,79,80,85,90,99,109,116, 122,128,129,132,136,140,143	May 1987 (TCN-3 through TCN-8)
55	June 1987 (TCN-9)
2,36,37,62,64,157,158,164,169,175, 177,179-181,183-200,202,203	Decmeber 1987
40	December 1987 (TCN-11)
42,49,54,61	December 1987 (TCN-12)
48,50,52	March 1988 (TCN-13)
*45	October 1988 (Reissue)

NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE USED AFTER December 1991
SUBJECT TO PERIODIC REVIEW

*Changes per Section 11.5, AP-2.0 — 10/29/87 Date

TABLE OF CONTENTS

REFERENCES

1.0 FSAR

Chapter 8 - Electric Power
Section 8.3.1 - AC Power System

Flow Diagrams

NONE

3.0 S&W Drawings & Diagrams

3.1 Logic Diagrams

LSK 24-8.2A	Normal Station Service (13.8) Breaker Control and Auto Transfer
LSK 24-8.2B	Normal Station Service (13.8) Breaker Control and Auto Transfer
LSK 24-8.2C	Normal Station Service Auto Transfer Logic
LSK 24-8.2D	Normal Station Service (13.8) Breaker Control & Auto Transfer
LSK 24-8.2E	Normal Station Service (13.8) Breaker Control & Auto Transfer
LSK 24-8.2F	Normal Station Service Auto Transfer Logic
LSK 24-8.2G	Normal Station Service (13.8) Breaker Control & Auto Transfer
LSK 24-8.2H	Normal Station Service (13.8) Breaker Control & Auto Transfer

3.2 Electrical Schematics (cont.)

3.2 Electrical Schematics (cont.)

13.8 KV/4160V/600V A.C. POWER DISTRIBUTION

A. TECHNICAL SPECIFICATIONS

1.0 Section 3/4.8 Electrical Power Systems

1.1.0 Section 3.8.1 A.C. Sources

1.1.1 Section 3.8.1.1 A.C. Sources - Operating

1.1.2 Section 3.8.1.2 A.C. Sources - Shutdown

1.2.0 Section 3.8.3 On-site Power Distribution Systems

1.2.1 Section 3.8.3.1 Distribution - Operating

1.2.2 Section 3.8.3.2 Distribution - Shutdown

1.3.0 Section 3.8.4 Electrical Equipment Protective Devices

1.3.1 Section 3.8.4.1 A.C. Circuits Inside Primary Containment

1.3.2 Section 3.8.4.2 Primary Containment Penetration Conductor Overcurrent Protective Devices

1.3.3 Section 3.8.4.4 Reactor Protection System Electric Power Monitoring

B. SYSTEM DESCRIPTION

The 24.9KV main generator leads are tapped to provide power to the normal station service transformer 2STX-XNS1, which has two 13.8KV windings.

During normal operation, 13.8KV bus 2NPS-SWG001 is fed from the "X" winding of normal station service transformer 2STX-XNS1; and 13.8KV bus 2NPS-SWG003 is fed from the "Y" winding of normal station service transformer 2STX-XNS1. 13.8KV bus 2NPS-SWG002 is fed from auxiliary boiler service transformer 2ABS-X1. During startup, shutdown and standby, reserve transformer 2RTX-XSR1A feeds 13.8KV bus 2NPS-SWG001; and reserve transformer 2RTX-XSR1B feeds 13.8KV bus 2NPS-SWG003. Reserve transformers 2RTX-XSR1A and 1B and auxiliary boiler service transformer 2ABS-X1 are fed at 115KV from two off-site sources.

Transformer 2ATX-XS1, fed from 13.8KV bus 2NPS-SWG001, supplies 4160V power to normal 4160V buses 2NNS-SWG011 and 2NNS-SWG014. Bus 2NNS-SWG011 has a tie breaker which feeds 4160V bus 2NNS-SWG012.

Transformer 2ATX-XS3, fed from 13.8KV bus 2NPS-SWG003, supplies 4160V power to normal 4160V buses 2NNS-SWG013 and 2NNS-SWG015. Bus 2NNS-SWG013 has a tie breaker which can feed 4160V bus 2NNS-SWG012.

There are two 600V load centers supplied by the 4160V buses 2NNS-SWG014 and 2NNS-SWG015. The two 600V load centers, 2NJS-US5 and 2NJS-US6, are fed from two supply breakers, one normally closed and one normally open. There is no tie breaker supplied between the separate feeds.

B. SYSTEM DESCRIPTION (Cont.)

There are eight 600V load centers, supplied by the 13.8KV buses 2NPS-SWG001 and 2NPS-SWG003. Seven 600V load centers, 2NJS-US1,2,3,4,8,9,10, are divided into "A", "B" and "C" sections, The "A" section is fed from 13.8KV bus 2NPS-SWG001 and a tie breaker supplies the "C" sections. The "B" sections are fed from 13.8KV bus 2NPS-SWG003 and a tie breaker can supply to "C" sections. One 600V load center, 2NJS-US7, is divided into "A" and "B" sections. The "A" section is supplied from 13.8KV bus 2NPS-SWG001; and the "B" section is supplied from 13.8KV bus 2NPS-SWG003. There is a normally-open tie breaker between the two sections.

4160V Emergency bus 2ENS*SWG101 is designated Division I. 4160V Emergency bus 2ENS*SWG103 is designated Division II. 4160V Emergency bus 2ENS*SWG102 is designated Division III. Division I and II supply all safety-related loads required for safe plant shutdown, except high pressure core spray system which is supplied by Division III.

All three divisions are normally energized from off-site power by Reserve A and Reserve B transformers, with auxiliary boiler transformer 2ABS-X1 as a back up for division I and II. In the event of a loss of off-site power, each division has a standby diesel generator which would start automatically in order to provide power to that division.

Division I (II) consists of one 4160V bus 2ENS*SWG101 (2ENS*SWG103), one 600V load center 2EJS*US1 (2EJS*US3), three 600V motor control centers 2EHS*MCC101,102,103, (2EHS*MCC301,302,303) and various 600 volt distribution panels.

Division III consists of one 4160V bus 2ENS*SWG102 and one motor control center 2EHS*MCC201.

There are five 75KVA Uninterruptable Power Supplies (UPS) and two 10 KVA UPS. Each UPS System has a normal A.C. source (600V), a D.C. source (125V) and a maintenance source supplying the same voltage as its associated UPS output. The UPS is normally fed from its normal source. Upon loss of normal A.C. source the UPS automatically is fed from the D.C. source. Upon loss of both the A.C. normal and D.C. sources or an inverter section failure the UPS load will automatically transfer to the maintenance source. The maintenance source is also used when maintenance is being performed on the UPS. 3 3

The 75 KVA UPS supplies 120/208. 3-phase power as follows:

UPS1A/1B feed selected nonsafety-related instrumentation and control loads UPS1A feeds Radwaste computer, UPS1B feeds leaky-wire radio system. UPS1C/1D feeds essential lighting loads and Gaitronics, UPS1C feeds PMS computer loads. 3

The normal feed for UPS1A, 1B & 1C is fed through transfer switch 2VBB-TRS1. Upon loss of normal feed (from 2NJS-US3) to - TRS1. The transfer switch will automatically transfer to 2NJS-US4. The load will automatically transfer back upon re-energization of 2NJS-US3. (After a 10-30 sec. time delay).

B. SYSTEM DESCRIPTION (Cont.)

The 10 KVA UPS (UPS 3A/3B) supply their loads through electrical protection assemblies (EPA's). These are molded case circuit breakers that will trip upon an over voltage, under voltage or under-frequency condition. After a trip to return to normal these must be manually reset.

C. OPERATING REQUIREMENTS

1.0 Systems

The following systems must be in operation in accordance with their respective operating procedures to support the 13.8KV, 4160V, 600V A.C. Power distribution System:

1.1	Normal 125V D.C. Power Distribution	N2-OP-73
1.2	Station Electrical Feed 115KV Switchyard	N2-OP-70
1.3	Emergency D.C. Distribution	N2-OP-74
1.4	Normal 125V D.C. Power Distribution	N2-OP-73
1.5	Control Bldg Air Cond. & Vent Sys. (UPSIG)	N2-OP-53
1.6	Normal Switchgear Bldg. Vent Sys. (For all except UPSIG)	N2-OP-54

D. PRECAUTIONS/LIMITATIONS

1.0 For 13.8KV, 4160V, 600V switchgear: Before racking in a breaker, the control switch for the breaker should be in the "Pull-to-Lock" position; and the control circuit fuses must be removed, and the breaker should be in the open position.

2.0 For all 600V motor control centers: Before closing a breaker, the control switch for the start associated with this breaker must be in the "Pull-to-Lock" position where applicable.

3.0 For normal operation of reserve transformer "A", neutral switch 2RTX-SW001 must be in the "Open" position.

4.0 For operation with neutral switch 2RTX-SW001 in the "Closed" position, refer to Section H, Step 11.

5.0 At no time will both emergency bus 2ENS*SWG101 and 2ENS*SWG103 be paralleled to bus 2NNS-SWG018.

6.0 Prior to energizing any 600V load center or motor control center bus, the associated loads should be individually investigated to assure that they are in a condition to prevent damage to equipment or personnel.

7.0 Prior to energization of any UPS, the associated loads should be individually investigated to assure that they are in a condition to prevent damage to equipment or personnel.

8.0 Before installing breakers in switchgear, verify that spring charging motor circuits have fuses installed and, where applicable, switches are on. After closing breakers, verify that springs are charged.

9.0 All applicable evolutions described in this procedure shall be monitored and controlled in accordance with Radiation Protection procedures.

10.0 Load tap changers for 2STX-XNS1, 2RTX-XSR1A and 2RTX-XSR1B will normally be operated in the "Manual" mode. TCN-

E. STARTUP PROCEDURE

This section includes procedures for placing de-engerized 13.8KV, 4160V, 600V station service buses in service from the reserve supply. It also includes procedures for placing the UPS in service.

NOTE: For the purpose of this procedure the following equipment may be identified as follows:

Equipment ID	Location	Alternate ID
2NPS-SWG001	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 001
2NPS-SWG002	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 002
2NPS-SWG003	Normal Switchgear Bldg. Elev. 261'	13.8KV Bus 003
2NNS-SWG011	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 011
2NNS-SWG012	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 012
2NNS-SWG013	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 013
2NNS-SWG014	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 014
2NNS-SWG015	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 015
2NNS-SWG016	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 016
2NNS-SWG017	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 017
2NNS-SWG018	Normal Switchgear Bldg. Elev. 261'	4.16KV Bus 018
2NJS-US1	Turbine Bldg. Northeast Elev. 277'	600V Bus US1
2NJS-US2	Reactor Bldg. East Elev. 289'	600V Bus US2
2NJS-US3	Turbine Bldg. Southwest Elev. 277'	600V Bus US3
2NJS-US4	Normal Switchgear Bldg. Elev. 261'	600V Bus US4
2NJS-US5	Normal Switchgear Bldg. Elev. 261'	600V Bus US5
2NJS-US6	Normal Switchgear Bldg. Elev. 261'	600V Bus US6
2NJS-US7	Turbine Bldg. Northeast Elev. 277'	600V Bus US7
2NJS-US8	Turbine Bldg. North Elev. 306'	600V Bus US8
2NJS-US9	Radwaste Bldg. South Elev. 279'	600V Bus US9
2NJS-US10	Turbine Bldg. East Elev. 250'	600V Bus US10
2EJS*PNL 100A	Control Bldg. Elev. 261'	Panel 100A
2EJS*PNL 101A	Aux. Bldg. North Elev. 240'	Panel 101A
2EJS*PNL 102A	Control Bldg. Elev. 261'	Panel 102A
2EJS*PNL 103A	Aux. Bldg. North Elev. 240'	Panel 103A
2EJS*PNL 104A	Aux. Bldg. North Elev. 240'	Panel 104A
2EJS*PNL 300B	Control Bldg. Elev. 261'	Panel 300B
2EJS*PNL 301B	Control Bldg. Elev. 261'	Panel 301B
2EJS*PNL 302B	Aux. Bldg. South Elev. 240'	Panel 302B

E. STARTUP PROCEDURE (Cont'd)

2.0 (Cont'd)

i. At 13.8KV bus 001 metering cubical 1-2/1-15, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

j. For reserve transformer 2-RTX-XSR1A, check neutral switch 2RTX-SW001 "Open".

k. At 13.8KV Bus 001, Rack In Reserve Transformer "A" supply breaker 1-1, as required.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 812 - 13.8KV Bus NPS-001 Protection Lockout Relay
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout Relay
3. Panel 806 - Reserve Station Service XFMR 1A Backup Protection Lockout Relay
4. Panel 867 - Generator Backup Protection Lockout Relay 2
5. Check all relay flags are reset on NPS-SWG-001, inform SSS of all flags.

l. At Panel 852, turn on synchronize reserve "A" switch.

m. At Panel 852, close reserve transformer "A" supply breaker 1-1. Check voltage on 13.8KV bus 001 as nominally 13.8KV.

n. At panel 852, turn off synchronize reserve "A" switch.

3.0 To place 13.8KV bus 2NPS-SWG-003 in service:

a. At Panel 852, verify the control switch for the normal station service feed 13.8KV bus 003, Breaker 3-14 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the reserve transformer "A" feed to 13.8KV bus 003, Breaker 3-16 is in the "pull to lock" position. (Cubicle Only)

c. At Panel 852, verify the control switch for the reserve transformer "B" feed to 13.8KV bus 003, Breaker 3-1 is in the "pull to lock" position.

d. At Panel 852, verify the control switch for the feed to Aux. Transformer 2ATX-XS3, Breaker 3-6 is in the "pull to lock" position (4160V feed to bus 2NNS-SWG013 and 2NNS-SWG015)

e. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US1 and US2, Breaker 3-3 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

3.0 (Cont'd)

f. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US3, US4 and US7 Breaker 3-13 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 13.8KV Normal Bus Feed to 600V Bus US8, US9, US10, Breaker 3-1A is in the "pull to lock" position.

h. At panel 851 verify the control switch for the the following motor breakers are in the "pull to lock" position:

Panel 851	Condensate Booster Pump B
	Reactor Feed Pump B
	Condensate Booster Pump C (Bus 003)
	Reactor Feed Pump C (Bus 003)
	Circulating Water Pump B
	Circulating Water Pump D
	Circulating Water Pump F
Panel 602	Reactor Recirc. Pump B (Breaker 2B)

i. At 13.8KV bus 003 at metering cubical 3-2/3-15, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

j. At 13.8KV Bus 003, Rack In Reserve Transformer "B" Supply Breaker 3-1.

k. Check the following lockout relays are reset to assure closing permissive satisfied:

1. Panel 813 - 13.8 KV Bus NPS-003 Protection Lockout Relay
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay
3. Panel 809 - Reserve Station Service XFMR 1B Backup Protection Lockout Relay
4. Panel 867 - Generator Backup Protection Lockout Relay 2
5. Check all relay flags are reset on NPS-SWG 003, inform SSS of all flags.

At Panel 852, turn on synchronize reserve "B" switch.

l. At Panel 852, close reserve transformer "B" supply Breaker 3-1 Check voltage on 13.8KV bus 003 as nominally 13.8KV.

m. At panel 852, turn off synchronize reserve "B" switch.

4.0 To place 13.8KV bus 2NPS-SWG 002 in Service

a. At Panel 852, verify the control switch for the auxiliary boiler transformer to 13.8KV bus 002 Breaker 2-5 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

Equipment ID	Location	Alternate ID
2EJS*PNL 303B	Aux. Bldg. South Elev. 240'	Panel 303B
2EJS*PNL 304B	Aux. Bldg. South Elev. 240'	Panel 304B
2EJS*US1	Control Bldg. Elev. 261'	600V Bus US1
2EJS*US3	Control Bldg. Elev. 261'	600V Bus US3
2CEC*PNL601	Control Bldg. Elev. 306'	Panel 601
2CEC*PNL602	Control Bldg. Elev. 306'	Panel 602
2CEC*PNL603	Control Bldg. Elev. 306'	Panel 603
2CEC-PNL802	Control Bldg. Elev. 288'	Panel 802
2CEC-PNL803	Control Bldg. Elev. 288'	Panel 803
2CEC-PNL804	Control Bldg. Elev. 288'	Panel 804
2CEC-PNL805	Control Bldg. Elev. 288'	Panel 805
2CEC-PNL806	Control Bldg. Elev. 288'	Panel 806
2CEC-PNL807	Control Bldg. Elev. 288'	Panel 807
2CEC-PNL808	Control Bldg. Elev. 288'	Panel 808
2CEC-PNL809	Control Bldg. Elev. 288'	Panel 809
2CEC-PNL810	Control Bldg. Elev. 288'	Panel 810
2CEC-PNL811	Control Bldg. Elev. 288'	Panel 811
2CEC-PNL812	Control Bldg. Elev. 288'	Panel 812
2CEC-PNL813	Control Bldg. Elev. 288'	Panel 813
2CEC-PNL814	Control Bldg. Elev. 288'	Panel 814
2CEC-PNL815	Control Bldg. Elev. 288'	Panel 815
2CEC-PNL849	Control Bldg. Elev. 306'	Panel 849
2CEC-PNL851	Control Bldg. Elev. 306'	Panel 851
2CEC-PNL852	Control Bldg. Elev. 306'	Panel 852
2CEC-PNL867	Control Bldg. Elev. 288'	Panel 867
2CES-IPNL506	Auxiliary Boiler Bldg. Elev. 261'	Panel 506
2CES-IPNL507	Auxiliary Boiler Bldg. Elev. 261'	Panel 507
2FPW-PNL233	Screenwell Bldg., Motor Fire Pump Room Elev. 261'	Panel 233
2NPS-SWG004	Normal Switchgear Bldg EL. 293'	3.8KV BUS 4
2NPS-SWG005	Normal Switchgear Bldg EL. 293'	13.8KV BUS 5
2NHS-MCC001	Radwaste Bldg South EL. 279'	600V.MCC001
2NHS-MCC002	Screenwell Bldg EL. 261'	600V.MCC002
2NHS-MCC003	Turbine Bldg Northeast EL. 277'	600V.MCC003
2NHS-MCC004	Turbine Bldg Northeast EL. 277	600V.MCC004
2NHS-MCC005	Reactor Bldg West EL 215	600V.MCC005
2NHS-MCC006	Turbine Bldg Southwest EL 277	600V.MCC006
2NHS-MCC007	Normal Switchgear Bldg EL 261	600V.MCC007
2NHS-MCC008	Normal Switchgear Bldg EL 261	600V.MCC008
2NHS-MCC009	Normal Switchgear Bldg EL 261	600V.MCC009
2NHS-MCC010	Turbine Bldg East EL 250	600V.MCC101
2NHS-MCC011	Reactor Bldg Northwest EL. 261	600V.MCC011
2NHS-MCC012	Reactor Bldg Southwest EL 261	600V.MCC012
2NHS-MCC013	Screenhouse (Cooling Tower)	600V.MCC013
2NHS-MCC014	Reactor Bldg West EL215	600V.MCC014
2NHS-MCC015	Turbine Bldg North EL 306	600V.MCC015
2NHS-MCC016	Radwaste Bldg South EL 279	600V.MCC016
2NHS-MCC017	Screenwell Bldg EL 261	600V.MCC017
2VBB-UPS1A	Normal Switchgear Bldg EL237	UPS1A
2VBB-UPS1B	Normal Switchgear Bldg EL 237	UPS1B
2VBB-UPS1C	Normal Switchgear Bldg EL 237	UPS1C
2VBB-UPS1D	Normal Switchgear Bldg EL 237	UPS1D

E. STARTUP PROCEDURE (Cont'd)

Equipment ID	Location	Alternate ID
2VBB-UPS1G	Control Bldg EL 214'	UPS1G
2VBB-UPS3A	Normal Switchgear Bldg EL 237'	UPS3A
2VBB-UPS3B	Normal Switchgear Bldg EL 237'	UPS3B

1.0 To ensure reserve station service transformers 2RTX-XSR1A, 2RTX-XSR1B, and 2ABS-X1 are energized:

a. The 115KV System should be energized in accordance with OP-70.

2.0 To place 13.8KV bus 2NPS-SWG-001 in Service

a. At Panel 852, verify the control switch for the normal station service feed to 13.8 KV bus 001 breaker 1-3 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the reserve transformer "B" feed to 13.8 KV bus 001 breaker 1-16 is in the "pull to lock" position. (Cubicle only)

c. At Panel 852, verify the control switch for the reserve transformer "A" feed to 13.8KV bus 001 Breaker 1-1 is in the "pull to lock" position.

d. At Panel 852, verify the control switch for the feed to Aux. Transformer 2ATX-XS1, Breaker 1-4 is in the "pull to lock" position (4160V feed to bus 2NNS-SWG011 and 2NNS-SWG-014)

e. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US1 and US2, Breaker 1-5 is in the "pull to lock" position.

f. At Panel 852, verify the control switch for the 13.8KV normal bus feed to 600V bus US3, US4 and US7 Breaker 1-14 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 13.8KV Normal Bus Feed to 600V Bus US8, US9, US10, Breaker 1-1A is in the "pull to lock" position.

h. At panel 851 verify the control switch for the the following motor breakers are in the "pull to lock" position:

Panel 851 Condensate Booster Pump A
Reactor Feed Pump A
Condensate Booster Pump C (Bus 001)
Circulating Water Pump A
Circulating Water Pump C
Circulating Water Pump E
Reactor Feed Pump C (Bus 001)

Panel 602 Reactor Recirc. Pump A (Breaker 2A)

E. STARTUP PROCEDURE (Cont'd)

4.0 (Cont'd)

b. At Panel 852, verify the control switch for the reserve transformer "A" emergency feed to 13.8KV bus 002 Breaker 2-1 is in the "pull to lock" position. (Cubicle Only)

c. At Panel 506 verify the control switch for the 13.8KV feed to "A" auxiliary boiler is in the "pull to lock" position.

d. At Panel 507 verify the control switch for the 13.8KV feed to "B auxiliary boiler "is in the "pull to lock" position.

e. At 13.8KV bus 002 at metering cubical 2-4, check closed potential transformer compartment doors and ensure the primary and secondary fuses are installed for PT's.

f. At 13.8KV Bus 002, rack in auxiliary boiler transformer feed to 13.8KV Bus 002 supply breaker 2-5, as required.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 811 - Aux Boiler XFMR ABS-X1 Primary Protection Lockout Relay
2. Panel 802 - Aux Boiler Service XFMR Backup Protection Lockout Relay
3. Panel 815 - 13.8KV Bus NPS-002 Protection Lockout Relay
4. Check all relay flags are reset on NPS-SWG 002, inform SSS of all flags.

g. At Panel 852, close auxiliary boiler transformer to 13.8KV bus 002 supply breaker 2-5. Check voltage on 13.8KV Bus 002 as nominally 13.8KV.

5.0 To energize 13.8KV/4.16KV auxiliary Transformer 2ATX-XS1

a. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS1 to bus 2NNS-SWG011, Breaker 11-3 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS1 to bus 2NNS-SWG014, Breaker 14-2 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 13.8KV feed to transformer 2ATX-XS1, Breaker 1-4 is in the "pull to lock" position.

d. At Panel 852, check voltage on 13.8KV Bus 001 as nominally 13.8KV.

e. At 13.8KV bus 001, rack in 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

E. STARTUP PROCEDURE (Cont'd)

5.0 (Cont'd)

Check the following lockout relay reset to assure closing permissive satisfied:

1. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
2. Check all relay flags are reset, inform SSS of all flags.

f. At Panel 852, close 13.8KV feed to auxiliary transformer 2ATX-XS1 supply breaker 1-4.

6.0 To place 4.16KV bus 2NNS-SWG011 in service.

a. At Panel 852, verify control switch for the 4.16KV normal bus feed to 4.16KV bus 011, Breaker 11-3 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

c. At Panel 852, verify control switch for the tie breaker from 4.16KV Bus 011 to 4.16KV Bus 012, Breaker 11-1 is in the "pull to lock" position.

d. At Panel 601, verify control switch for the TBCLC pump "A" (2CCS-P1A) is in the "pull to lock" position.

e. At Panel 851, verify control switch for the Heater Drain pump "A" (2HDL-P1A) is in the "pull to lock" position.

f. At Panel 851, verify control switch for the Condensate pump "A" (2CNM-P1A) is in the "pull to lock" position.

g. At Panel 851, verify control switch for the Condensate pump "C" (2CNM-P1C) (Bus 011) is in the "pull to lock" position.

h. At Panel 602, verify the control switch for Reactor Recirc. Motor Generator Set "A" (2RCS-MG1A) (Breaker 1A) is in the "pull to lock" position.

i. At 4.16KV bus 011 rack in 4.16KV Normal Bus feed to 4.16KV Bus 011 Breaker 11-3.

Check the following lockout relays reset to assure closing permissives satisfied:

1. Panel 815 - 4.16KV Bus NNS-012 Backup Protection & Lockout Relay
2. Panel 812 - 4.16KV Bus NNS-011 Protection Lockout Relay
3. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
4. Check all relay flags are reset, inform SSS of all flags.

E. STARTUP PROCEDURE (Cont'd)

6.0 (Cont'd)

j. At Panel 852, close 4.16KV bus feed to 4.16KV bus 011, Breaker 11-3 and Check voltage on 4.16KV bus 011 as nominally 4.16KV.

7.0 To place 4.16KV bus 2NNS-SWG014 In Service

a. At Panel 852, verify the control switch for the 4.16KV normal bus feed to 4.16KV bus 014, Breaker 14-2 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS1, Breaker 1-4.

c. At Panel 852, verify the control switch for the 4.16KV bus 014 tie breaker to emergency bus 2ENS*SWG101(G), Breaker 14-1 is in the "pull to lock" position.

d. At Panel 603, verify the control switch for Control Rod Drive pump "A" (2RDS-P1A) breaker 14-7 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for RBCLC pump "C" (2CCP-P1C) and RBCLC booster pump (2CCP-P3C) breakers 14-6 and 14-9 are in the "pull to lock" position.

f. At Panel 852, verify the control switch for the 4.16KV bus 014 feed to 600V bus US5 (auxiliary transformer 2NJS-X1F), Breaker 14-4 is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 4.16KV bus 014 feed to 600V bus US5 (auxiliary transformer 2NJS-X1E), Breaker 14-8 is in the "pull to lock" position.

h. At 4.16KV bus 014, rack in 4.16KV Normal Bus feed to 4.16KV Bus 014, Breaker 14-2.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 807 - Aux. XFMR ATX-XS1 Protection Lockout Relay
2. Panel 803 - 4.16 Bus NNS-014 Protection Lockout Relay
3. Check all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus feed to 4.16KV bus 014, Breaker 14-2 Check voltage on 4.16KV bus 014 as nominally 4.16KV.

E. STARTUP PROCEDURE (Cont'd)

8.0 To energize 13.8KV/4.16KV auxiliary transformer 2ATX-XS3

a. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS3 to bus 2NNS-SWG013, Breaker 13-6 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV feed from transformer 2ATX-XS3 to bus 2NNS-SWG015, Breaker 15-3 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 13.8KV feed to transformer 2ATX-XS3, Breaker 3-6 is in the "pull to lock" position.

d. At Panel 851, check voltage on 13.8KV Bus 003 as nominally 13.8KV.

e. At 13.8KV bus 003, rack in 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

Check the following lockout relay reset to assure closing permissive satisfied:

1. Panel 810 - Aux. XFMR ATX-XS3 Protection Lockout Relay

2. Check all relay flags, reset. Inform SSS of all flags.

f. At Panel 852, close 13.8KV feed to auxiliary transformer 2ATX-XS3 supply breaker, 3-6.

9.0 To place 4.16KV bus 2NNS-SWG013 In Service

a. At Panel 852, verify the control switch for the 4.16KV Normal Bus feed to 4.16KV bus 013, Breaker 13-6 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

c. At Panel 852, verify the control switch for the tie breaker from bus 013 to bus 012, Breaker 13-10 is in the "pull to lock" position.

d. At Panel 851, verify the control switch for Condensate pump "C" (2CNM-P1C) (Bus 013) breaker 13-2 is in the "pull to lock" position.

e. At Panel 851, verify the control switch for Condensate pump "B" (2CNM-P1B) breaker 13-3 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

9.0 (Cont'd)

f. At Panel 851, verify the control switch for Heater Drain pump "B" (2HDL-P1B) breaker 13-4 is in the "pull to lock" position.

g. At Panel 601, verify the control switch for TBCLC pump "B" (2CCS-P1B) and RBCLC booster pump (2CCP-P3A) breaker 13-8 and 13-9 are in the "pull to lock" position.

h. At Panel 602, verify the control switch for Reactor Recirc. Motor Generator Set "B" (2RCS-MG1B) (Breaker 1B) is in the "pull to lock" position.

i. At 4.16KV bus 013, rack in 4.16KV Normal Bus feed to 4.16KV Bus 013, Breaker 13-6.

Check the following lockout relays reset to assure closing permissives satisfied:

1. Panel 810 - Aux. XFMR ATX-XS3 Protection Lockout Relay
2. Panel 813 - 4.16KV Bus NNS-013 Protection Lockout Relay
3. Panel 815 - 4.16KV Bus NNS-012 Backup Protection Lockout Relay
4. Check all relay flags are reset, inform SSS of all flags.

j. At Panel 852, close 4.16KV bus feed to 4.16KV bus 013, Breaker 13-6. Check voltage on 4.16KV bus 013 as nominally 4.16KV.

10.0 To place 4.16KV bus 2NNS-SWG015 in Service

a. At Panel 852, verify the control switch for the 4.16KV normal bus feed to 4.16KV bus 015, Breaker 15-3 is in the "pull to lock" position.

b. At Panel 852, check closed 13.8KV feed to auxiliary transformer 2ATX-XS3, Breaker 3-6.

c. At Panel 852, verify the control switch for the 4.16KV bus 015 tie breaker to emergency bus 2ENS*SWG103, Breaker 15-8 is in the "pull to lock" position.

d. At Panel 603, verify the control switch for Control Rod Drive pump "B" (2RDS-P1B) breaker 15-2 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for RBCLC pump "B" (2CCP-P1B) and RBCLC booster pump (2CCP-P3B) breakers 15-4 and 15-6 are in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

10.0 (Cont'd)

f. At Panel 852, verify the control switch for the 4.16KV bus 015 feed to 600V bus US6 (auxiliary transformer 2NJS-X3E) (Breaker 15-7) is in the "pull to lock" position.

g. At Panel 852, verify the control switch for the 4.16KV bus 015 feed to 600V bus US6 (auxiliary transformer 2NJS-X3F) (Breaker 15-1) is in the "pull to lock" position.

h. At 4.16KV bus 015, rack in 4.16KV Normal Bus feed to 4.16KV bus 015, Breaker 15-3.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 810 - Aux XFMR ATX-XS3 Protection Lockout Relay
2. Panel 804 - 4.16KV Bus NNS-015 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus feed to 4.16KV bus 015, Breaker 15-3. Check voltage on 4.16KV bus 015 as nominally 4.16KV.

11.0 To place 4.16KV bus 2NNS-SWG012 in Service from 4.16KV bus 2NNS-SWG011:

a. At Panel 852, verify the control switch for the 4.16KV bus 011 tie breaker to 4.16KV bus 012, Breaker 11-1 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 013 tie breaker to bus 4.16KV bus 012, Breaker 13-10 is in the "pull to lock" position.

c. At Panel 851, verify the control switch for Heater Drain pump "C" (2HDL-P1C) breaker 12-2 is in the "pull to lock" position.

d. At Panel 849, and Panel 233, verify the control switches for Motor Driven Fire pump (2FPW-P2), breaker 12-3 is in the "pull to lock" position.

e. At Panel 601, verify the control switch for TBCLC pump "C" (2CCS-P1C), breaker 12-4 is in the "pull to lock" position.

f. At Panel 601, verify the control switch for RBCLC pump "A" (2CCP-P1A), breaker 12-5 is in the "pull to lock" position.

g. At Panel 852, Check voltage on 4.16KV Bus 011 as nominally 4.16KV.

E. STARTUP PROCEDURE (Cont'd)

11.0 (Cont'd)

h. At 4.16KV bus 011, rack in 4.16KV Bus 011 tie breaker to 4.16KV Bus 012, breaker 11-1.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 812 - 4.16KV Bus NNS-011 Protection Lockout Relay
2. Panel 814 - 4.16KV Bus NNS-012 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

i. At Panel 852, close 4.16KV bus 011 tie breaker to 4.16KV bus 012, breaker 11-1. Check voltage on bus 012 as nominally 4.16KV.

12.0 To place 4.16KV Bus 2NNS-SWG012 in service from 4.16KV Bus 2NNS-SWG013:

a. Refer to Section E, Step #11 a. thru f.

b. At Panel 852, check voltage on 4.16KV Bus 013 as nominally 4.16KV.

c. At 4.16KV Bus 013, rack in 4.16KV Bus 013 Tie Breaker to 4.16KV Bus 012, Breaker 13-10.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 813 - 4.16KV Bus NNS-013 Protection Lockout Relay
2. Panel 814 - 4.16KV Bus NNS-012 Protection Lockout Relay
3. Check that all relay flags are reset, inform SSS of all flags.

d. At Panel 852, close 4.16KV Bus 013 Tie Breaker to 4.16KV Bus 012, Breaker 13-10. Check voltage on 4.16KV Bus 012 as nominally 4.16KV.

13.0 To place 4.16KV bus 2NNS-SWG016 in Service

a. At Panel 852, verify the control switch for the 4.16KV bus 016 feed from Reserve Station Transformer 2RTX-XSR1A 4.16KV tertiary winding, Breaker 16-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 016 feed to 4.16KV emergency bus 2ENS*SWG101 (G), Breaker 101-13 is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the bus 016 feed to 4.16KV emergency bus 2ENS*SWG102 (P), Breaker 102-4 is in the "pull to lock" position.

E. STARTUP PROCEDURE (Cont'd)

13.0 (Cont'd)

d. At Panel 852, check voltage from Reserve Station Service Transformer 2RTX-XSR1A to 4.16KV bus 016 as nominally 4.16KV.

e. At 4.16KV bus 016, rack in Supply Breaker from Reserve Station Transformer 2RTX-XSR1A, Breaker 16-2.

Check the following lockout relays reset to assure closing permissive satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 16-2
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout
3. Panel 806 - Reserve Station Service XFMR 1A Backup Protection Lockout Relay
4. Check that all relay flags are reset, inform.SSS of all flags.

f. At Panel 852, close 4.16KV bus 016 supply breaker from Reserve Station Transformer 2RTX-XSR1A, Breaker 16-2.

14.0 To place 4.16KV bus 2NNS-SWG017 in Service

a. At Panel 852, verify the control switch for the 4.16KV bus 017 feed from Reserve Station Transformer 2RTX-XSR1B 4.16KV tertiary winding, Breaker 17-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 017 feed to 4.16KV emergency bus 2ENS*SWG102 (P), Breaker 102-5 (Cubicle Only) is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 4.16KV bus 017 feed to 4.16KV emergency bus 2ENS*SWG 103 (Y), Breaker 103-4 is in the "pull to lock" position.

d. At Panel 852, check voltage from Reserve Station Transformer 2RTX-XSR1B to 4.16KV bus 017 as nominally 4.16KV.

e. At 4.16KV bus 017 rack in Supply Breaker from Reserve Station Transformer 2RTX-XSR1B, Breaker 17-2.

Check the following lockout relays are reset to assure closing permissives satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 17-2
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay

E. STARTUP PROCEDURE (Cont'd)

14.0 (Cont'd)

3. Panel 809 - Reserve Station Service XFMR 1B Backup Protection Lockout Relay
4. Check that all relay flags are reset, inform SSS of all flags.

f. At Panel 852, close 4.16KV bus 017 supply breaker from reserve Station Transformer 2RTX-XSR1B, Breaker 17-2.

15.0 To place 4.16KV bus 2NNS-SWG018 in service

a. At Panel 852, verify the control switch for the 4.16KV bus 018 feed from Auxiliary Boiler Transformer 2ABS-X1 4.16KV tertiary winding, Breaker 18-2 is in the "pull to lock" position.

b. At Panel 852, verify the control switch for the 4.16KV bus 018 feed to emergency bus 2ENS*SWG101 (G), Breaker 101-10 (Cubicle Only) is in the "pull to lock" position.

c. At Panel 852, verify the control switch for the 4.16KV bus 018 feed to emergency bus 2ENS*SWG103 (Y), Breaker 103-2 (Cubicle Only) is in the "pull to lock" position.

d. At Panel 852, check voltage from Aux. Boiler Transformer 2ABS-X1 to 4.16KV bus 018 as nominally 4.16KV.

e. At 4.16KV bus 018, rack in Supply Breaker from Auxiliary Boiler Transformer 2ABS-X1, Breaker 18-2.

Check the following Lockout Relays are reset to assure closing permissives satisfied:

1. Panel 852 - Lockout Relay 86 - Trip & Lockout Breaker 18-2
2. Panel 811 - Aux. Boiler XFMR ABS-X1 Primary Protection Lockout Relay
3. Panel 802 - Aux. Boiler Service XFMR Backup Protection Lockout Relay
4. Verify all relay flags are reset.

f. At Panel 852, close 4.16KV bus 018 supply breaker from Auxiliary Boiler Transformer 2ABS-X1, Breaker 18-2.

16.0 The following will energize 13.8 KV/600 V auxiliary transformers and place 600V 2NJS-US1 through 4 and 7 through 10 load centers in service..

a. At load center check open bus A supply breaker from aux. transformer.

b. At load center check open bus B supply breaker from aux. transformer.

E. STARTUP PROCEDURE (Cont'd)

16.0 (Cont'd)

c. At load center check open one bus tie breaker to bus C. Normally A to bus C tie breaker will be closed and B bus tie to C will be open.

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d. At panel 852, check voltage on 2NPS-SWG 001 & 003 bus normal.

e. Check that non-essential loads are removed from load center.

f. At 2NPS-SWG001 rack in supply breaker to 600V aux. transformers. Check lockout relay 86 reset, and all flags cleared.

Breaker 1-1A for 2NJS-US8,9,10
Breaker 1-5 for 2NJS-US1,2
Breaker 1-14 for 2NJS-US3,4,7

g. At panel 852, close the respective 13.8 KV supply breaker to 600V aux. transformers, as noted above.

h. At 13.8 KV bus 003 rack in supply breaker to aux. transformers. Check lockout relay 86 reset and all flags cleared.

Breaker 3-1A for 2NJS-US8,9,10
Breaker 3-3 for 2NJS-US1,2
Breaker 3-13 for 2NJS-US3,4,7

i. At panel 852, close the respective 13.8 KV supply breaker to 600V aux. transformers, as noted above.

j. At load center bus A, close supply breaker from aux. transformer. Check bus A voltage as nominally 600 V.

k. At load center bus B, close supply breaker from aux. transformer. Check bus B voltage as nominally 600V.

17.0 To energize 4160V/600V Auxiliary Transformers and place load center 2NJS-US5 in Service:

a. At Panel 852, Lockout 4.16KV Bus 014 feed to Aux. Transformer 2NJS-X1E, Breaker 14-8.

b. At Panel 852, Lockout 4.16KV Bus 014 feed to Aux. Transformer 2NJS-X1F, Breaker 14-4.

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c. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X1E, Breaker 5-3B.

E. STARTUP PROCEDURE (Cont'd)

17.0 (Cont'd)

d. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X1F, Breaker 5-8B.

e. At Panel 852, Check voltage on 4.16KV Bus 014 as nominally 4.16KV.

f. At 4.16KV Bus 014, rack in Supply Breaker to Aux. Transformer 2NJS-X1E, Breaker 14-8. Check Lockout Relay 86-2NJSX31 Reset.

g. At 4.16KV Bus 014, Rack in Supply Breaker to Aux. Transformer 2NJS-X1F, Breaker 14-4, as required. Check Lockout Relay 86-2NJSX21 Reset.

h. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X1E, Breaker 14-8.

i. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X1F, Breaker 14-4.

NOTE:

CAUTION

Before racking in 2NJS-US5 supply breaker 5-3B (5-8B) verify supply breaker 5-8B (5-3B) is open ~~and racked out~~.

j. At Load Center 2NJS-US5, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X1E (X1F), Breaker 5-3B (5-8B), as required.

~~CAUTION~~

~~Before racking in 2NJS-US5 supply breaker 5-8B reverify breaker 5-3B is open and racked out.~~

~~k. At Load Center 2NJS-US5, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X1F, Breaker 5-8B.~~

k. At Panel 852, close 600V Supply Breaker from Aux. Transformer 2NJS-X1E (X1F), Breaker 5-3B (5-8B). Check voltage on Load Center 2NJS-US5 as nominally 600V.

l. At panel 852, take the control switch for breaker 5-8B (5-3B) out of pull-to-lock, DO NOT close the breaker.

NOTE: Aux. Transformer 2NJS-X1F 600V Supply Breaker to 600V Load Center 2NJS-US5, Breaker 5-8B, will be the alternate feed. The alternate feed can be used if the normal feed (2NJS-X1E) is not available.

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E. STARTUP PROCEDURE (Cont'd)

18.0 To energize 4160V/600V Auxiliary Transformers and place load center 2NJS-US6 in Service:

a. At Panel 852, Lockout 4.16KV Bus 015 feed to Aux. Transformer 2NJS-X3E, Breaker 15-7.

b. At Panel 852, Lockout 4.16KV Bus 015 feed to Aux. Transformer 2NJS-X3F, Breaker 15-1.

c. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 3NJS-X3E, Breaker 6-3B.

d. At Panel 852, Lockout 600V Supply Breaker from Aux. Transformer 2NJS-X3F, Breaker 6-7B.

e. At Panel 852, Check voltage on 4.16KV Bus 015 as nominally 4.16KV.

f. At 4.16KV Bus 015, rack in Supply Breaker to Aux. Transformer 2NJS-X3E, Breaker 15-7. Check Lockout Relay 86-2NJSY31 Reset.

g. At 4.16KV Bus 015, Rack in Supply Breaker to Aux. Transformer 2NJS-X3F, Breaker 15-1. Check Lockout Relay 86-2NJSY21 Reset.

h. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X3E, Breaker 15-7.

i. At Panel 852, close 4.16KV Supply Breaker to Aux. Transformer 2NJS-X3F, Breaker 15-1.

NOTE: Aux. Transformer 2NJS-X3F 600V supply Breaker to 600V load center 2NJS-US6, breaker 6-7B, will be the alternate feed. The alternate feed can be used if the normal feed (2NJS-X3E) is not available.

CAUTION

Before racking in 2NJS-US6 supply breaker 6-3B (6-7B) verify 2NJS-US6 supply breaker 6-7B (6-3B) is open ~~and racked out~~.

j. At Load Center 2NJS-US6, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X3E (X3F), Breaker 6-3B (6-7B) as required.

~~CAUTION~~

~~Before racking in 2NJS-US6 supply breaker 6-7B verify 2NJS-US6 supply breaker 6-3B is open/racked out.~~

~~k. At Load Center 2NJS-US6, rack in 600V Supply Breaker from Aux. Transformer 2NJS-X3F, Breaker 6-7B, as required.~~

x.k (X3F) At Panel 852, close 600V Supply Breaker from Aux. Transformer 2NJS-X3E, Breaker 6-3B (6-7B). Check voltage on Load Center 2NJS-US6 as nominally 600V.

y.l At Panel 852, take the control switch for breaker 6-7B (6-3B) out of pull-to-lock, DO NOT close the breaker.

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E. STARTUP PROCEDURE (Cont'd)

18.0 (Cont'd)

~~NOTE: Aux. Transformer 2NJS X3F 600V Supply Breaker to 600V Load Center 2NJS-US6, Breaker 6-7B, will be the alternate feed.~~

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19.0 The following will energize 600V 2NHS motor control centers 1, 2, 3, 5, 6, 7, 10, 13 through 17.

a. At load center, check open bus A supply breaker to 2NHS MCC bus A.

b. At load center, check open bus B supply breaker to 2NHS MCC bus B.

c. At 2NHS MCC bus A, check open supply breaker from load center bus A.

d. At 2NHS MCC bus B, check open supply breaker from load center bus B.

e. At 2NHS MCC, check open tie breaker between bus A and C, bus B and C. Normally bus tie A to C will be closed and bus tie B to C will be open.

f. At load center, check voltage normal for bus A and B.

g. Check that large non-essential loads are removed from MCC.

h. At load center bus A, rack in and close supply breaker to 2NHS-MCC bus A.

i. At load center bus B, rack in and close supply breaker to 2NHS-MCC bus B.

j. At 2NHS-MCC bus A, close supply breaker from load center bus A. Check voltage.

k. At 2NHS-MCC bus B, close supply breaker from load center bus B check voltage.

CAUTION

Verify bus tie B to C is open before closing bus tie A to C.

l. At 2NHS-MCC close bus tie A to C. Check voltage as normal.

20.0 To energize 600 V motor control center 2NHS-MCC 004

a. At load center 2NJS-US4, check open supply breaker to 2NJS-PNL401, breaker 4B bus A.

E. STARTUP PROCEDURE (Cont'd)

20.0 (Cont'd)

b. At load center 2NJS-US4, check open supply breaker to 2NJS-PNL402 breaker 14A bus B.

c. At 2NJS-PNL401 check open supply breaker to 2NHS-MCC 004, breaker 31.

d. At 2NJS-PNL402 check open supply breaker to 2NHS-MCC 004, breaker 31.

e. At 2NJS-PNL401 check closed main supply breaker.

f. At 2NJS-PNL402 check closed main supply breaker.

g. At load center 2NJS-US4, close supply breaker to 2NJS-PNL401, breaker 4B bus A.

h. AT load center 2NJS-US4, close supply breaker to 2NJS-PNL402, breaker 14A bus B.

i. At 2NJS-PNL401 close supply breaker to 2NHS-MCC 004, breaker 31.

j. At 2NJS-PNL 402 close supply breaker to 2NHS-MCC 004, breaker 31.

k. At 2NHS-MCC 004 verify white indicating light is lit.

21.0 To energize 600V Motor Control Center 2NHS-MCC008

a. At Load Center 2NJS-US5, Check open supply breaker to 2NHS-MCC008, Breaker 3D.

b. At Load Center 2NJS-US5, Check open Supply Breaker to 2NHS-MCC008, Breaker 5A.

c. At 2NHS-MCC008, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 3D).

d. At 2NHS-MCC008, Check open Breaker 9A, 600V Supply from Load Center 2NJS-US5 (Breaker 5A).

e. At Load Center 2NJS-US5, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US5, rack in Supply Breaker to 2NHS-MCC008, Breaker 3D.

g. At Load Center 2NJS-US5, rack in supply breaker to 2NHS-MCC008, Breaker 5A.

h. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC008, Breaker 3D.

E. STARTUP PROCEDURE (Cont'd)

21.0 (Cont'd)

i. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC008, Breaker 5A.

j. At 2NHS-MCC008, close Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 3D). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC008, Breaker 9A, the 600V Supply from Load Center 2NJS-US5 (Breaker 5A), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

22.0 To energize 600V Motor Control Center 2NHS-MCC009

a. At Load Center 2NJS-US6, Check open supply breaker to 2NHS-MCC009, Breaker 3C.

b. At Load Center 2NJS-US6, Check open Supply Breaker to 2NHS-MCC009, Breaker 5D.

c. At 2NHS-MCC009, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 3C).

d. At 2NHS-MCC009, Check open Breaker 7A, 600V Supply from Load Center 2NJS-US6 (Breaker 5D).

e. At Load Center 2NJS-US6, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US6, rack in Supply Breaker to 2NHS-MCC009, Breaker 3C.

g. At Load Center 2NJS-US6, rack in supply breaker to 2NHS-MCC009, Breaker 5D.

h. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC009, Breaker 3C.

i. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC009, Breaker 5D.

j. At 2NHS-MCC009, close Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 3C). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC009, breaker 7A, the 600V supply from load center 2NJS-US6 (Breaker 5D) will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

E. STARTUP PROCEDURE (Cont'd)

23.0 To energize 600V Motor Control Center 2NHS-MCC011

a. At Load Center 2NJS-US5, Check open supply breaker to 2NHS-MCC0011, Breaker 4A.

b. At Load Center 2NJS-US5, Check open Supply Breaker to 2NHS-MCC011, Breaker 5C.

c. At 2NHS-MCC011, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 4A).

d. At 2NHS-MCC011, Check open Breaker 10A, 600V Supply from Load Center 2NJS-US5 (Breaker 5C).

e. At Load Center 2NJS-US5, Check Voltage as nominally 600V.

f. At Load Center 2NJS-US5, rack in Supply Breaker to 2NHS-MCC011, Breaker 4A.

g. At Load Center 2NJS-US5, rack in supply breaker to 2NHS-MCC011, Breaker 5C.

h. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC011, Breaker 4A.

i. At Load Center 2NJS-US5, close Supply Breaker to 2NHS-MCC011, Breaker 5C.

j. At 2NHS-MCC011, close Breaker 1A, 600V Supply from Load Center 2NJS-US5 (Breaker 4A). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC011, Breaker 10A, the 600V Supply from Load Center 2NJS-US5 (Breaker 5C), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Control Interlock System.

24.0 To energize 600V Motor Control Center 2NHS-MCC012

a. At Load Center 2NJS-US6, Check open supply breaker to 2NHS-MCC012, Breaker 4D.

b. At Load Center 2NJS-US6, Check open Supply Breaker to 2NHS-MCC012, Breaker 5A.

c. At 2NHS-MCC012, Check open Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 4D).

d. At 2NHS-MCC012, Check open Breaker 10A, 600V Supply from Load Center 2NJS-US6 (Breaker 5A).

e. At Load Center 2NJS-US6, Check Voltage as nominally 600V.

E. STARTUP PROCEDURE (Cont'd)

24.0 (Cont'd)

f. At Load Center 2NJS-US6, rack in Supply Breaker to 2NHS-MCC012, Breaker 4D.

g. At Load Center 2NJS-US6, rack in supply breaker to 2NHS-MCC012, Breaker 5A.

h. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC012, Breaker 4D.

i. At Load Center 2NJS-US6, close Supply Breaker to 2NHS-MCC012, Breaker 5A.

j. At 2NHS-MCC012, close Breaker 1A, 600V Supply from Load Center 2NJS-US6 (Breaker 4D). Check voltage as nominally 600V.

NOTE: At 2NHS-MCC012, Breaker 10A, the 600V Supply from Load Center 2NJS-US6 (Breaker 5A), will be the alternate source.

NOTE: The Motor Control Center Supply Breakers will be lined up utilizing the Kirk-Key Interlock Control System.

25.0 To energize the normal, welding and lighting 600V Distribution Panels, refer to the main one line diagrams and perform the following steps for each Distribution Panel:

a. Check open all Distribution Panel Load Breakers.

b. Check open 600V Incoming Supply Breaker (Main Breaker), located on Distribution Panel.

c. Close 600V Feed Breaker to Distribution Panel located on respective Load Center.

d. Close 600V Incoming Supply Breaker (Main Breaker), located on Distribution Panel.

e. Sequentially close Load Breakers on Distribution Panel.

Distribution Panel	Location	Power Supply
2NJS-PNL 100	Turb Build. East El 277'	2NJS-US1
2NJS-PNL 200	Reactor Build. West El 289'	2NJS-US2
2NJS-PNL 300	Turb. Build. West El 277'	NJS-US3
2NJS-PNL 301	Turb. Build. West El 288'	2NJS-US3
2NJS-PNL 400	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 401	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 402	Normal Swgr. Build. El 261'	2NJS-US4
2NJS-PNL 500	Normal Swgr. Build. El 237'	2NJS-US5
2NJS-PNL 600	Normal Swgr. Build. El 237'	2NJS-US6
2NJS-PNL 700	Turb. Build. East El 277'	2NJS-US7

E. STARTUP PROCEDURE (Cont'd)

25.0 (Cont'd)

Distribution Panel	Location	Power Supply
2NJS-PNL 701	Turb. Build. East El 277'	2NJS-US7
2NJS-PNL 702	Reactor Build. North El 289'	2NJS-US7
2NJS-PNL 703	Reactor Build. North El 289'	2NJS-US7
2NJS-PNL 704	Turb. Build. West El 277'	2NJS-US7
2NJS-PNL 705	Turb. Build. West El 277'	2NJS-US7
2NJS-PNL 706	Electrical Bay El 261'	2NJS-US7
2NJS-PNL 707	Normal Switchgear Bldg El 261'	2NJS-US7
2LAT PNL 100	Turb. Build. East El 277'	2NJS-US1
2LAR PNL 200	Reactor Build. West El 289'	2NJS-US2
2LAT PNL 300	Turb. Build. West El 277'	2NJS-US3
2LAS PNL 400	Normal Switchgear Bldg EL 261'	2NJS-US4
2LAN PNL 900	Radwaste Build. El 279'	2NJS-US9
2WPS PNL 100	Turb. Build. East El 277'	2NJS-US1
2WPS PNL 200	Reactor Build. West El 289'	2NJS-US2
2WPS PNL 300	Turb. Build. West El 277'	2NJS-US3
2WPS PNL 400	Normal Switchgear Bldg El 261'	2NJS-US4

26.0 This section includes procedures for placing the maintenance supply for UPS1A in service when UPS1A is de-energized.

a. Verify loads on Panel 2VBS-PNLA101 & A102 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XDS00 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #8-D on 2NJS-US5

g. Close in loads on Panels 2VBS-PNLA101 & A102 as desired.

27.0 This section includes procedures for placing the de-energized UPS1A in service:

a. Check the maintenance supply is in service ~~as~~ OR PUT IN SERVICE per #26, a-g above.

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

2-27-91 2/27/91

E. STARTUP PROCEDURE (cont.)

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h.1 Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

h.2 DISCONNECT THE POWER CORD PLUG, P6, TO MOTOR OPERATOR ON CB-4

i. In the UPS place control switches A27-CB1 & A27-~~S2~~ S1 in the "ON" position.

P1C 2-25-87 JH 2/20/87

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #1 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001A that voltage is 130V to 140V.

r. Close breaker #2-C on 2BYS-SWG001A.

s. Close breaker CB-2 on UPS1A.

t. Verify that the "Util Sync OK" lamp is lit.

3

u. Verify that the "No break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

E. STARTUP PROCEDURE (cont.)

2. The maintence supply breaker "CB-4" open lamp is lit. | 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass~~ maintenance ~~supply~~" lamp is lit. | 3 PIC 2-28-90 JTH 2/20/90

w. Place the transfer control switch in the "Auto Restart" position.

28.0 This section includes procedures for placing the maintenance supply for UPS1B in service when UPS1B is de-energized. | 3

a. Verify loads on Panel 2VBS-PNLB101 & B102 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD601 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #4-B on 2NJS-US6

g. Close in loads on Panels 2VBS-PNLB101 & B102 as desired.

29.0 This section includes procedures for placing the de-energized UPS1B in service:

a. Check the maintenance supply is in service ~~as~~ OR PUT IN SERVICE per Step 28.0, a-g above. | 3 PIC 2-28-90 JTH 2/20/90

2-27-91 JTH 2/27/91

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

E. STARTUP PROCEDURE (cont.)

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h.1 Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

h.2 DISCONNECT THE POWER CORD PLUG, P6, TO MOTOR OPERATOR ON CB-4. PIC 2-28-90 VR 2/28/90

i. In the UPS place control switches A27-CB1 & A27-~~S2~~ S1 in the "ON" position.

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #2 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001C that voltage is 130V to 140V.

r. Close breaker #2-A on 2BYS-SWG001C.

s. Close breaker #CB-2 on UPS1B.

t. Verify that the "Util Sync OK" lamp is lit. | 3

u. Verify that the "No break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit. | 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass~~ (maintenance ~~supply~~) lamp is lit. | 3 PIC 2-28-90 VR 2/28/90

w. Place the transfer control switch in the "Auto Transfer" position.

E. STARTUP PROCEDURE (cont.)

30.0 This section includes procedures for placing the maintenance supply for UPS1C in service when UPS1C is de-energized.

a. Verify loads on Panel 2LAT-PNL017 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD501 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #4-B on 2NJS-US5

g. Close in loads on Panel 2LAT-PNL017 as desired.

31.0 This section includes procedures for placing the de-energized UPS1C in service:

a. Check the maintenance supply is in service ~~as~~ OR PUT IN SERVICE per #30, a-g above.

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e.1) Place the switch for "CB-3" in the open position.

e.2) DISCONNECT/VERIFY DISCONNECTED POWER CORD PLUG, P6, TO MOTOR OPERATOR ON CB-4.

f. Place control switches A27-CB1 & A27-~~32~~ 51 in the "ON" position.

g. Reconnect the motor operator power cable to CB-4.

h. Reset all alarms, test that all alarms lights will light, then reset alarms and silence horn.

i. On 2LAT-PNL300 close the sub-feed breaker #45 for 2VBB-UPS1C.

j. On the UPS close CB-1.

k. Push the module "ON" pushbutton.

l. After a time delay verify that the UPS output volts are nominally 120 VAC.

E. STARTUP PROCEDURE (cont.)

m. Verify that the module "ON" light is lit.

n. Verify on 2BYS-SWG001A that voltage is 130V to 140V.

o. Close Breaker #2-D on 2BYS-SWG001A.

p. Close Breaker #CB-2 on UPS1C.

q. Verify that the "Util Sync OK" lamp is lit. 3

r. Verify that the "No Break transfer ready - to UPS" lamp is lit.

s. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit. 3

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass" (~~maintenance" ~~supply)~~ lamp is lit. 3

t. Place the transfer control switch in the "Auto Restart" position.

32.0 This section includes procedures for placing the maintenance supply for UPS1D in service when UPS1D is de-energized. 3

a. Verify loads on Panel 2LAS-PNL016 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD600 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #6-C on 2NJS-US6

g. Close in loads on Panels 2LAS-PNL016 as desired.

33.0 This section includes procedures for placing the de-energized UPS1D in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE ~~as~~ per #32, a-g above. 3

E. STARTUP PROCEDURE (cont.)

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e.1) Place the switch for "CB-3" in the open position.

e.2) DISCONNECT/VERIFY DISCONNECTED THE POWER CORD PLUG, P6, TO MOTOR OPERATOR TO CB-4.

f. Place control switches A27-CB1 & A27-~~52~~ 51 in the "ON" position.

g. Reconnect the motor operator power cable to CB-4.

h. Reset all alarms, test that all alarm lights will light, then reset alarms and silence horn.

i. On Panel (2NHS-MCC006) close the #8-A breaker that feed 2VBB-UPS1D.

j. On the UPS, close CB-1.

k. Push the module "ON" pushbutton.

l. After a time delay verify that the UPS output volts are nominally 120 VAC.

m. Verify that the module "ON" light is lit.

n. Verify on 2BYS-SWG001B that voltage is 130V to 140V.

o. Close Breaker #2-D on 2BYS-SWG001B.

p. Close Breaker #CB-2 on UPS1D.

q. Verify that the "Util Sync OK" lamp is lit.

r. Verify that the "No Break transfer ready - to UPS" lamp is lit.

s. Place the "CB-3" switch in the closed position. the following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit.

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready, to ~~bypass~~" (maintenance ~~supply~~) lamp is lit.

E. STARTUP PROCEDURE (cont.)

t. Place the transfer control switch in the "Auto Restart" position.

34.0 This section includes procedures for placing the maintenance supply for UPS1G in service when UPS1G is de-energized. | 3

a. Verify loads on Panel 2VBS-PNLC100, C101, C102, and C103, and 2VBB-PNL 300 are in a safe condition for energizing these panels.

b. On the UPS verify open: CB-1, CB-2, CB-3.

c. On the UPS, verify closed: CB-4

d. On 2VBB-XD602 verify CB-1 is closed.

e. On UPS disconnect the power cord (unplug) for the motor operator on CB-4.

f. Close breaker #6-D on 2NJS-US6

g. Close in loads on Panels 2VBS-PNLC100, C101, C102, and C103 and 2VBB-PNL 300 as desired.

35.0 This section includes procedures for placing the de-energized UPS1G in service:

a. Check the maintenance supply is in service OR PUT IN SERVICE ~~as~~ per #34, a-g above. |

b. Verify that all card cage printed circuit cards are fully seated. (CARD SLOT #5 IS EMPTY)

c. Verify that all fuse cutouts within the UPS are properly seated.

d. Place the transfer control switch in the manual restart position.

e. Place the switch for "CB-3" in the open position.

f. On 2NJS-US3 & US4 verify that voltage is nominally 600V.

g. Close/verify closed breaker #13-A on 2NJS-US3 and/or breaker #6-C on 2NJS-US4.

NOTE: Only close those breakers that have nominal 600V on their associated bus.

h. Verify that transfer switch 2VBB-TRS1 indicates normal or emergency condition.

NOTE: Either condition is permissible to energize the UPS.

E. STARTUP PROCEDURE (cont.)

h.2) DISCONNECT/VERIFY DISCONNECTED THE POWER CABLE PLUG, P6, TO MOTOR OPERATOR TO CB-4. PIC 2-28-90 JR 2/28/90

i. In the UPS place control switches A27-CB1 &A27-S2 in the "ON" position. 51

j. Reconnect the motor operator power cable to CB-4.

k. Reset all alarms, test that all alarm lights will light, reset alarms and silence horn.

l. Close breaker #7 on 2VBB-PNL301.

m. On the UPS, close CB-1.

n. Push the module "ON" pushbutton.

o. After a time delay verify that the UPS output volts are nominally 120 VAC.

p. Verify that the module "ON" light is lit.

q. Verify on 2BYS-SWG001C that voltage is 130V to 140V.

r. Close breaker #2-C on 2BYS-SWG001C.

s. Close Breaker #CB-2 on UPS1G.

t. Verify that the "Util Sync OK" lamp is lit.

u. Verify that the "No Break transfer ready - to UPS" lamp is lit.

v. Place the "CB-3" switch in the closed position. The following events will occur:

1. Inverter output "CB-3" closed lamp is lit.

2. The maintenance supply breaker "CB-4" open lamp is lit.

3. The inverter will pick up load as will be indicated by increases on the "AC source ammeter" on the UPS.

4. The "No break transfer ready to ~~bypass~~" (maintenance ~~supply~~) lamp is lit. 3 PIC 2-28-90 JR 2/28/90

w. Place the transfer control switch in the "Auto Restart" position.

36.0 This section contains the startup procedure for energizing the UPS3A loads from its maintenance supply when UPS3A is de-energized.

a. Verify that the loads off panels 2VBS*PNLA101, 2VBS*PNLA103, 2VBS*PNLA104, 2VBS*PNLA105, and 2VBS*PNLA106, 2CEC*PNL709 are in a safe condition to allow energization of these panels.

E. STARTUP PROCEDURE (cont.)

b. Put the UPS3A manual transfer switch, S-1, in the maintenance position.

c. Close breaker #2 on 2NJS-PNL500.

d. On 2VBB-XRC503, close the input A.C breaker - #CB-1. 2VBB-XRC503 will energize.

e. Verify "Power in" light is lit on front of 2VBS*ACB1A.

f. Manually close breaker 2VBS*ACB1A.

g. Verify "Power in" light is lit on front of 2VBS*ACB2A.

h. Manually close breaker 2VBS*ACB2A.

i. Verify "Power out" light is lit on front of 2VBS*ACB2A.

j. Close in loads on panel 2VBS*PNLA101 as desired.

37.0 This section contains the startup procedure for energizing 2VBB-UPS3A:

a. Check that the maintenance supply for UPS3A is in service per Section E, #36, a-j.

OR PUT IN SERVICE

b. On UPS3A, check breaker #CB-1, #CB-2 open.

c. On 2LAT-PNL100, close breaker #26.

d. On 2BYS-SWG001C, check that voltage is 130V to 140 VDC.

e. Close breaker #2-C on 2BYS-SWG001C.

f. On UPS3A, close A.C. input breaker - #CB-1

g. Set the D.C. input voltmeter switch to "rectifier" and check that the voltmeter reads nominally 140 VDC.

NOTE: As the UPS "Starts Up" an increase in noise will be noticed.

h. When the UPS starts up, set the output A.C. voltmeter switch to "inverter" and check that it indicates nominal 124 VAC.

i. Push the lamp test pushbutton, all lamps will light and then go out when button is released.

j. Check the following indications:

1. "Low Battery" lamp is lit (because CB-2 is open)

2. "Reverse Transfer" lamp is lit.

k. Close battery input breaker, #CB-2.

E. STARTUP PROCEDURE (cont.)

l. Set the D.C. input voltmeter switch to "Battery" and check the battery voltage as 130V - 140 VDC. | 2

m. Check "Sync Loss" lamp is out.

n. Place manual transfer switch, S-1, in the static switch position. | 3

o. Push the "Forward Transfer" pushbutton.

p. Load can be monitored on the "Load Current" ammeter. | 3

q. Check that all alarm lamps are out.

38.0 This section contains the startup procedure for energizing the UPS3B loads from its maintenance supply when UPS3B is de-energized. | 2

a. Verify that the loads on panels 2VBS*PNLB101, 2VBS*PNLB103, 2VBS*PNLB104, 2VBS*PNLB105, and 2VBS*PNLB106, 2CEC*PNL708 are in a safe condition to allow energization of these panels.

b. Put the UPS3B manual transfer switch, S-1, in the maintenance position. | —

c. Close breaker #2 on 2NJS-PNL600.

d. On 2VBB-XRC603, close the input A.C. breaker - #CB-1. 2VBB-XRC603 will energize.

e. Verify "power in" light lit on front of 2VBS*ACB1B.

f. Manually close breaker 2VBS*ACB1B.

g. Verify "power in" light is lit on front of 2VBS*ACB2B.

h. Manually close breaker 2VBS*ACB2B.

i. Verify "power out" light is lit on front of 2VBS*ACB2B.

j. Close in loads off panel 2VBS*PNLB101 as desired.

39.0 This section contains the startup procedure for energizing 2VBB-UPS3B:

a. Check that the alternate supply for UPS3B is in service per Section D, #38 a-j.

b. On UPS3B, check breaker #CB-1, #CB-2 open.

c. On 2NJS-PNL402 close breaker #32.

d. On 2BYS-SWG001B check that voltage is 130V to 140 VDC.

E. STARTUP PROCEDURE (cont.)

e. Close breaker #3-D on 2BYS-SWG001B.

f. On UPS3B, close A.C. input breaker - #CB-1.

g. Set the D.C. input voltmeter switch to "rectifier" and check that the voltmeter reads nominally 140 VDC. | 3

NOTE: As the UPS "Starts Up" an increase in noise will be noticed.

h. When the UPS starts up, set the output A.C. voltmeter switch to "inverter" and check that it indicates nominal 124 VAC. | 3

i. Push the lamp test pushbutton, all lamps will light and then go out when button is released.

j. Check the following indications:

1. "Low Battery" lamp is lit (because CB-2 is open).
2. "Reverse Transfer" lamp is lit.

k. Close battery input breaker, #CB-2.

l. Set the D.C. input voltmeter switch to "Battery" and check the battery voltage is 130V to 140 VDC. | 3

m. Check "Sync Loss" lamp is out.

n. Place manual transfer switch, S-1, in the static switch position. | 3

o. Push the "Forward Transfer" pushbutton.

p. Load can be monitored on the "Load Current" ammeter. | 3

q. Check that all alarm lamps are out.

F. NORMAL OPERATION

1.0 Before energizing normal station transformer 2STX-XNS1, ensure that:

a. At Panel 852, check open 13.8KV bus 001 supply breaker from normal station service transformer 2STX-XNS1, Breaker 1-3.

b. At Panel 852, check open 13.8KV bus 003 supply breaker from normal station service transformer 2STX-XNS1, breaker 3-14.

c. At 2STX-XNS1, place oil pumps and fans selector switches in auto.

d. At 2STX-XNS1, check closed potential power circuit breaker at load tap changer auto controller.

e. At 2STX-XNS1, place local-remote switch in remote position.

F. NORMAL OPERATION (cont.)

f. At 2STX-XNS1, check closed circuit breaker to cooling equipment and check closed circuit breaker to load tap changer.

g. At 2STX-XNS1, check closed space heater circuit breaker.

h. At 2STX-XNS1, check transfer tank and load tap changer oil levels as normal.

i. At 2STX-XNS1, check that transformer tank pressure is between .30 and .55 psig.

j. At 2STX-XNS1, check automatic gas control equipment in service and gas cylinder pressure as greater than 200 psig.

k. Check liquid and winding temperatures as less than 80°C.

l. At Panel 852, place 2STX-XNS1 load tap changer auto-manual switch in manual.

2.0 To transfer station service from reserve to normal

a. Verify that the main generator has been synchronized and tied to the grid in accordance with OP #66 and a stable load has been established.

b. At 13.8 KV bus 001, rack in supply breaker from normal station service transformer 2STX-XNS1, breaker 1-3. Check the following lockout relays reset to assure closing permissives are satisfied:

1. Panel 864 - Unit Protection Lockout Relay 1
2. Panel 865 - Unit Protection Lockout Relay 1
3. Panel 866 - Unit Protection Lockout Relay 1
4. Panel 867 - Generator Backup Protection Lockout Relay 1
5. Panel 812 - 13.8 KV Bus NPS-001 Protection Lockout Relay.
6. Check that relay flags are reset.

c. At 13.8 KV Bus 003, rack in supply breaker from normal station service transformer 2STX-XNS1, Breaker 3-14. Check the following lockout relays reset to assure closing permissives are satisfied:

1. Panel 864 - Unit Protection Lockout Relay 1
2. Panel 865 - Unit Protection Lockout Relay 1
3. Panel 866 - Unit Protection Lockout Relay 1
4. Panel 867 - Generator Backup Protection Lockout Relay 1
5. Panel 813 - 13.8 KV Bus NPS-003 Protection Lockout Relay.
6. Check that relay flags are reset.

d. At Panel 852, turn on Synch Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, Breaker 1-3.

F. NORMAL OPERATION (Cont.)

e. Check voltages equal and synchroscope in phase, approximately 12 O'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower Control switch (P-852). TCN

NOTE: Normal station service transformer 2STX-XNS1 load tap changer auto-manual switch will be left in "Manual" for normal operating conditions.

f. At Panel 852, close 13.8 KV Bus 001 supply breaker from 2STX-XNS1, breaker 1-3. Check normal station service transformer ammeters to verify load was picked up.

g. At Panel 852, turn off Sync. Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, breaker 1-3.

h. At Panel 852, open 13.8 KV Bus 001 supply breaker from reserve station service transformer 2RTX-XS-R1A, Breaker 1-1, and leave control switch in normal after trip position. Check voltage on 13.8 KV Bus 001 as nominally 13.8 KV.

i. At Panel 852, turn on Synch. Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 003, Breaker 3-14.

j. Check voltages equal and synchroscope in phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower control switch.

k. At Panel 852, close 13.8 KV Bus 003 supply breaker from 2STX-XNS1, breaker 3-14. Check normal station service transformer ammeters to verify load picked up.

l. At Panel 852, turn off Synch Switch across normal station service transformer 2STX-XNS1 and 13.8 KV Bus 001, breaker 3-14.

m. At Panel 852, open 13.8 KV Bus 003 supply breaker from reserve station service transformer 2RTX-XRS1B, breaker 3-1. Check voltage on 13.8 KV Bus 003 as nominally 13.8 KV.

3.0 After 13.8KV buses 001 and 003 are transferred to normal station service and periodically thereafter, transformer 2STX-XNS1 should be inspected and the following items should be checked as normal:

a. Liquid temperature (Less than 80°c).

b. Winding temperature (Less than 80°c).

F. NORMAL OPERATION (Cont.)

c. Tank pressure (Between -8 and +10 PSIG)

d. Liquid flow (If pump is running)

e. Liquid level in transformer

f. Liquid level in load tap changer

g. Fault gas

4.0 Normal operation for UPS-1 series and 3-series, 75KVA and 10 KVA

The normal operation of UPS's require little operator action. However, the individual UPS should be checked periodically for the following:

a. Ventilation filters clean
b. Doors and panel secured
c. AC output voltage: For UPS 3A/3B - 124V ± 2% (121.5-126.5)
UPS 1 Series- 120V ± 2%. (117.6 - 122.4 VAC)

5.0 Aux Service Transformers

5.1 The following parameters should be periodically monitored on each transformer, by the operator.

a. Winding Temperature (less than 80°C)
b. Oil Temperature (less than 80°C)
c. Oil Level in Transformer
d. Internal Gas Pressure (-5 to +7.5 psig)

TCN-1

G. SHUTDOWN PROCRDURE

NOTE: Once established, this system will not be shutdown as a unit. Shutdown is considered to be the manual transfer from normal to reserve supply when the main generator is taken out of service.

1.0 To transfer station service from normal to reserve

a. Manual transfer from normal to reserve for purposes of shutting down the main generator should be done while the generator is still synchronized to the bus.

b. Check the following lockout relays reset to assure closing permissives satisfied, for 13.8KV bus 001.

1. Panel 812 - 13.8 KV Bus NPS-001 protection lockout relay
2. Panel 805 - Reserve Station Service XFMR 1A Primary Protection Lockout Relay
3. Panel 806 - Reserve Station Service XFRM 1A Backup Protection Lockout Relay
4. Panel 867 - Generator backup protection lockout relay 2
5. Check that relay flags are reset

G. SHUTDOWN (Cont.)

c. Check the following lockout relays reset to assure closing permissives satisfied, for 13.8KV bus 003.

1. Panel 813 - 13.8 KV Bus NPS-003 protection lockout relay
2. Panel 808 - Reserve Station Service XFMR 1B Primary Protection Lockout Relay
3. Panel 809 - Reserve Station Service XFRM 1B Backup Protection Lockout Relay
4. Panel 867 - Generator backup protection lockout relay 2
5. Check that relay flags are reset

d. At Panel 852, turn on Synch Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, breaker 1-1.

e. Check voltages equal and synchroscope in phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower control switch (P852). TCN-

f. At panel 852, close 13.8 KV Bus 001 supply breaker from 2RTX-XSR1A, breaker 1-1. Check reserve station service transformer 2RTX-XSR1A ammeters to verify load was picked up.

g. At Panel 852 turn off Synch Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

h. At Panel 852, open 13.8 KV bus 001 supply breaker from normal station service transformer 2STX-XNS1, Breaker 1-3 and leave Control Switch in the normal after trip position. Check voltage on 13.8 KV Bus 001 as nominally 13.8 KV.

TCN-8

i. At Panel 852, turn on Synch Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 003, Breaker 3-1.

j. Check voltages equal and synchroscope on phase, approximately 12 o'clock. If necessary, adjust the voltage by manual operation of the load tap changer raise-lower switch (P852).

k. At Panel 852, close supply breaker from 2RTX-XSR1B, Breaker 3-1, check reserve station service transformer 2RTX-XSR1B ammeters to verify load was picked up.

G. SHUTDOWN (Cont.)

1. At Panel 852, turn off Synch Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 003, breaker 3-1.

m. At Panel 852, open 13.8 KV Bus 003 supply breaker from normal station service transformer 2STX-XNS1, breaker 3-14 and leave control switch in the normal after trip position. Check voltage on 13.8 KV bus 003 as nominally 13.8 KV.

n. Station service is now transferred from normal to reserve. Refer to OP #101 for plant shutdown.

2.0 Once the UPS Systems are put into service they should not be shut down as a unit. This would de-energize all UPS loads. However, certain individual components of the UPS systems may be taken out of service for maintenance, etc. These procedures will be given under section H - off-normal procedures.

H. OFF NORMAL PROCEDURES

NOTE: 13.8 KV Bus 001 Breaker 1-16, 13.8 KV bus 002 Breaker 2-1, and 13.8 KV bus 003 Breaker 3-16. No Breaker is supplied for cubicle.

NOTE: For extended outages of reserve station service transformers 2RTX-XSR1A and XSR1B, refer to Sections of this procedure for transferring emergency switchgears to alternate feeds.

1.0 To remove reserve station service transformer 2RTX-XSR1A from service with unit running and station being fed from normal station service:

a. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water and breaker 101-1 must be tripped. Note that the following step defeats load sequencing for Div. 1 SWP Pumps. TCN-1

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open Breaker 101-13, feed from Transformer 2RTX-XSR1A to bus 2ENS*SWG101.

H. OFF NORMAL PROCEDURES (Cont.)

NOTE: Step d and e is not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1B.

d. Place the 43LS switch on SWG102 to the ON position.

e. At P852, open breaker 102-4.

f. Move breaker from 102-4 to 102-5.

g. Place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

h. Close breaker 102-5.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch on SWG102 to the OFF position.

k. At Panel 852, 4.16 KV bus 2NNS-SWG016, open Breaker 16-2, 4.16KV feed from Reserve Station Service Transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

l. At Panel 852, 13.8KV bus 2NPS-SWG001 check open breaker 1-1, feed from Reserve Station Service Transformer 2RTX-XSR1A to 13.8 KV Bus.001.

m. At 13.8 KV Bus 003, check cubicle 3-16, alternate feed from reserve station service transformer 2RTX-XSR1A, is empty.

n. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS3, feed to Reserve Station Service Transformer 2RTX-XSR1A.

o. At Panel 852, 13.8KV bus 001, verify that control switch for Breaker 1-16 is in the normal after trip position.

p. At 13.8KV bus 001, rack out and remove Breaker 1-1 from cubicle 1-1 and rack breaker 1-1 into cubicle 1-16, feed to 13.8 KV Bus 001 from reserve station service transformer 2RTX-XSR1B.

NOTE: Transfer of Station Service from normal to reserve station service will now be from Reserve B Transformer.

2.0 To return reserve station service transformer 2RTX-XSR1A to service with unit running and station being fed from normal station service:

a. To energize transformer 2RTX-XSR1A, refer to OP-70 Section D.

b. At Panel 852, 13.8KV bus 2NPS-SWG*001, verify that control switch for Breaker 1-1 is in the normal after trip position.

c. At 13.8KV bus 001, rack out and remove Breaker 1-16 from cubicle 1-16 and rack Breaker 1-16 into cubicle 1-1.

H. OFF NORMAL PROCEDURES (Cont.)

d. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1A to 4.16 KV bus 016 as nominally 4.16 KV.

e. At Panel 852, check breakers 101-13 and 102-4, feed from 4.16 KV Bus 016 to emergency switchgear are open.

f. At Panel 852, 4.16KV bus 2NNS-SWG016 close Breaker 16-2, 4.16KV feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16KV.

g. At Panel 852, turn on Synch Switch across 4.16 KV Bus 016 and 2ENS*SWG101, Breaker 101-13.

h. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across Breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

i. Close circuit #4 in panel 2BYS*PNL201A.

j. At Panel 852, turn off Synch Switch across 4.16KV Bus 016 and 2EHS*SLX-101, Breaker 101-13.

k. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1A then perform steps l, m, n, o, p, q.

l. Place the 43LS switch on SWG102 to the ON position.

m. At P852, open breaker 102-5.

n. Move the breaker from 102-5 to 102-4.

o. Place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

p. Close breaker 102-4.

q. Place the synch switch in the OFF position.

r. Place 43LS switch in the OFF position.

3.0 To remove reserve station service transformer 2RTX-XSR1B from service with unit running and station being fed from normal station service:

a. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER AND BREAKER 103-14 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP ALSO DEFEATS SWP PUMP LOAD SEQUENCING FOR DIV. 1.

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an off-site feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open Breaker 103-4, feed from Transformer 2RTX-XSR1B to bus 2ENS*SWG103.

NOTE: Steps d through j are not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1A.

d. Place the 43LS switch on SWG102 in the ON position.

e. At P852, open breaker 102-5.

f. Move the breaker from 102-5 to 102-4.

g. Place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

h. Close breaker 102-4.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch in the OFF position.

k. At Panel 852, 4.16 KV bus 2NNS-SWG017, open Breaker 17-2, 4.16KV feed from Reserve Station Service Transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. *

l. At Panel 852, 13.8KV bus 2NPS-SWG003 check open breaker 3-1, feed from Reserve Station Service Transformer 2RTX-XSR1B to 13.8 KV Bus 003.

m. At 13.8 KV Bus 001, check cubicle 1-16, alternate feed from reserve station service transformer 2RTX-XSR1B, is empty.

n. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS4, feed to Reserve Station Service Transformer 2RTX-XSR1B.

o. At Panel 852, 13.8KV bus 003, verify that control switch for Breaker 3-16 is in the normal after trip position.

p. At 13.8KV bus 003, rack out and remove Breaker 3-1 from cubicle 3-1 and rack breaker 3-1 into cubicle 3-16, feed to 13.8 KV Bus 003 from reserve station service transformer 2RTX-XSR1A.

NOTE: Transfer of Station Service from normal to reserve station service will now be from Reserve A Transformer.

H. OFF NORMAL PROCEDURES (Cont.)

4.0 To return reserve station service transformer 2RTX-XSR1B to service with unit running and station being fed from normal station service:

a. To energize transformer 2RTX-XSR1B, refer to OP-70 Section D.

b. At Panel 852, 13.8KV bus 2NPS-SWG003, verify that control switch for Breaker 3-1 is in the normal after trip position.

c. At 13.8KV bus 003, rack out and remove Breaker 3-16 from cubicle 3-16 and rack Breaker 3-16 into cubicle 3-1.

d. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1B to 4.16 KV bus 017 as nominally 4.16 KV.

e. At Panel 852, check breakers 103-4 and 102-5, feed from 4.16 KV Bus 017 to emergency switchgear are open.

f. At Panel 852, 4.16KV bus 2NNS-SWG017 close Breaker 17-2, 4.16KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. Check 4.16KV bus 017 voltage as nominally 4.16KV.

g. At Panel 852, turn on Synch Switch across 4.16 KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

h. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across Breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

i. Close circuit #4 in Panel 2BYS*201B.

j. At Panel 852, turn off Synch Switch across 4.16KV Bus 017 and 2ENS*SWG-103, Breaker 103-4.

k. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1B then perform steps l through r.

l. Place the 43LS switch on SWG102 to the ON position.

m. At P852, open breaker 102-4.

n. Move the breaker from 102-4 to 102-5. TCN-6

o. Place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

p. At P852, close breaker 102-5.

q. Place the synch switch in the OFF position.

H. OFF NORMAL PROCEDURES (Cont.)

r. Place the 43LS switch in the OFF position.

5.0 To remove reserve station service transformer 2RTX-XSR1A from service with unit shutdown and station being fed from Reserve Station Service Transformers 2RTX-XSR1A and 1B.

a. At Panel 852, start emergency diesel 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT SWP PUMP LOAD SEQUENCING FOR DIV. 1. TCN-1

b. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

c. At Panel 852, open breaker 101-13, feed from transformer 2RTX-XSR1A to bus 2ENS*SWG101 (See N2-OP-100A).

NOTE: Steps d through i are not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1B.

d. At SWG102 place the 43LS switch in the ON position.

e. At P852 open breaker 102-4.

f. Move the breaker from 102-4 to 102-5.

g. At P852, place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

h. At P852, close breaker 102-5.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch in the OFF position.

k. At Panel 852, 4.16KV bus 2NNS-SWG016, open breaker 16-2, 4.16KV feed from Reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

l. At 13.8KV bus 001, rack out and remove breaker 1-3 from cubicle 1-3 and rack breaker 1-3 into cubicle 1-16.

m. At Panel 852, bus 2NPS-SWG001, turn on synch. switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 001, Breaker 1-16.

n. At Panel 852, bus 2NPS-SWG001, place the control switch for breaker 1-16 to the close position. Breaker 1-1 will trip and breaker 1-16 will close. 13.8 KV Bus 001 is now fed from reserve station service transformer 2RTX-XSR1B. 11/17/87

H. OFF NORMAL PROCEDURES (Cont.)

o. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1B and 13.8 KV Bus 001, breaker 1-16.

p. At Panel 852, bus 2NPS-SWG001, place control switch for breaker 1-1 in the pull to lock position.

q. At 13.8 KV Bus 003, check cubicle 3-16, alternate feed from reserve station service transformer 2RTX-XSR1A is empty.

r. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS3, feed to Reserve station service transformer 2-RTX-XSR1A.

6.0 To return reserve station service transformer 2RTX-XSR1A to service with unit shutdown and station being fed from Reserve station service transformer 2RTX-XSR1B:

a. To energize transformer 2RTX-XSR1A, refer to OP-70 Section E. TCN-13

b. At 13.8KV bus 001 verify that breaker 1-1 is racked in.

c. At Panel 852, bus 2NPS-SWG001, turn on synch switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

d. At Panel 852, bus 2NPS-SWG001, place the control switch for breaker 1-1 to the close position. Breaker 1-16 will trip and breaker 1-1 will close. 13.8 KV Bus is now being fed from reserve station service transformer 2RTX-XSR1A.

e. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1A and 13.8 KV Bus 001, Breaker 1-1.

f. At Panel 852, Bus 2NPS-SWG001, place control switch for breaker 1-16 in the pull to lock position.

g. At 13.8KV bus 001, rack out and remove breaker 1-16 from cubicle 1-16 and rack breaker 1-16 into cubicle 1-3.

h. At Panel 852, check 4.16 KV feed from reserve station service transformer 2RTX-XSR1A to 4.16 KV Bus 016 as nominally 4.16 KV.

i. At Panel 852, check breakers 101-13 & 102-4, feeds from 4.16 KV bus 016 to emergency switchgear are open.

j. At Panel 852, bus 2NNS-SWG016, close breaker 16-2 4.16KV feed from Reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16 KV.

H. OFF NORMAL PROCEDURES (Cont.)

k. At Panel 852, turn on Synch. Switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

l. At Panel 852, bus 2ENS*SWG101 check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

m. Close circuit #4 in Panel 2BYS*PNL201A.

n. At Panel 852, turn off synch. switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

o. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: If it is desired to power 2ENS*SWG102 from RTX-XSR1A then perform steps p through v.

p. Place the 43LS switch on SWG102 in the ON position.

q. At P852, open breaker 102-5.

r. At P852, place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

s. Move the breaker from 102-5 to 102-4.

t. At P852 close breaker 102-4.

u. Place the synch switch in the OFF position.

v. Place the 43LS switch in the OFF position.

7.0 To remove reserve station service transformer 2RTX-XSR1B from service with unit shutdown and station being fed from Reserve Station Service Transformers 2RTX-XSR1A and 1B.

a. At Panel 852, start emergency diesel 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 103-14 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 2 SWP PUMPS. TCN-12

b. Station an operator with a flashlight and radio at Panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

H. OFF NORMAL PROCEDURES (Cont.)

c. At Panel 852, open breaker 103-4, feed from transformer 2RTX-XSR1B to bus 2ENS*SWG103 (See N2-OP-100A).

NOTE: Step d through j is not necessary if bus 2ENS*SWG102 is being fed from Reserve Station Service Transformer 2RTX-XSR1A.

d. At SWG102, place the 43LS switch in the ON position.

e. At P852, open breaker 102-5.

f. At P852, place the synch switch for the primary feed to bus 102 from NNS016 in the ON position.

g. Move the breaker from 102-5 to 102-4.

h. At P852, close breaker 102-4.

i. Place the synch switch in the OFF position.

j. Place the 43LS switch on SWG102 in the OFF position.

k. At Panel 852, 4.16KV bus 2NNS-SWG017, open breaker 17-2, 4.16 KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102.

l. At 13.8KV bus 003, rack out and remove breaker 3-14 from cubicle 3-14 and rack breaker 3-14 into cubicle 3-16.

m. At Panel 852, bus 2NPS-SWG003, turn on synch. switch across reserve station service transformer 2RTX-XSR1A and 13.8KV Bus 003, Breaker 3-16.

n. At Panel 852, bus 2NPS-SWG003, place the control switch for breaker 3-16 to the close position. Breaker 3-1 will trip and breaker 3-16 will close. 13.8KV Bus 003 is now being fed from reserve station service transformer 2RTX-XSR1A.

o. At Panel 852, turn off Synch. Switch across reserve station service transformer 2RTX-XSR1A and 13.8KV Bus 003 Breaker 3-16.

p. At panel 852, bus 2NPS-SWG003, place control switch for breaker 3-1 in the pull to lock position.

q. At 13.8 KV Bus 001 check cubicle 1-16, alternate feed from reserve station service transformer 2RTX-XSR1B is empty.

r. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS4, feed to reserve station service transformer 2RTX-XSR1B.

8.0 To return reserve station service transformer 2RTX-XSR1B to service with unit shutdown and station being fed from Reserve Station Service transformer, 2RTX-XSR1A:

a. To energize transformer 2RTX-XSR1B refer to OP-70 Section E.

b. At 13.8KV bus 003 verify that breaker 3-1 is racked in.

c. At Panel 852, bus 2NPS-SWG003, turn on Synch. Switch across reserve station service transformer 2RTX-XSR1B and 13.8KV Bus 003, Breaker 3-1.

d. At Panel 852, bus 2NPS-SWG003, place the control switch for breaker 3-1 to the close position. Breaker 3-16 will trip and breaker 3-1 will close. 13.8KV Bus 003 is now fed from reserve station service transformer 2RTX-XSR1B.

e. At Panel 852, turn off synch switch across reserve station service transformer 2RTX-XSR1B and 13.8KV Bus 003, Breaker 3-1.

f. At Panel 852, Bus 2NPS-SWG003, place control switch for Breaker 3-16 in the pull to lock position.

g. At 13.8KV bus 003, rack out and remove breaker 3-16 from cubicle 3-16 and rack breaker 3-16 into cubicle 3-14.

h. At Panel 852, check 4.16KV feed from reserve station service transformer 2RTX-XSR1B to 4.16KV Bus 017 as nominally 4.16KV.

i. At Panel 852, check breakers 103-4 and 102-5 feeds from 4.16 KV Bus 017 to emergency switchgear are open.

j. At Panel 852, bus 2NNS-SWG017, close breaker 17-2 4.16KV feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102. Check 4.16KV bus 017 voltage as nominally 4.16 KV.

k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

l. At Panel 852, bus 2ENS*SWG103 check synchronization and voltage across breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

m. Close circuit #4 in Panel 2BYS*PNL201B.

n. At Panel 852, turn off Synch. switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

o. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

NOTE: Steps p through v are not necessary if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1A. TCN-6

p. Place the 43LS switch on SWG102 in the ON position. TCN-6

q. At P852, open breaker 102-4.

H. OFF NORMAL PROCEDURES (Cont.)

r. Move the breaker from 102-4 to 102-5.

s. At P852, place the synch switch for the alternate feed to bus 102 from NNS017 in the ON position.

t. At P852, close breaker 102-5.

u. At P852, place the synch switch in the OFF position.

v. Place the 43LS switch on SWG102 in the OFF position.

9.0 To remove auxiliary boiler service transformer 2ABS-X1 from service.

NOTE: No breakers are supplied for cubicles 18-2 bus 2NNS-SWG018 and 2-1 bus 2NPS-SWG002.

a. Refer to OP-48 for removing auxiliary boilers from service.

b. At Panel 852, bus 2NPS-SWG002, open breaker 2-5, 13.8KV feed to bus 2NPS-SWG002 and place control switch in the pull to lock position.

c. At Panel 852, bus 2NNS-SWG018, check open breaker 18-2, 4.16KV feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103.

d. At Panel 852, 115KV bus, open circuit switcher 2YUC-MDS5, 115KV feed to transformer 2ABS-X1.

e. At Panel 852, check that bus 2NNS-SWG018 and bus 2NPS-SWG002 voltage reads zero.

10.0 To return Auxiliary boiler service transformer 2ABS-X1 to service:

NOTE: No breakers are supplied for cubicles 18-2 bus 2NNS-SWG018 and 2-1 Bus 2NPS-SWG002.

a. To energize auxiliary boiler service transformer 2ABS-X1, refer to OP-70 Section E. TCN-1

b. To energize 13.8KV Bus 002, refer to this procedure Section E, Step 4.

c. To energize 4.16KV Bus 018, refer to this procedure Section E, Step 15.

11.0 To remove auxiliary boiler service transformer 2ABS-X1 from service and supply auxiliary boilers from reserve station service transformer 2RTX-XSR1A.

a. To remove auxiliary boiler service transformer 2ABS-X1 from service refer to Section H Step 9 this procedure.

CAUTION

STEP C MUST BE DONE WHILE TRANSFORMER 2RTX-XSR1A LOAD BREAKERS; 1-1, 3-16, AND 2-1 ARE OPEN.

b. To remove reserve station service transformer 2RTX-XSR1A from service refer to this procedure Section H Step 5.

c. Close neutral disconnect switch 2RTX-SW001 in the grounding circuit for the 13.8KV windings of reserve station service transformer 2RTX-XSR1A.

d. At Panel 852, 115KV bus, close circuit switcher 2YUC-MDS3, feed to Reserve A transformer. (See OP-70)

e. At Panel 852, check 4.16KV feed from reserve station service transformer 2RTX-XSR1A to 4.16KV Bus 016 as nominally 4.16KV.

f. At Panel 852, check breakers 101-13 and 102-4, feed from 4.16KV Bus 016 to emergency switchgear are open.

g. At Panel 852, 4.16KV bus 2NNS-SWG016, close breaker 16-2, 4.16KV feed to emergency bus 2ENS*SWG101 and 2ENS*SWG102. Check 4.16KV bus 016 voltage as nominally 4.16KV.

h. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, breaker 101-13.

i. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

j. Close circuit #4 in Panel 2BYS*PNL201A.

k. At Panel 852, turn off Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, breaker 101-13.

l. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

NOTE: Steps m through s are not necessary if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.

m. At SWG102, place the 43LS switch in the ON Position. TCN-6

n. At P852, open breaker 102-4.

o. Move the breaker from 102-4 to 102-5.

H. OFF NORMAL PROCEDURES (Cont.)

p. At P852, place the synch switch for the alternate feed bus 102 from NNS017 in the ON position.

q. At P852, close breaker 102-5.

r. At P852, place the synch switch in the OFF position.

s. At SWG102, place the 43LS switch in the OFF position.

12.0 To return auxiliary boiler service transformer 2ABS-X1 to service and return reserve station service transformer 2RTX-XSR1A to normal feed:

a. Verify auxiliary boiler service transformer 2ABS-X1 is de-energized by checking open breaker 18-2 bus 2NNS-SWG018; breaker 2-5 bus 2NPS-SWG002 and circuit switcher 2YUC-MDS5.

b. Remove auxiliary boilers from service in accordance with OP-48.

c. At Panel 852, 13.8 KV bus 2NPS-SWG002, open breaker 2-1 feed from reserve station service transformer 2RTX-XSR1A and check that voltage reads zero on bus 2NPS-SWG002. Place control switch for breaker 2-1 in the pull to lock position.

d. At 13.8KV bus 2NPS-SWG002, rack out and remove breaker 2-1 from cubicle 2-1 and rack breaker 2-1 into cubicle 2-5.

e. At Panel 852, start emergency diesel 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100B).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS. TCN-12

f. Station an operator with a flashlight and radio at Panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

g. At Panel 852, open breaker 101-13, feed from reserve station service transformer 2RTX-XSR1A to emergency bus 2ENS*SWG101 (See OP-72).

NOTE: Steps h through m are not necessary if bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.

H. OFF NORMAL PROCEDURES (Cont.)

h. At SWG102, place the 43LS switch in the ON position.

i. At P852, open breaker 102-4.

j. Move the beraker from 102-4 to 102-5.

k. At P852, place the synch switch for the alternate feed to bus 102 from NNSO17 in the ON position.

l. At P852, close breaker 102-5.

m. Place the synch switch in the OFF position.

n. Place the 43LS switch in the OFF position.

o. At Panel 852, bus 2NNS-SWG016, open breaker 16-2, 4.16KV feed from Reserve station service transformer 2RTS-XSR1A to emergency bus 2ENS*SWG101 and 2ENS*SWG102.

p. At Panel 852, bus 2NPS-SWG001 verify breaker 101, Reserve A feed to bus 2NPS-SWG001 is open.

q. At 13.8KV Bus 003, check cubicle 3-16 alternate feed from reserve station service transformer 2RTX-XSR1A is empty.

r. At Panel 852, 115KV bus open circuit switcher 2YUC-MDS3, feed to reserve station service transformer 2RTX-XSR1A.

CAUTION

STEP S MUST BE DONE WHILE TRANSFORMER 2RTX-XSR1A LOAD BREAKERS: 1-1, 3-16, AND 2-1 ARE OPEN.

s. Open neutral disconnect switch 2RTX-SW001 in the grounding circuit for the 13.8KV windings of reserve station service transformer 2RTX-XSR1A.

t. Energize reserve station service transformer 2RTX-XSR1A and transfer 13.8KV bus 2NPS-SWG001 feed in accordance with Section H Step 6 this procedure. TCN-9

u. Energize auxiliary boiler transformer and 13.8KV bus 2NPS-SWG002 in accordance with Section H Step 10 this procedure.

13.0 To transfer emergency bus 2ENS*SWG102 normal feed from Reserve station service transformer 2RTX-XSR1A to reserve station service transformer 2RTX-XSR1B.

a. At Panel 852, bus 2NNS-SWG017, verify that breaker 17-2 is closed. Check 4.16KV bus 017 voltage as nominally 4.16KV.

b. At SWG102, place the 43LS switch in the ON position.

c. At Panel 852, bus 2ENS*SWG102, open breaker 102-4, feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG102.

d. At bus 2ENS*SWG102 rack out and remove breaker 102-4 from cubicle 102-4 and rack breaker 102-4 into cubicle 102-5. TCN-7

e. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG102, breaker 102-5.

f. At Panel 852, close breaker 102-5.

g. At Panel 852, turn off Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG102, Breaker 102-5.

h. Place the 43LS switch in the OFF position.

14.0 To transfer emergency bus 2ENS*SWG102 feed from Reserve station service transformer 2RTX-XSR1B to reserve station service transformer 2RTX-XSR1A.

a. At Panel 852, bus 2NNS-SWG016, verify that breaker 16-2 is closed, check 4.16KV bus 016 voltage as nominally 4.16KV.

b. At SWG102, place the 43LS switch in the ON position.

c. At Panel 852, bus 2ENS*SWG102, open breaker 102-5, feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG102.

d. At bus 2ENS*SWG102 rack out and remove breaker 102-5 from cubicle 102-5 and rack in breaker 102-5 into cubicle 102-4.

e. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG102, breaker 102-4. TCN-7

f. At Panel 852, close breaker 102-4.

g. At Panel 852, turn off Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG102, Breaker 102-4.

h. Place the 43LS switch in the OFF position.

15.0 To transfer emergency bus 2ENS*SWG101 feed from reserve station service transformer 2RTX-XSR1A to Aux. boiler transformer 2ABS-X1:

JK 9/14/89
CVD 9/14/89

~~NOTE: Step a. is not required if Bus 2ENS*SWG102 is being fed from reserve station service transformer 2RTX-XSR1B.~~

H. OFF NORMAL PROCEDURES (Cont.)

~~a. Transfer emergency bus 2ENS*SWG102 from reserve station transformer 2RTX-XSR1A to reserve station service transformer 2RTX-XSR1B per Section H, Step 13, this procedure.~~

a b. At Panel 852, 115KV bus, verify that Aux. boiler transformer 2ABS-X1 is energized.

b c. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS. TCN-12

c d. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d e. At Panel 852, bus 2ENS*SWG101 open breaker 101-13 feed from 4.16KV bus 2NNS-SWG016 to bus 2ENS*SWG101. Place control switch for breaker 101-13 in the pull to lock position.

~~e. At Panel 852, bus 2NNS-SWG016, open breaker 16-2, feed from Reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102. Place control switch for breaker 16-3 in the pull to lock position.~~

~~g. At Panel 852, lock out aux. boiler transformer 2ABS-X1 feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103, Breaker 18-2.~~

e. At Panel 852, verify breaker 18-2 is closed and NNS-SWG018 is energized.

~~h. At 4.16KV bus 016 rack out and remove breaker 16-2 from cubicle 16-2 and rack breaker 16-2 into 4.16 KV bus 018 cubicle 18-2.~~

f i. At bus 2ENS*SWG101 rack out and remove breaker 101-13 from cubicle 101-13 and rack breaker 101-13 into cubicle 101-10.

~~j. At Panel 852, bus 2NNS-SWG018, close breaker 18-2, feed from 2ABS-X1 transformer to bus 2ENS*SWG101 and bus 2ENS*SWG103.~~

g k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 018 and 2ENS*SWG101, Breaker 101-10.

h l. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-10. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-10.

H. OFF NORMAL PROCEDURES (Cont.)

i. Close circuit #4 in panel 2BYS*PNL201A.

j. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 018 and 2ENS*SWG101, Breaker 101-10.

k. At Panel 852, bus 2ENS*SWG101, open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

16.0 To transfer emergency bus 2ENS*SWG101 feed from Aux. boiler transformer 2ABS-X1 to reserve station service transformer 2RTX-XSR1A:.

a. At Panel 852, 115KV bus, verify that reserve station service transformer 2RTX-XSR1A is energized.

b. At Panel 852, start emergency diesel generator 2EGS*EG1 and synchronize to emergency bus 2ENS*SWG101 (See N2-OP-100A).

CAUTION

IF A LOCA OCCURS WHILE THE BUS IS POWERED BY THE DIESEL GENERATOR ALONE, CIRCUIT #4 MUST BE CLOSED TO SEPARATE CATEGORY II SERVICE WATER, AND BREAKER 101-1 MUST BE TRIPPED. NOTE THAT THE FOLLOWING STEP WILL ALSO DEFEAT LOAD SEQUENCING FOR DIV. 1 SWP PUMPS.

TCN-1

c. Station an operator with a flashlight and radio at panel 2BYS*PNL201A. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d. At panel 852 bus 2ENS*SWG101 open breaker 101-10, feed from 4.16KV bus 2NNS-SWG018 to bus 2ENS*SWG101. Place control switch for Breaker 101-10 in the pull to lock position.

e. At Panel 852, bus 2NNS-SWG018, open breaker 18-2, feed from Aux. boiler transformer 2ABS-X1 to bus 2ENS*SWG101 and bus 2ENS*SWG103. Place control switch for breaker 18-2 in the pull to lock position.

f. At Panel 852, lockout reserve station service transformer 2RTX-XSR1A feed to emergency buses 2ENS*SWG101 & 2ENS*SWG102, Breaker 16-2.

g. At 4.16KV bus 018 rack out and remove breaker 18-2 from cubicle 18-2 and rack breaker 18-2 into 4.16KV bus cubicle 16-2.

h. At bus 2ENS*SWG101 rack out and remove breaker 101-10 from cubicle 101-10 and rack breaker 101-10 into cubicle 101-13.

i. At Panel 852, bus 2NNS-SWG016, close breaker 16-2, feed from reserve station service transformer 2RTX-XSR1A to bus 2ENS*SWG101 and bus 2ENS*SWG102.

H. OFF NORMAL PROCEDURES (Cont.)

j. At Panel 852, turn on Synch. Switch across 4.16KV Bus 016 and 2ENS*SWG101, Breaker 101-13.

k. At Panel 852, bus 2ENS*SWG101, check synchronization and voltage across breaker 101-13. Make necessary adjustments to emergency diesel generator 2EGS*EG1 voltage and frequency (See N2-OP-100A) and close breaker 101-13.

l. Close circuit #4 in panel 2BYS*PNL201A.

m. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 016 and 2ENS*SWG 101, Breaker 101-13.

n. At Panel 852, bus 2ENS*SWG101 open emergency diesel generator 2EGS*EG1 output breaker 101-1 in accordance with N2-OP-100A and place diesel in standby.

o. Transfer emergency bus 2ENS*SWG102 from reserve station service transformer 2RTX-XSR1B to reserve station service transformer 2RTX-XSR1A per Section H Step 14 of this procedure.

NOTE: Normal feed to Bus 2ENS*SWG102 is from reserve station transformer 2RTX-XSR1A with 2RTX-XSR1B as the alternate source.

17.0 To transfer emergency bus 2ENS*SWG103 feed from reserve station service transformer 2RTX-XSR1B to aux. boiler transformer 2ABS-X1:

a. Verify that bus 2ENS*SWG102 is fed from it's normal source, 2RTX-XSR1A.

NOTE: If in mode 1, 2 or 3 and 2ENS*SWG 103 is to be transferred to the aux. boiler bus with ABS-X1 powered from 2RTX-XSR1A, consult with Tech. Spec. 3.8.1.1.

b. At Panel 852, 115KV bus, verify that aux. boiler transformer 2ABS-X1 is energized and breaker 13-2 closed. (the same 115KV lines)

(initialed 9/15/88)

c. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water, and breaker 103-14 must be tripped. Note that the following step will also defeat load sequencing for Div. 2 SWP Pumps. TCN-12

d. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

e. At Panel 852, bus 2ENS*SWG103 open breaker 103-4 feed from 4.16KV bus 2NNS-SWG017 to bus 2ENS*SWG103. Place control switch for breaker 103-4 in the pull to lock position.

~~f. At Panel 852, bus 2NNS-SWG017, open breaker 17-2, feed from Reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG102 and bus 2ENS*SWG103. Place control switch for breaker 17-2 in the pull to lock position.~~

~~g. At Panel 852, lock out aux. boiler transformer 2ABS-X1 feed to emergency buses 2ENS*SWG101 and 2ENS*SWG103, Breaker 18-2.~~

TCN-1

f K. Check control switch for breaker 103-2 is in pull-to-lock position.

g K. At bus 2ENS*SWG103 rack out and remove breaker 103-4 from cubicle 103-4 and rack breaker 103-4 into cubicle 103-2.

~~j. At Panel 852, bus 2NNS-SWG018, close breaker 18-2, feed from 2ABS-X1 transformer to bus 2ENS*SWG101 and bus 2ENS*SWG103.~~

h K. At Panel 852, turn on Synch. Switch across 4.16KV Bus 018 and 2ENS*SWG103, Breaker 103-2.

i K. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across breaker 103-2. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-2.

j K. Close circuit #4 in Panel 2BYS*PNL201B.

K K. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 018 and 2ENS*SWG103, Breaker 103-2.

L K. At Panel 852, bus 2ENS*SWG103, open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

CAUTION

At no time will both emergency bus 2ENS*SWG101 and 2ENS*SWG103 be paralleled on bus 2NNS-SWG018.

18.0 To transfer emergency bus 2ENS*SWG103 feed from Aux. boiler transformer 2ABS-X1 to reserve station service transformer 2RTX-XSR1B:

a. At Panel 852, 115KV bus, verify that reserve station service transformer 2RTX-XSR1B is energized.

b. At Panel 852, start emergency diesel generator 2EGS*EG3 and synchronize to emergency bus 2ENS*SWG103 (See N2-OP-100A).

H. OFF NORMAL PROCEDURES (Cont.)

CAUTION

If a LOCA occurs while the bus is powered by the Diesel Generator alone, circuit #4 must be closed to separate category II service water, and breaker 103-14 must be tripped. Note that the following step will also defeat Div. 2 SWP Pump load Sequencing. TCN-12

c. Station an operator with a flashlight and radio at panel 2BYS*PNL201B. Open circuit #4 and remain at the panel until an offsite feeder breaker is closed on the bus, and circuit #4 is closed.

d. At panel 852 bus 2ENS*SWG103 open breaker 103-2, feed from 4.16KV bus 2NNS-SWG018 to bus 2ENS*SWG103. Place control switch for Breaker 103-2 in the pull to lock position.

e. At Panel 852, bus 2NNS-SWG018, open breaker 18-2, feed from Aux. boiler transformer 2ABS-X1 to bus 2ENS*SWG101 and bus 2ENS*SWG103. Place control switch for breaker 18-2 in the pull to lock position.

f. At Panel 852, verify the control switch for the reserve station service transformer 2RTX-XSR1B feed to emergency buses 2ENS*SWG103 & 2ENS*SWG102, Breaker 17-2 is in the "pull to lock" position.

g. At 4.16KV bus 018 rack out and remove breaker 18-2 from cubicle 18-2 and rack breaker 18-2 into 4.16KV bus 017 cubicle 17-2.

h. Check control switch for breaker 103-4 is in pull-to-lock position.

i. At bus 2ENS*SWG103 rack out and remove breaker 103-2 from cubicle 103-2 and rack breaker 103-2 into cubicle 103-4.

j. At Panel 852, bus 2NNS-SWG017, close breaker 17-2, feed from reserve station service transformer 2RTX-XSR1B to bus 2ENS*SWG103 and bus 2ENS*SWG102.

k. At Panel 852, turn on Synch. Switch across 4.16KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

l. At Panel 852, bus 2ENS*SWG103, check synchronization and voltage across breaker 103-4. Make necessary adjustments to emergency diesel generator 2EGS*EG3 voltage and frequency (See N2-OP-100A) and close breaker 103-4.

m. Close circuit #4 in Panel 2BYS*PNL201B.

n. At Panel 852, turn off Synch. Switch across 4.16 KV Bus 017 and 2ENS*SWG103, Breaker 103-4.

o. At Panel 852, bus 2ENS*SWG103 open emergency diesel generator 2EGS*EG3 output breaker 103-14 in accordance with N2-OP-100A and place diesel in standby.

H. OFF NORMAL PROCEDURES (Cont.)

19.0 Loss of normal feed (2NJS-US3) to 2VBB-TRS1 - transfer switch feeding normal A.C. voltage supply to 2VBB-UPS1A, 1B, 1G:

Upon loss of feed 2NJS-US3 to transfer switch 2VBB-TRS1, the UPS and transfer switch will automatically transfer so that there is no loss of load, therefore, no operator action is required.

Description of transfer: Upon loss of power from 2NJS-US3 to 2VBB-TRS1 the "normal" green light on TRS1 will go out and TRS1 will automatically (after a time delay) transfer its input to 2NJS-US4 and the "emergency" red light will light. When normal power is lost to the UPS it will automatically begin drawing power from the batteries. 3

As soon as TRS 1 transfers to 2NJS-US4 normal power is restored to the UPS and the UPS will bias off (stop drawing from) the batteries and draw from its normal source again. When 2NJS-US3 is re-energized the transfer switch, 2VBB-TRS1, will automatically retransfer back to 2NJS-US3 (after a delay). There is no loss of power to the UPS load and all equipment will restore automatically so no operator action is necessary.

20.0 Loss of normal A.C. power to all series 1 and series 3 UPS

No operator action required. Upon loss of normal A.C. supply to any series 1 or series 3 UPS the UPS will automatically begin accepting power from the batteries. As long as the battery voltage does not fall to an undervoltage condition (due to an off normal condition in the 125VDC system), the UPS can continue to operate off the battery indefinitely. When the normal A.C. source is re-energized, the UPS will automatically bias off (stop drawing from) the batteries and draw power again from its normal source.

21.0 Loss of normal A.C. power with added loss of D.C. backup power to all series 1 and series 3 UPS:

If there is loss of normal A.C. power to any UPS combined with a loss of (battery) D.C. power, the UPS will automatically transfer its load to its maintenance A.C. source. Once the UPS is on the maintenance source it can operate indefinitely on maintenance power until normal power is available. Once normal power is available the load is automatically retransferred back to the UPS. 3

22.0 Energized UPS (Series 1 or 3) with loss of D.C. power without loss of normal A.C. power: 3

An energized UPS operating on normal A.C. power can experience the loss of D.C. power with no effect on the UPS or its loads. Therefore this requires no operator action. 3

NOTE: THIS PROCEDURE WILL RESULT IN THE UPS CRITICAL LOADS USING SUPPLIED FROM THE MAINTENANCE SOURCE. THE UPS INVERTER AND UPS LOGIC POWER WILL BE DE-ENERGIZED. WITH THE UPS LOGIC POWER DE-ENERGIZED CONTROL ROOM ANNUNCIATION FOR THE ASSOCIATED UPS WILL BE INHIBITED. 6-6-91

H. OFF NORMAL PROCEDURES (Cont.)

23.0 Transfer of load from UPS 1 series (75 KVA) to the maintenance source and shutdown of the UPS.

a. Initial Condition:

1. UPS module supplying critical load.

2. The maintenance source is energized.

3. The UPS A.C. input breaker is closed.

b. UPS transfer and shutdown:

1. Check that "util sync ok" lamp is lit.

2. "No - break transfer, to ~~bypass~~ MAINTENANCE" lamp is lit.

3. Place the transfer control switch in the ~~bypass~~ (maintenance) position.

NOTE: This initiates the transfer to maintenance. CB-3 and CB-4 will change position.

4. Release switch and allow it to spring back to the "manual restart" position.

5. Verify breaker CB-4 is closed.

6. Open "switch" CB-3" on panel and verify CB-3 opens.

7. Push "module off" switch.

8. Open battery breaker, CB-2.

9. Manually open A.C. input breaker, CB-1.

10. Using portable D.C. voltmeter on UPS internal D.C. Bus, check that voltmeter indicates less than 30 VDC.

NOTE: Allow approx. one minute for DC bus to decay below 30 volts.

12 ~~11~~. Open control circuit breakers, A27-CB1 and control switch, A27-S1.

13 ~~12~~ The UPS is now de-energized except for the load current transformer loops. Refer further isolation and/or repairs to maintenance.

11 12) DISCONNECT THE POWER CORD PLUG, P6, TO MOTOR OPERATOR TO CB-4.

24.0 Removing the ~~alternate~~ MAINTENANCE supply to any 1-series UPS with the UPS supplying the critical load:

a. Verify UPS "module-on" lamp is lit.

b. Check D.C. volts at 130-140 VDC.

c. Check output frequency at nominal 60 Hz.

H. OFF NORMAL PROCEDURES (Cont.)

d. Check A.C. output volts at nominal 120 volts.

e. Check breaker toggle switch "CB-3" is in closed position.

f. Check that breaker CB-4 is open.

g. Disconnect the power jack for the cable to the motor operator of CB-4.

h. Place transfer control switch to "manual restart" position.

CAUTION:

BE CAREFUL THAT SWITCH DOES NOT GO TO "BYPASS" ACCIDENTLY.

i. In order to de-energize each maintenance supply open the associated input breaker, CB-1, on the associated transformer.

j. To de-energize the feed to each associated transformer, open up the A.C. feed breaker as follows:

k. For 2VBB-XD500 (UPS1A) open breaker # 8-D on 2NJS-US5
2VBB-XD601 (UPS1B) open breaker # 4-B on 2NJS-US6
2VBB-XD501 (UPS1C) open breaker # 4-B on 2NJS-US5
2VBB-XD600 (UPS1D) open breaker # 6-C on 2NJS-US6
2VBB-XD602 (UPS1G) open breaker # 6-D on 2NJS-US6

l. Refer cable removal, etc. to electrical maintenance.

NOTE: With UPS in this configuration, a UPS trip will cause a loss of critical load.

25.0 Transfer of load from UPS 3A and 3B (10 KVA) to the maintenance source and shutdown of the UPS.

1. Initial Conditions:

a. UPS module supplying the critical load.

b. The maintenance source is energized.

2. UPS transfer and shutdown-

a. Check the maintenance supply voltage and frequency to be nominally 124 volts and 60 H_Z, respectively.
b. Check "Sync. Loss" lamp is out.
c. Push reverse transfer (to maintenance) pushbutton.
d. Switch manual transfer switch S-1 to the "Maintenance" position.
e. Turn off battery circuit breaker CB-2.
f. Turn off A.C. input breaker, CB-1.
g. Check D.C. rectifier and inverter output volts drop to zero
h. Set output AC voltmeter and frequency meter switch, S-2, to the "maintenance" position.

H. OFF NORMAL PROCEDURES (Cont.)

26.0 Removing the maintenance supply to UPS3A or UPS3B with the UPS supplying the critical loads.

a. Verify on UPS - CB-1 closed.

b. Verify on UPS - CB-2 closed.

c. Verify UPS D.C. volts is 130-140 VDC.

d. Verify UPS A.C. output volts to be nominal 124 VAC.

e. Verify UPS frequency at nominal 60 H_Z.

f. Check all alarms clear.

g. Move switch S-1, "manual transfer switch" to the "~~maintenance~~" "INVERTER" switch position. PIC 2-28-90 JH 4/26/90

h. On the maintenance supply transformer/regulator open ~~CB-1~~. "AC INPUT TO MAINTENANCE SUPPLY REGULATOR" BREAKER 12-10-90 AMK 12/10/90

i. Any further isolation and/or repair should be referred to electrical maintenance.

NOTE: With UPS and maintenance supply in this position, any UPS fault condition will result in loss of load.

27.0 UPS 1-series restart after a UPS failure trip/transfer to maintenance supply:

a. Check the critical load is being powered by the maintenance supply.

b. Record all UPS alarm and switch positions, and then push reset buttons A13A34 and A13A21. TCN-1

c. Close/verify closed CB-1, normal AC input.

d. Place the transfer control switch in the "manual restart" position.

e.1 Place CB-3 toggle switch in the OPEN position. TCN-1

e.2 Push ON pushbutton. After unit stabilizes (running), close CB-2.

e.3 Push OFF pushbutton. Place transfer control switch to "AUTO RESTART." Place CB-3 toggle switch in CLOSE position.

f. The UPS will automatically restart (after a time relay of approximately 40 sec.) and retransfer back to the UPS.

TCN-

g. If the UPS transfers back to ~~bypass~~ MAINTENANCE, then move the transfer control switch to "Manual Restart" and investigate cause. If UPS shutdown is warranted do so per Section H.23.b.5-14.

h. If UPS stays on UPS power, verify output of nominal 120 VAC, and 60 H_Z.

i. Check transfer Control Switch is in "Auto Restart" position.

28.0 UPS 1-series shutdown after failure, maintenance source feeding load:

a. Record all alarms and switch positions on the UPS.

b. Place transfer control switch to "manual restart" position.

c. Follow Section H.23.b.5-~~14~~ 13.

29.0 UPS 3A/3B restart after a UPS failure trip/transfer to maintenance supply:

a. Check that the critical load is being powered by the maintenance supply.

b. Record all alarms and switch positions.

c. Clear all alarms as necessary.

d. Verify A.C. input breaker CB-1 closed, close if open/tripped.

e. Check D.C. input breaker CB-2 closed. (If tripped, do not reset until UPS is up and running.)

f. Check UPS D.C. volts 130-140 VDC.

g. Check inverter output volts nominally 124 VAC and 60 H_Z.

h. Check manual transfer switch, S-1, is in the "static switch" position.

i. Check "Sync. Loss" lamp is out.

j. Push the "forward transfer" (to inverter) pushbutton.

k. If the load transfers back to the maintenance supply, then investigate the cause. If UPS shutdown is warranted, do so per Section H. 25.

30.0 UPS 3A/3B shutdown after failure, with maintenance source feeding load.

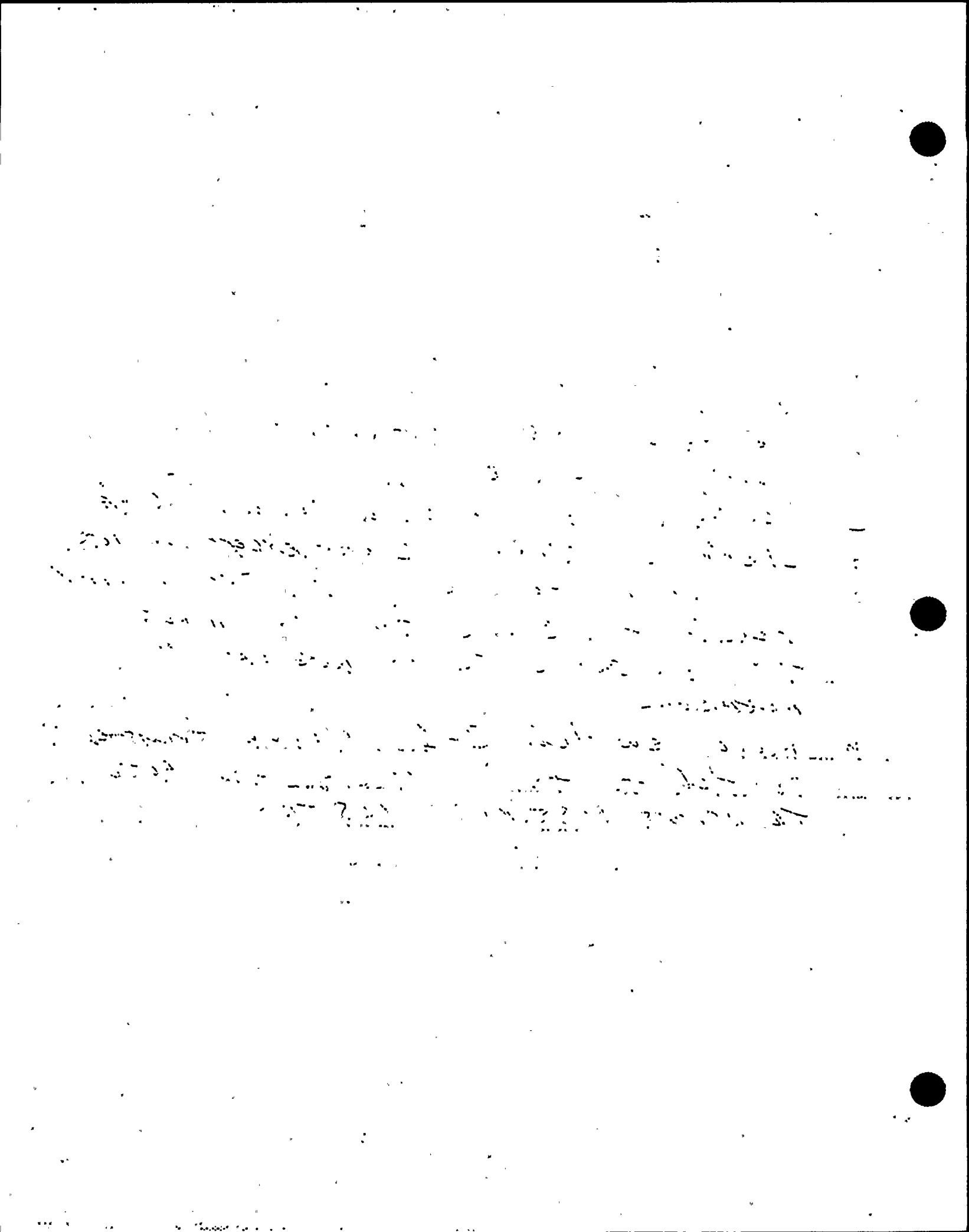
a. Record all alarms and switch positions.

b. Follow Section H. 25.

3.1.0 RESTORING THE MAINTENANCE SUPPLY TO UPS 3A OR UPS 3B WITH THE UPS SUPPLYING THE CRITICAL LOADS.

a. Verify on UPS CB-1 closed,
b. Verify on UPS CB-2 Closed.
c. Verify UPS D.C. volts 130-140 VDC
d. Verify UPS A.C. output volts to be nominal 124 VAC.
e. Verify UPS frequency at nominal 60 HZ.
f. Check all alarms clear, except Sync loss.
g. On the maintenance supply transformer/regulator, close the "AC INPUT TO MAINTENANCE SUPPLY REGULATOR" BREAKER
h. Move switch S-1 "Manual transfer switch" to the "STATIC SWITCH AUTO TRANSFERS POSSIBLE" POSITION.

12-10 90 JK 12/21/90



32.0 Inadvertent Loss of Buss

NOTE: Loss of Buss may be indicated by any of the following:
- Trip of Feeder Breaker due to electrical malfunction (typically from electrical fault or undervoltage condition).
- Zero voltage indicated at the affected buss.
- Annunciators in alarm for the associated buss.
- Loss of loads supplied by the affected buss.

32.1.0 OPERATOR ACTIONS

32.1.1 Take the necessary actions to place the Plant in a Safe condition.

32.1.2 Refer to Operating Procedures as required.

32.1.3 Place all loads on affected Switchgear, Unit sub or Motor Control Center in the Pull-to-Lock position.

32.1.4 Place affected Feeder Breakers in the Pull-to-Lock position.

32.1.5 Determine the cause of the inadvertent loss of buss by performing the following steps as appropriate:
- Contact Electrical Maint. for assistance.
- Scan all Control Room panels for abnormal indications which may aid in identifying the cause.
- Request assistance from I&C and Meter&Test as necessary.
- Refer to electrical diagrams and load lists as necessary to identify affected loads.

32.1.6 Refer to Technical Specifications for possible entry into LCO's.

32.1.7 Attempt to correct or isolate the cause of loss of buss.

CAUTION Trips or Lockout's should not be reset until the cause of the loss of buss has been determined and corrected.

32.2.0 RESTORATION

32.2.1 When the cause of the loss of buss has been determined and corrected then restore power to the buss using the following steps as a guideline.

a. Verify all load breakers on the affected buss are in Pull-to-Lock.

b. Reclose Feeder Breaker to re-energize the buss.

c. Verify proper voltage on the buss.

CAUTION The following step may involve re-starting of equipment in the plant, Operating Procedures for re-start of those systems must be used.

d. Sequentially re-energize loads on the buss by placing the breakers from Pull-to-Lock to the Normal-after-Start position for only those loads which are required to support normal plant operation or as directed by the SSS.

e. Control Room panels should again be scanned to verify that all abnormal indications and alarms caused by the loss of buss have been corrected.

5/2/91

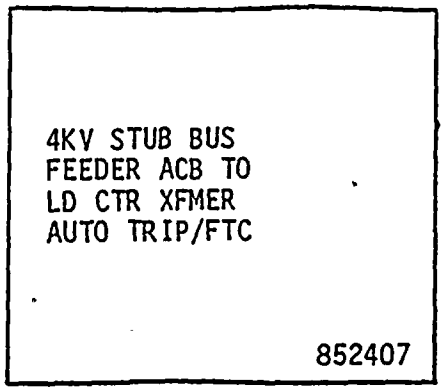
5/2/91

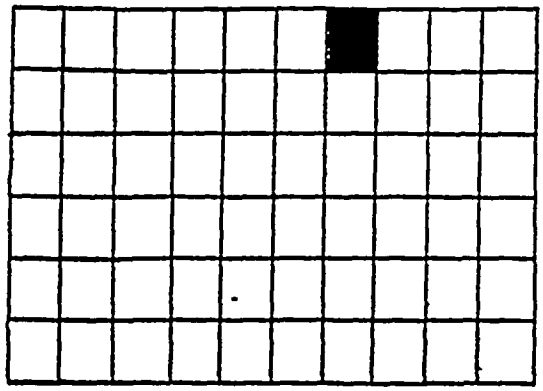
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS

1.0 852407 4KV Stub Bus Feeder Air Circuit Breaker to Load Center Transformer Auto Trip Failure to Close

BCR 12/6/90

Reflash: Yes





852407

1.1	Computer Point	Computer Printout	Source
a.	NJSUC13	X1E ACB 14-4 AT/FTC	2NJS-X1E ACB 14-4 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSX21
b.	NJSUC14	X1E ACB 14-8 AT/FTC	2NJS-X1E ACB 14-8 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSX31
c.	NJSUC15	X3E ACB 15-1 AT/FTC	2NJS-X3E ACB 15-1 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSY21
d.	NJSUC16	X3E ACB 15-7 AT/FTC	2NJS-X3F ACB 15-7 Auto Trip/Failure to Close as sensed by 1 & 52 2NJSY31

1.2 Automatic Response

a. Trip 4160 stub bus feeders to 600V load centers US5 or US6.

1.3 Corrective Action

a. Verify auto station response.

b. Investigate and determine reason for trip.

c. ~~Return system to normal.~~ When the cause for the trip is corrected, re-energize the system per N2-OP-71 Sect. E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Sect. H.2.0 as appropriate.

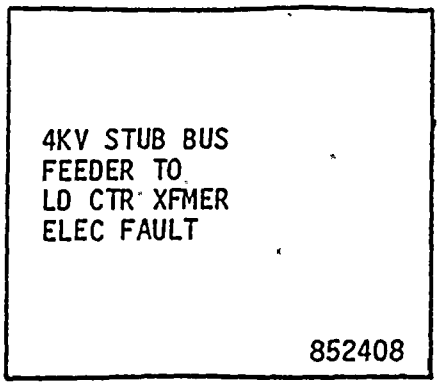
4/27/15

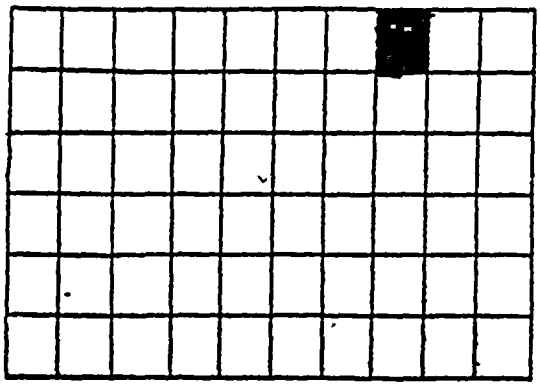
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

2.0 852408 4KV Stub Bus Feeder to Load Center Transformer Electrical Fault

BJR 12/6/90 AH 12/6/90

Reflash: Yes





852408

2.1	Computer Point	Computer Printout	Source
a.	NJSUC09	LOCK OUT RLY 86-X21 TRIP	Lock Out Relay 86-2NJSX21 on stub bus 2NNS-SWG014 feeder ACB 14-4 to US-5 trips and locks out 600V Breaker US-5-8B on high: INST, Time or GND over-current
b.	NJSUC10	LOCK OUT RLY 86-X31 TRIP	Lock Out Relay 86-2NJSX31 on stub bus 2NNS-SWG014 feeder ACB 14-8 to US-5 trips and locks out 600V Breaker US-5-3B on high: INST, Time or GND over-current
c.	NJSUC11	LOCK OUT RLY 86-Y21 TRIP	Lock Out Relay 86-2NJSY21 on stub bus 2NNS-SWG015 feeder ACB 15-1 to US-6 trips and locks out 600V Breaker US-6-7B on high: INST, Time or GND over-current
d.	NJSUC12	LOCK OUT RLY 86-Y31 TRIP	Lock Out Relay 86-2NJSY31 on stub bus 2NNS-SWG015 feeder ACB 15-7 to US-6 trips and locks out 600V Breaker US-6-3B on high: INST, Time or GND over-current

2.2 Automatic Response

a. Trip stub bus feeder 5-8B (86-2NJS-X21) to US-5, bus loads trip on sustained under voltage.

b. Trip stub bus feeder 5-3B (86-2NJS-X31) to US-5, bus loads trip on sustained under voltage.

c. Trip stub bus feeder 6-7B (86-2NJS-Y21) to US-6, bus loads trip on sustained under voltage.

d. Trip stub bus feeder 6-3B (86-2NJS-Y31) to US-6, bus loads trip on sustained under voltage.

2.3 Corrective Action

a. Verify auto matic response.

b. Check computer and panel 852 to determine which breaker tripped.

c. Investigate and determine reason for trip.

d. ~~Return system to normal.~~ When the cause for the trip is corrected, re-energize the system per N2-OP-71 Sect. E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Sect. H.2.0 as appropriate

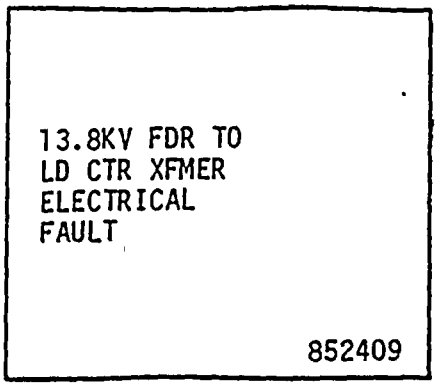
4/29/87

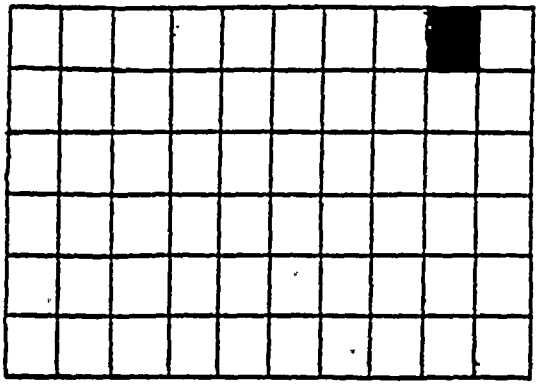
4-29-87

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

3.0 852409 13.8KV Feeder to Load Center Transformer Electrical Fault.

Reflash: Yes





852409

3.1	Computer Point	Computer Printout	Source
a.	NJSUC01	LOCK OUT RLY 86-Y01 TRIP	Lock out relay 86-2NJSY01 on 2NPS-SWG001 feeder ACB 1-5 to 2NJS-US1 and 2NJS-US2 trips and locks out on: high time or Inst Grnd overcurrent (OC) high time or Inst. Overcurrent (OC).
b.	NJSUC02	LOCK OUT RLY 86-Y04 TRIP	Lock out Relay 86-2NJSY04 on 2NPS-SWG001 feeder ACB 1-14 to 2NJS-US3,-US4, -US7 trips on transformer X1A, X1B, X1G high: phase Inst. or Time over current; ground inst. or time OC.
c.	NJSUC05	LOCK OUT RLY 86-X07 TRIP	Lock out Relay 86-2NJSX07 on 2NPS-SWG003 feeder ACB 3-3 to 2NJS-US1,-US2, trips on transformer 2NJS-X3C,-X3D high: phase Inst. or Time over current; ground inst. or time OC.

d.	NJSUC06	LOCK OUT RLY 86-X10 TRIP	Lock out Relay 86-2NJSX10 on 2NPS-SWG003 feeder ACB 3-13 to 2NJS-US3,-US4, -U57, trips on transformer 2NJS-X3A, -X3B or -X3G high: phase Inst. or Time over current; ground inst. or time OC.

3.2 Automatic Response

a. Trips and locks out bus breakers: 2NPS-SWG001, ACB1-5; 2NJS-US1, ACB 1-3B; 2NJS-US2, ACB 2-3B. Removes power to the Alternate Access Bldg. Transformer 2JKB-X1.

b. Trips and Locks out bus breakers: 2NPS-SWG001, ACB 1-14; 2NJS-US3, ACB 3-3B, 2NJS-US4, ACB 4-3B, 2NJS-US7, ACB 7-3B.

c. Trips and Locks out bus breakers: 2NPS-SWG003, ACB 3-3; 2NJS-US1, ACB 1-14B; 2NJS-US2, ACB 2-12B.

d. Trips and Locks out bus breakers: 2NPS-SWG003, ACB 3-13; 2NJS-US3, ACB 3-14B; 2NJS-US4, ACB 4-15B; 2NJS-US7, ACB 7-7B.

3.3 Corrective Action

a. Verify automatic response.

b. Check computer and panel, 2CES-PNL852 to determine which breaker tripped.

c. Investigate and determine reason for trip.

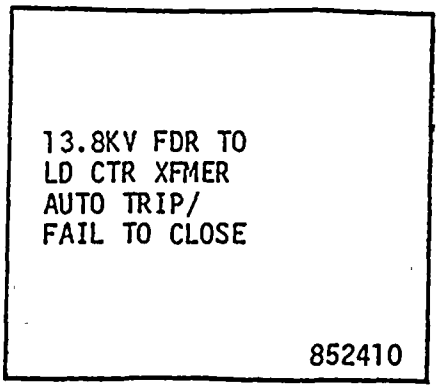
d. Return system to normal.

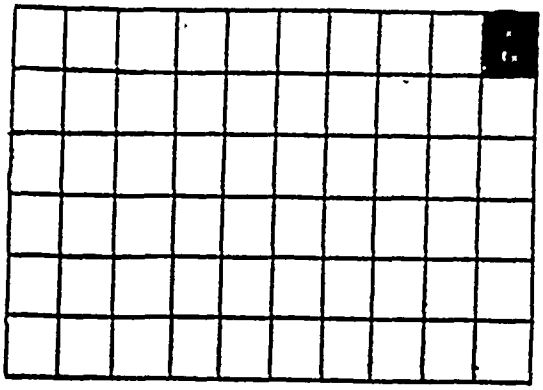
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

4.0 852410 13.8KV Feeder to Load Center Transformer Auto Trip/Failure to Close

BJB 12/6/90 MH 12/4/91

Reflash: Yes





852410

4.1	Computer Point	Computer Printout	Source
a.	NJSUC03	NPS001 ACB 1-5 AT/F-T-C	2SWG-NPS001 Air Circuit Breaker 1-5 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSY01
b.	NJSUC04	NPS001 ACB 1-14 AT/F-T-C	2SWG-NPS001 Air Circuit Breaker 1-14 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSY04
c.	NJSUC07	NPS003 ACB 3-3 AT/F-T-C	2SWG-NPS003 Air Circuit Breaker 3-3 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSX07
d.	NJSUC08	NPS003 ACB 3-13 AT/F-T-C	2SWG-NPS003 Air Circuit Breaker 3-13 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSX10

4.2 Automatic Response

a. 13.8KV breaker 1-5 open and Ctrl Sw in Normal after close.

b. 13.8KV breaker 1-14 open and Ctrl Sw in Normal after close.

c. 13.8KV breaker 3-3 open and Ctrl Sw in Normal after close.

d. 13.8KV breaker 3-13 open and Ctrl Sw in Normal after close.

4.3 Corrective Action

a. Investigate and determine reason for trip or failure to close.

b. Return system to normal.

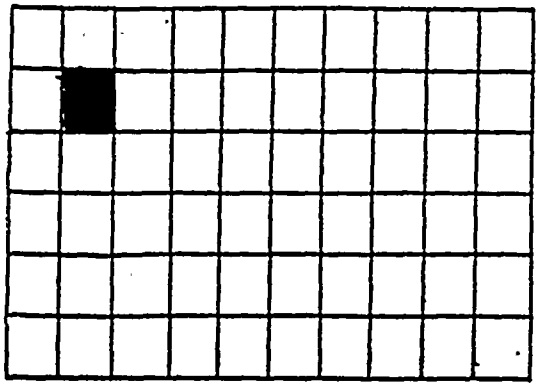
BCB 12/6/90 MJ 12/6/90

5.0 852412 Loss of 115KV From Scriba Alternate 1B Primary Relay

Reflash: No

LOSS OF 115KV
FROM SCRIBA
ALTERNATE 1B
PRIMARY RELAY

852412



852412

5.1	Computer Point	Computer Printout	Source
	YUCBC08	115KV PWR SCRIBA ALT 1(B)	Scriba Station (B) 115KV Line #6 protection (alternate 1) operated as sensed by 94-2YUCB01

5.2 Automatic Response

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

5.3 Corrective Action

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

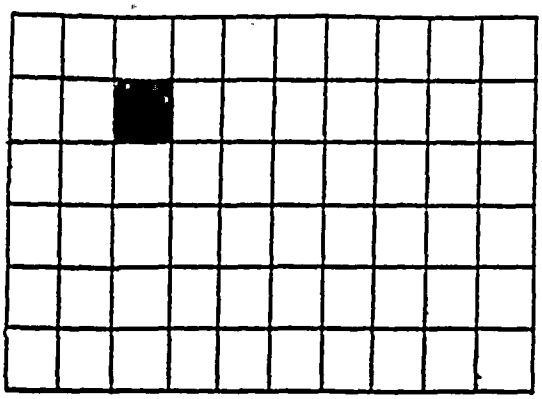
6.0 852413 Loss of 115KV From Scriba Alternate 2B Backup Relay

BCB 12/6/90 MG 12/6/90.

Reflash: No

LOSS OF 115KV
FROM SCRIBA
ALTERNATE 2B
BACKUP RELAY

852413



852413

6.1	Computer Point	Computer Printout	Source
	YUCBC10	115KV PWR SCRIBA ALT 2 (B)	Scriba Station (B) 115KV Line #6 protection (alternate 2) operated as sensed by 94-2YUCB02

6.2 Automatic Response

NONE (unless 2YUL-MDS2,-MDS20, MDS10 are closed then alarm window 852441 would also be lit.

6.3 Corrective Action

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

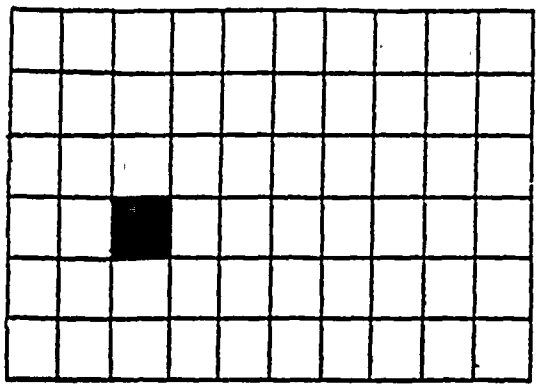
7.0 852433 Auxiliary Boiler Transformer Loss of Voltage

BB 10/6/87 MB 12/6/87

Reflash: No

AUX BOILER
TRANSFORMER
LOSS OF
VOLTAGE

852433



852433

7.1	Computer Point	Computer Printout	Source
	NPSEC12	AUX BLR XFMR LOSS OF VOLT	Auxiliary Boiler Transformer 2ABS-X1 Loss of Voltage as sensed by 59-2NPSZ17 (between 2ABS-X1 and 13.8KV Bus 2NPS-SWG002)

7.2 Automatic Response

NONE (unless 13.8KV Bus 2NPS-SWG002 Supply ACB 2-5 is closed, then annunciator 852519 would also be lit.

7.3 Corrective Action

a. Determine the cause of the undervoltage.

b. Restore to required.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

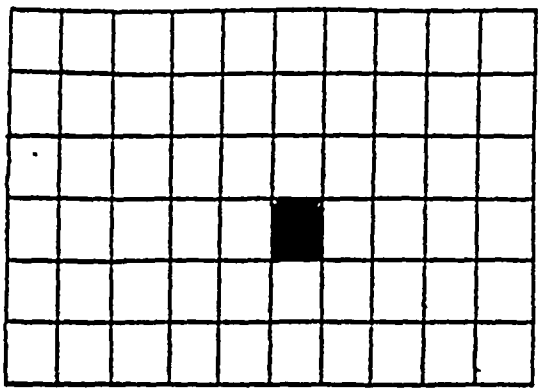
8.0 852436 Neutral Switch 001 for Alternate Feed to BUS 2NPS-SWG002 close

BB 12/6/90
MM 12/6/90

Reflash: No

NEUT SW 001
FOR ALTN FEED
TO 13.8 KV BUS
NPS 002 CLOSE

852436



852436

8.1	Computer Point	Computer Printout	Source
	NPSZC01	Neut SW001 Altn. Fd. 002	Neutral Switch 2RTX-SW001 (Neutral Grounding Resistor Bypass) on 2RTX-XSR1A for Alternate Feed to 13.8KV Bus 2NPS-SWG002 closed, as sensed by 33-2NPSZ13

8.2 Automatic Response

NONE

8.3 Corrective Action

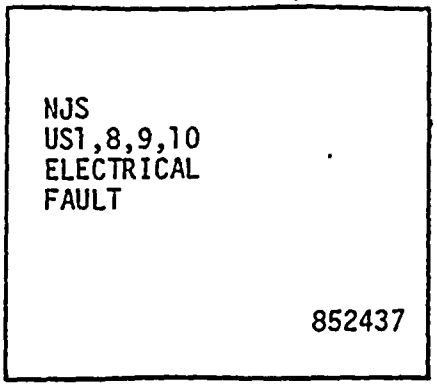
a. Verify that 2NPS-SWG002 is the only 13.8KV bus to be connected to 2RTX-XSR1A.

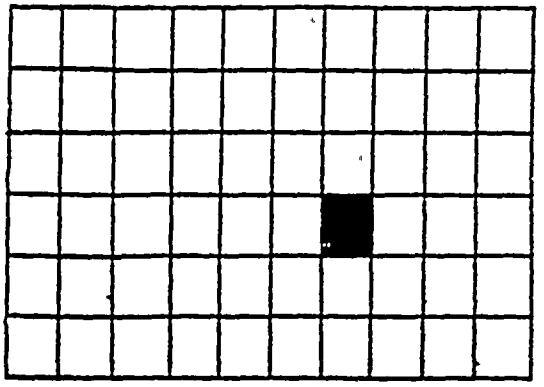
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

9.0 852437 NJS US1, 8, 9,10, Electrical Fault

BB 12/6/90 MM 12/6/90

Reflash: Yes





852437

9.1	Computer Point	Computer Printout	Source
a.	NJSUC21	US1A ACB 1-3B Elec. Fault	2NJS-US1A Air Circuit Breaker 1-3B Electrical Fault as sensed by 520C-2NJSA01
b.	NJSUC22	US1B ACB 1-14B Elec. Fault	2NJS-US1B Air Circuit Breaker 1-14B Electrical Fault as sensed by 520C-2NJSB01
c.	NJSUC27	US1A & C ACB 1-8B Elec. Fault	2NJS-US1A &USIC Air Circuit Breaker ACB1-8B Electrical Fault as sensed by 520C-2NJSN28
d.	NJSUC29	US1B&C ACB 1-10B Elec. Fault	2NJS-US1B &USIC Air Circuit Breaker ACB1-10B Electrical Fault as sensed by 520C-2NJSN30
e.	NJSUC45	US8A Sply Brkr ACB 8-3B	2NJS-US8A Air Circuit Breaker ACB 8-3B Electrical Fault as sensed by 520C-2NJSA08

9.1	Computer Point	Computer Printout	Source (cont.)
	f. NJSUC46	US8B Sply Brkr ACB 8-13B	2NJS-US8B Air Circuit Breaker ACB 8-13B Electrical Fault as sensed by 520C-2NJSB08
	g. NJSUC44	US8 A & C Sply Brkr ACB 8-7B	2NJS-US8A & US8C Air Circuit Breaker ACB 8-7B Electrical Fault as sensed by 520C-2NJSN41
	h. NJSUC47	US8B & C Sply Brkr ACB 8-9B	2NJS-US8B & US8C Air Circuit Breaker ACB 8-9B Electrical Fault as sensed by 520C-2NJSN42
	i. NJSUC49	US9A Sply Brkr ACB 9-3B	2NJS-US9A Air circuit Breaker ACB 9-3B Electrical Fault as sensed by 520C-2NJSA09
	j. NJSUC50	US9B Sply Brkr ACB 9-13B	2NJS-US9B Air circuit Breaker ACB 9-13B Electrical Fault as sensed by 520C-2NJSB09
	k. NJSUC48	US9A & US9C Sply Bkr ACB 9-7B	2NJS-US9A & US9C Air Circuit Breaker ACB 9-7B Electrical Fault as sensed by 520C-2NJSN43
	l. NJSUC51	US9B & US9C Sply Bkr ACB 9-9B	2NJS-US9B & US9C Air Circuit Breaker ACB 9-9B Electrical Fault as sensed by 520C-2NJSN44
	m. NJSUC52	US10A & C Tie Bkr ACB 10-6B	2NJS-US10A & US10C Air Circuit Breaker ACB 10-6B Electrical Fault as sensed by 520C-2NJSN45
	n. NJSUC53	US10A Sply Brkr ACB 10-3B	2NJS-US10A Air Circuit Breaker ACB 10-3B Electrical Fault as sensed by 520C-2NJSA10

9.1	Computer Point	Computer Printout	Source (cont.)
	o. NJSUC54	US10B Sply Brkr ACB 10-12B	2NJS-US10B Air Circuit Breaker ACB 10-12B Electrical Fault as sensed by 520C-2NJSB10
	p. NJSUC55	US10B &C Bs Tbkr ACB 10-9B	2NJS-US10B &US10C Bus Tie Breaker Air Circuit Breaker ACB 10-9B Elec. Fault as sensed by 520C-2NJSN46

9.2 Automatic Response

a. Trip 600V supply or tie breaker on 2NJSUS1, US8, US9, or US10 (whichever breaker fault occurred on).

9.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US1, US8, US9, US10.

c. Investigate and determine reason for trip.

d. Return system to normal.

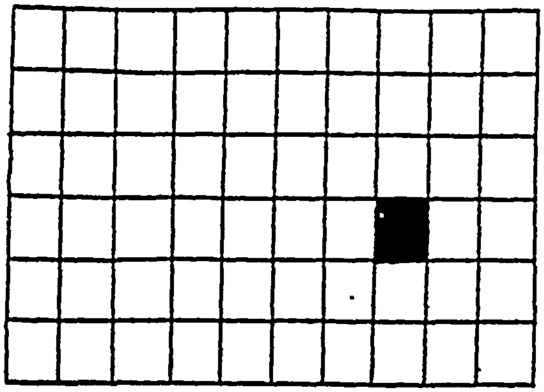
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

10.0 852438 Load Center 2NJS-US2 Electrical Fault

Reflush: Yes

12/6/90

LOAD CENTER 2NJS-US2 ELECTRICAL FAULT 852438



852438

10.1

	Computer Point	Computer Printout	Source
a.	NJSUC32	US2A ACB 2-3B Elect. Flt	Load Center 2NJS-US2A Air Circuit Breaker ACB 2-3B Electrical Fault as Sensed by 520C-2NJSA02
b.	NJSUC33	US2B ACB 2-12B Elect. Flt	Load Center 2NJS-US2B Air Circuit Breaker ACB 2-12B Electrical Fault as Sensed by 520C-2NJSB02
c.	NJSUC36	US2A ACB 2-6B Elect. Flt	Load Center 2NJS-US2A Air Circuit Breaker ACB 2-6B Electrical Fault as Sensed by 520C-2NJSN33
d.	NJSUC38	US2B ACB 2-9B Elect. Flt	Load Center 2NJS-US2B Air Circuit Breaker ACB 2-9B Electrical Fault as Sensed by 520C-2NJSN35

10.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US2.

10.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US2.

c. Investigate and determine reason for trip.

d. Return system to normal.

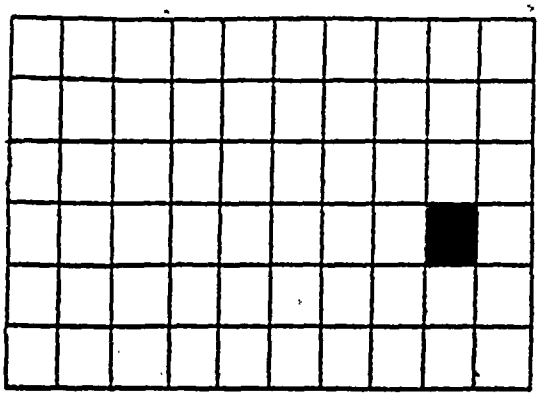
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

11.0 852439 Load Center 2NJS-US3 Electrical Fault

Reflash - Yes

LOAD CENTER
2NJS-US3
ELECTRICAL
FAULT

852439



852439

11.1	Computer Point	Computer Printout	Source
a.	NJSUC23	US3A ACB 3-3B Elect. Flt	Load Center 2NJS-US3A Air Circuit Breaker ACB 3-3B Electrical Fault as Sensed by 520C-2NJSA03
b.	NJSUC24	US3B ACB 3-14B Elect. Flt	Load Center 2NJS-US3B Air Circuit Breaker ACB 3-14B Electrical Fault as Sensed by 520C-2NJSB03
c.	NJSUC28	US3A & C ACB 3-7B Elect. Flt	Load Center 2NJS-US3A & US3C Air Circuit Breaker ACB 3-7B Electrical Fault as Sensed by 520C-2NJSN29
d.	NJSUC30	US3B&C ACB 3-11B Elect. Flt	Load Center 2NJS-US3B & US3C Air Circuit Breaker ACB 3-11B Electrical Fault as Sensed by 520C-2NJSN31

11.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US3.

11.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US3.

c. Investigate and determine reason for trip.

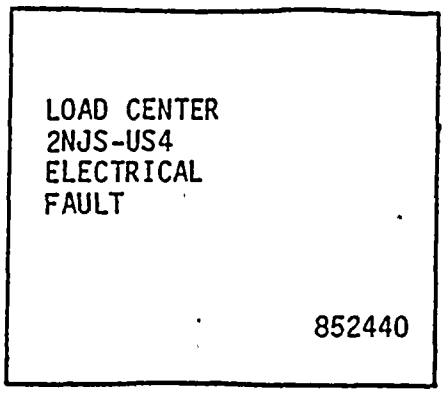
d. Return system to normal.

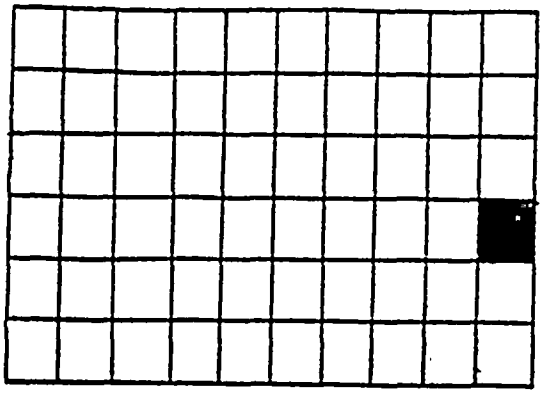
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

12.0 852440 Load Center 2NJS-US4 Electrical Fault

BCS 12/6/90
AG 12/6/90

Refksh: Yes





852440

12.1

	Computer Point	Computer Printout	Source
a.	NJSUC34	US4A ACB 4-3B Elect. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-3B Electrical Fault as Sensed by 520C-2NJSA04
b.	NJSUC35	US4B ACB 4-15B Elect. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 4-15B Electrical Fault as Sensed by 520C-2NJSB04
c.	NJSUC37	US4A ACB 4-8B Elect. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-8B Electrical Fault as Sensed by 520C-2NJSN34
d.	NJSUC39	US4B ACB 4-11B Elect. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 4-11B Electrical Fault as Sensed by 520C-2NJSN36

12.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US4.

12.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US4.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

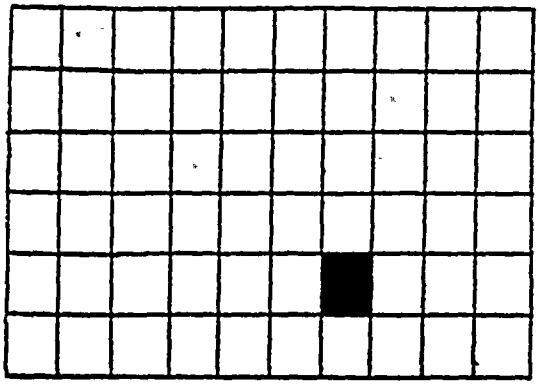
13.0 852447 Load Center DC Control Power to Normal Load Center Close Permissive

SCB 12/6/90 MA 12/6/90

Reflash: Yes

LOSS OF DC
CONT POWER TO
NORMAL LD CTR
CLOSE PERMISV

852447



852447

13.1

	Computer Point	Computer Printout	Source
a.	NJSBC13	LOSS of US1 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US1 as sensed by 74-2NJSN21
b.	NJSBC14	LOSS of US3 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US3 as sensed by 74-2NJSN23
c.	NJSBC15	LOSS of US2 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US2 as sensed by 74-2NJSN22
d.	NJSBC16	LOSS of US4 DC CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US4 as sensed by 74-2NJSN24
e.	NJSBC18	LOSS of US7B NORM BRKR STATUS	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US7 as sensed by 74-2NJSB07
f.	NJSBC19	LOSS of US8 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US8 as sensed by 74-2NJSN38

13.1	Computer Point	Computer Printout	Source (cont.)
	g. NJSBC20	LOSS of US9 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US9 as sensed by 74-2NJSN39
	h. NJSBC21	LOSS of US10 CONT PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US10 as sensed by 74-2NJSN40

13.2 Automatic Response

NONE

13.3 Corrective Action

a. Check computer to determine which load center is in alarm.

b. Move fuses to Alternate Feed position (see Section H of N2-OP-73A).

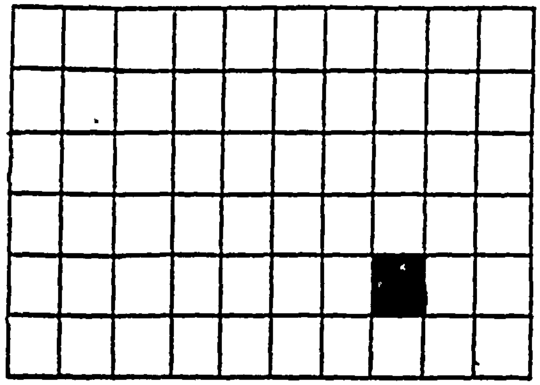
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

14.0 852448 Load Center 2NJS-US5 Electrical Fault

Reflash: Yes

LOAD CENTER
2NJS-US5
ELECTRICAL
FAULT

852448



852448

14.1

Computer Point		Computer Printout	Source
a.	NJSUC17	US5 NORM BRKR ELEC FAULT	2NJS-US5 Normal Breaker Electrical Fault as sensed by 520C-2NJSX13
b.	NJSUC19	US5 Altn BRKR ELEC FAULT	2NJS-US5 Alternate Breaker Electrical Fault as sensed by 520C-2NJSX14

14.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US5.

14.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US5.

c. Investigate and determine reason for trip.

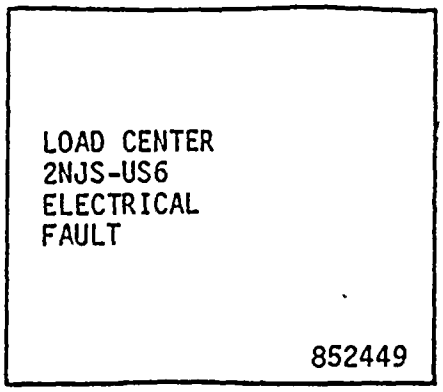
d. Return system to normal.

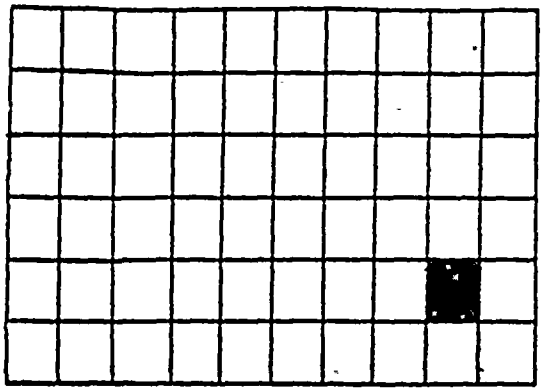
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

15.0 852449 Load Center 2NJS-US6 Electrical Fault

RJB 12/6/90 NJ 12/6/90

Reflash: Yes





852449

15.1	Computer Point	Computer Printout	Source
a.	NJSUC18	US6 NORM BRKR ELEC FAULT	2JNS-US6 Normal Breaker Electrical Fault as sensed by 520C-2NJSY13
b.	NJSUC20	US6 ALTN BRKR ELEC FAULT	2NJS-US6 Alternate Breaker Electrical Fault as sensed by 520C-2NJSY14

15.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US6.

15.3 Corrective Action

a. Check computer and panel 852 to determine which breaker tripped.

b. Dispatch operator to load center US6.

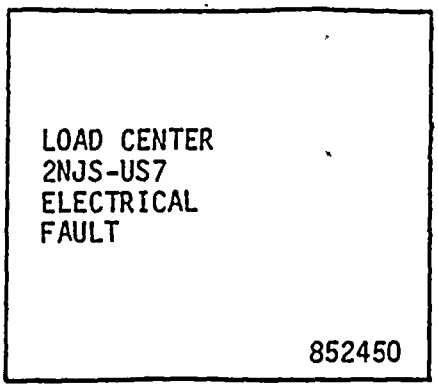
c. Investigate and determine reason for trip.

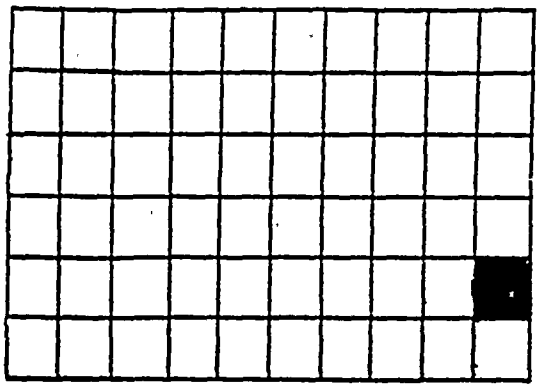
d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

16.0 852450 Load Center 2NJS-US7 Electrical Fault

Reflash: Yes





852450

16.1	Computer Point	Computer Printout	Source
a.	NJSUC25	US7A ACB7-3B ELEC FAULT	2JNS-US7A Brkr ACB7-3B Electrical Fault as sensed by 520C-2NJSA07
b.	NJSUC26	US7B ACB7-7B ELEC FAULT	2NJS-US7B Brkr ACB7-7B Breaker Electrical Fault as sensed by 520C-2NJSB07
c.	NJSUC31	US7A & 7B ACB7-5B EL FLT	2NJS-US7A & B, Bkr ACB7-5B Brkr Electrical Fault as sensed by 520C-2NJSN32

16.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US7.

16.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US7.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

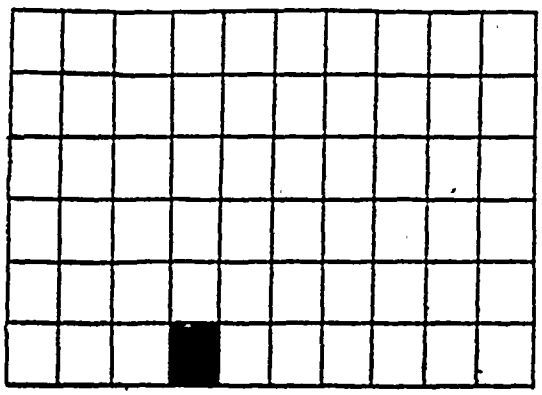
17.0 852454 Load Center 2NJS-US1, US8, US9, US10, Undervoltage

BOB 12/6/90 AB 12/6/90

Reflash: Yes

NJS
US1, 8, 9, 10
UNDERVOLTAGE

852454



852454

17.1	Computer Point	Computer Printout	Source
a.	NJSEC01	US1A Norm Sply Brkr Volt	2NJS-US1A Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX15
b.	NJSEC02	US1B Norm Sply Brkr Volt	2NJS-US1B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY15
c.	NJSEC03	US1C Norm Sply Brkr Volt	2NJS-US1C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ15
d.	NJSEC17	Bus 2NJS-US8A Undv Prot	2NJS-US8A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX37
e.	NJSEC18	Bus 2NJS-US8B Undv Prot	2NJS-US8B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY40
f.	NJSEC19	Bus 2NJS-US8C Undv Prot	2NJS-US8C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ20

17.1	Computer Point	Computer Printout	Source
	g. NJSEC20	Bus 2NJS-US9A Undv Prot	2NJS-US9A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B . 2NJSX38
	h. NJSEC21	Bus 2NJS-US9B Undv Prot	2NJS-US9B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY41
	i. NJSEC22	Bus 2NJS-US9C Undv Prot	2NJS-US9C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ21
	j. NJSEC23	Bus 2NJS-US10A Undv Prot	2NJS-US10A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX39
	k. NJSEC24	Bus 2NJS-US10B Undv Prot	2NJS-US10B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY42
	l. NJSEC25	Bus 2NJS-US10C Undv Prot	2NJS-US10C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ22

17.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05 sec. time delay.

17.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for trip.

c. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

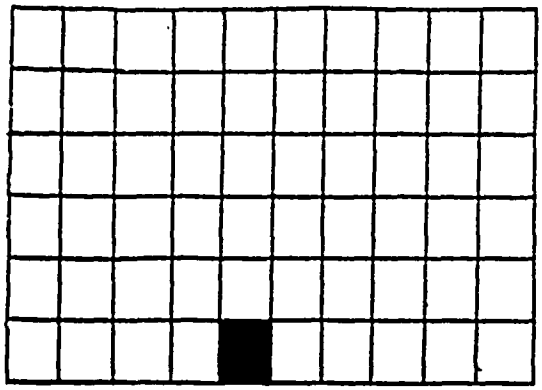
18.0 852455 Load Center 2NJS-US2 Undervoltage

BB 12/6/90 NB 12/6/90

Reflash: Yes

LOAD CENTER
NJS US2
UNDERVOLTAGE

852455



852455

18.1	Computer Point	Computer Printout	Source
a.	NJSEC04	US2A NORM SPLY BRKR VOLT	2NJS-US2A Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSX16
b.	NJSEC05	US2B NORM SPLY BRKR VOLT	2NJS-US2B Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSY16
c.	NJSEC06	US2C NORM SPLY BRKR VOLT	2NJS-US2C Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSZ16

18.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 second time delay.

18.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 devices, reset and return to normal.

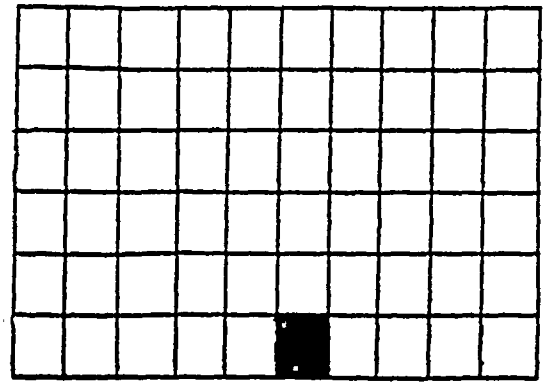
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

19.0 852456 Load Center 2NJS-US3 Undervoltage

Reflash: Yes

LOAD CENTER
NJS US3
UNDERVOLTAGE

852456



852456

19.1

	Computer Point	Computer Printout	Source
a.	NJSEC07	US3A NORM SPLY BRKR VOLT	2NJS-US3A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX17
b.	NJSEC08	US3B NORM SPLY BRKR VOLT	2NJS-US3B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY17
c.	NJSEC09	US3C NORM SPLY BRKR VOLT	2NJS-US3C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ17

19.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

19.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

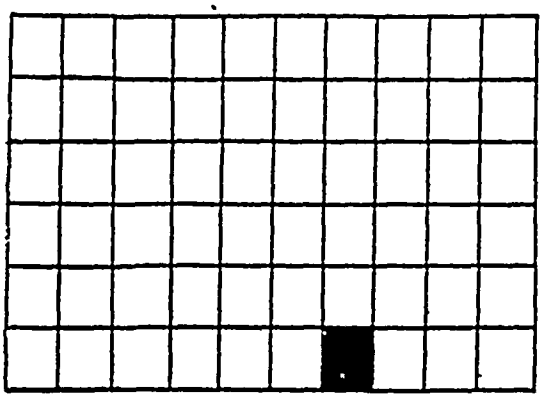
20.0 852457 Load Center 2NJS-US4 Undervoltage

Reflash: Yes

SB 12/6/90 RB 12/6/90

LOAD CENTER
NJS US4
UNDERVOLTAGE

852457



852457

20.1	Computer Point	Computer Printout	Source
a.	NJSEC10	US4A NORM SPLY BRKR VOLT	2NJS-US4A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX18
b.	NJSEC11	US4B NORM SPLY BRKR VOLT	2NJS-US4B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY18
c.	NJSEC12	US4C NORM SPLY BRKR VOLT	2NJS-US4C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ18

20.2 Automatic Response

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

20.3 Corrective Action

a. Check computer to determine which section is de-energized.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

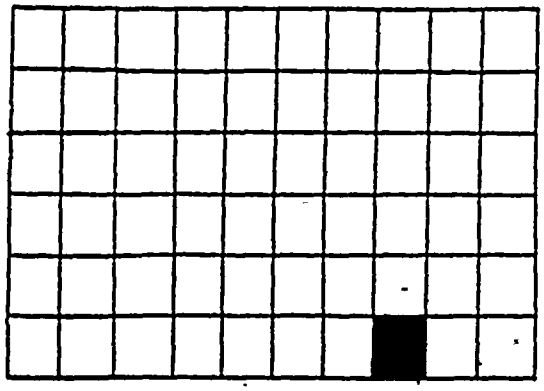
21.0 852458 Load Center 2NJS-US5 Undervoltage

SCS 12/6/90 MH 12/6/90

Reflash: No

LOAD CENTER
NJS US5
UNDERVOLTAGE

852458



852458

21.1	Computer Point	Computer Printout	Source
	NJSEC13	US5 NORM SPLY BRKR VOLT	2NJS-US5 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSX19

BMW 6/25/91

21.2 Automatic Response

a. the motor feeders on 2NJS-~~US6~~ US5 are tripped after a .05-3 sec. time delay.

21.3 Corrective Action

a. Check normal or Alt. feed to bus at panel 852.

b. Investigate and determine reason for undervoltage.

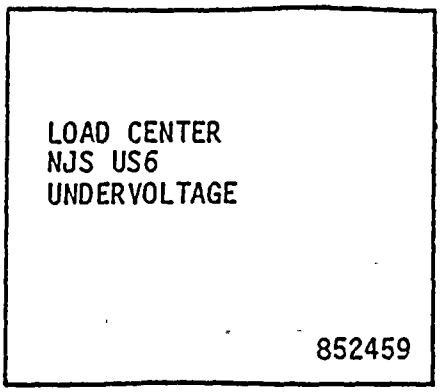
c. Identify the 86 device, reset and return system to normal.

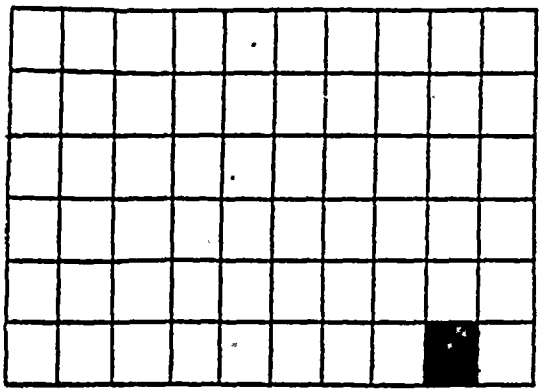
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

22.0 852459 Load Center 2NJS-US6 Undervoltage

SCB 12/6/90 RB 12/6/90

Reflash = No





852459

22.1	Computer Point	Computer Printout	Source
	NJSEC14	US6 NORM SPLY BRKR VOLT	2NJS-US6 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSY19

22.2 Automatic Response

a. The motor feeders on 2NJS-US6 are tripped, after a .05-3 second time delay.

22.3 Corrective Action

a. Check normal or Alt. feed to bus at panel 852.

b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

23.0 852505 ~~Transformer XS1 Supply ACB 1-4 Auto Trip/fail to Close~~

XFMR XS3 SPLY ACB 3 1-4 AUTO TRIP/ FAIL TO CLOSE.

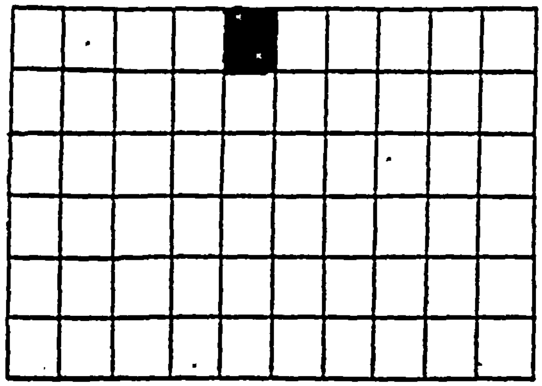
Reflash: No

SB 10-30-90

10-30-90

XFMER XS1
SPLY ACB 1-4
AUTO TRIP /
FAIL TO CLOSE

852505



852505

23.1

Computer Point	Computer Printout	Source
NNSUC01	XS1 SPLY ACB1-4 AUTO TRIP	XFMR ~~Transformer~~ 2ATX-XS1 ~~(13.8 to 4.16KV) Sply~~ SUPPLY ACB ~~Air Circuit Breaker~~ 1-4 ~~Auto trip~~/ or Fail to Close as sensed by 1 & 52 2NNSY07 (SW ACB 1-4 Normal After Close & ACB 1-4 Open)

23.2 Automatic Response

a. Trip or fail to close breaker ACB-1-4.

b. Loss of 4160V powerboards 2NNS-SWG011, 2NNS-SWG012, 2NNS-SWG014.

23.2 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for alarm.

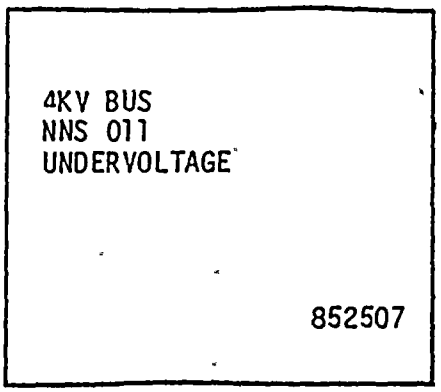
c. Return system to normal.

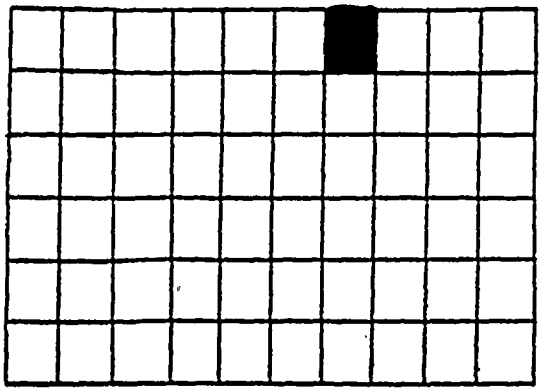
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

24.0 852507 4KV Bus NNS011 Undervoltage

BCB 12/6/90 MH 12/6/90

Reflash: No





852507

24.1

Computer Point	Computer Printout	Source
NNSEC01	4KV BUS NNS011 UNDERVOLTAGE	2NNS-SWG011 Undervoltage as sensed by 27A & B 2NNSX09

24.2 Automatic Response

a. Loss of voltage to 4160V bus 2NNS-SWG011.

b. Trip turb. Bldg. closed loop cooling pump A or block Auto Start.

c. Trip condensate pump C or block auto start.

d. Trip fourth point Htr drain pump A.

e. Trip condensate pump A or block auto start.

24.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

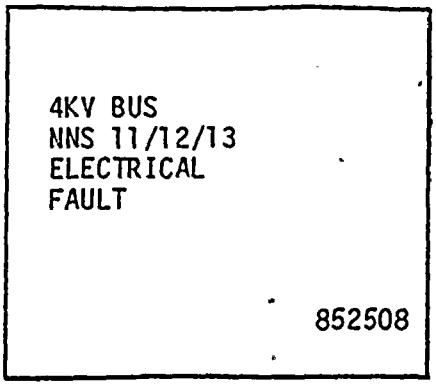
d. Return system to normal.

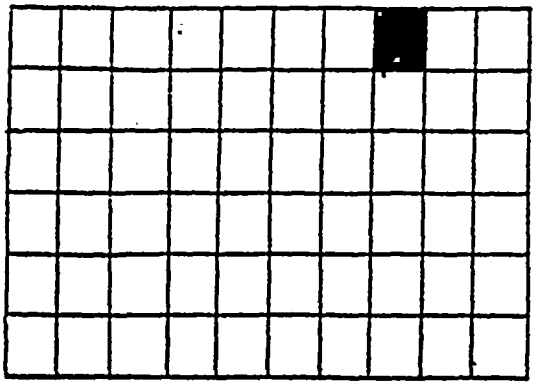
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

25.0 852508 4KV Bus NNS 11/12/13 Electrical Fault

12/6/90 RJB 12/6/90

Reflash: Yes





852508

25.1

	Computer Point	Computer Printout	Source
a.	NNSUC14	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSZ01 on bus 11/12/13 phase time OC or grnd OC.
b.	NNSUC15	4KV BUS E11 LO RLY TRIP	2NNS-SWG011 Lock Out Relay Trip as sensed by 86-2NNSX01 on bus 11 phase time OC or grnd OC.
c.	NNSUC16	4KV BUS E13 LO RLY TRIP	2NNS-SWG013 Lock Out Relay Trip as sensed by 86-2NNSY04
d.	NNSUC17	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSX05 (Backup protection when SWG012 is being fed from SWG013).
e.	NNSUC18	4KV BUS E12 LO RLY TRIP	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSY01 (Backup protection when SWG012 is being fed from SWG011).

25.2 Automatic Response

a. Trip and lockout (cross ties from 2NNS-SWG011 and SWG-13) ACB 11-1 and ACB 13-10; Trip or block auto start of: 2CCP-P1A, 2CCS-P1C; Fire Pump 2FPW-P2 undervoltage; trip 2HDL-P1C.

b. Trip and lockout ACB 11-1 and ACB 11-3 on 2NNS-SWG011; prevent the auto transfer of 2CNM-P1C on to 2NNS-SWG011; trip or block the auto start of: 2CCS-P1A, 2CNM-P1A and 2CNM-P1C on the 2NNS-SWG011; trip 2HDL-P1A.

c. Trip and lockout ACB 13-6 and ACB 13-10 on 2NNS-SWG013; trip or block the auto start of: 2CCS-P1B, 2CNM-P1B, 2CCP-P3A, 2CNM-P1C on to 2NNS-SWG013; trip 2HDL-P1B.

d. Trip and lockout ACB 13-6 which in this circumstance would trip the loads on busses 2NNS-SWG012 and 2NNS-SWG013 (a combination of the loads on a and c above).

e. Trip and lockout ACB 11-3 which in this circumstance would trip the loads on busses 2NNS-SWG011 and 2NNS-SWG012 (a combination of the loads on a and b above).

25.3 Corrective Action

a. Check the computer to determine which bus tripped.

b. Verify automatic response.

c. Investigate and determine the reason for the trip.

d. Return the system to normal.

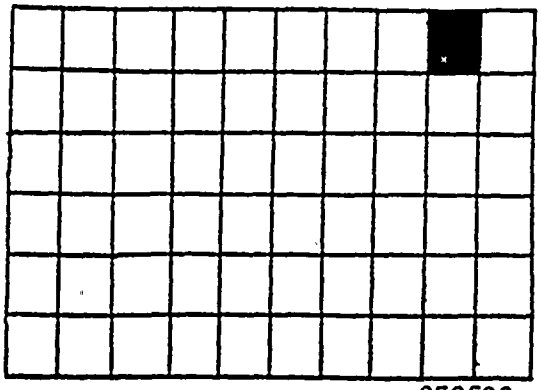
26.0 852509 13.8KV Bus NPS001 Undervoltage

GCB 12/6/90 NH 12/6/90

Reflash: No

13.8KV
NPS 001
Undervoltage

852509



852509

26.1	Computer Point	Computer Printout	Source
	NPSEC01	13.8KV BUS NPS1 UNDER VLT	NPS-SWG001 Undervoltage as sensed by 27A & B - 2NPSX09

26.2 Automatic Response

a. Trip the normal supply breaker ACB 1-3 (2STX-XNS1) to 2NPS-SWG001.

b. Trip condensate booster pump 'A', ACB 1-7, on 2NPS-SWG001.

c. Trip condensate booster pump 'C', ACB 1-12 or prevent auto start.

d. Trip reactor feed pump 'A', ACB 1-8, on 2NPS-SWG001.

e. Trip reactor feed pump 'C', ACB 1-13, or prevent auto start.

f. Trip reactor recirc pump 'A', ACB 1-6 on 2NPS-SWG001.

g. Trip Circulating Water Pumps 'A', 'C', E, (ACB 1-9, 1-10, 1-11) o 2NPS-SWG001.

h. Trip the Supply breaker to 4160V bus 2NNS-SWG011, ACB 1-3 on 2NPS-SWG001.

i. Permits residual transfer to reserve breaker ACB 1-1 (2RTX-XSR1A) or ACB 1-16 (2RTX-XSR1B).

26.2 Automatic Response

j. Loss of loads on 2NPS-SWG001; 2NMS-SWG011, 12, 14; 2NJS-US1A, C & US2A, C, and US3A, C and US4A, C and US5 & US7A and US8A, C and US9A and C; US10A and C; Alternate Access substation.

26.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 65%, per N2-OP-101D Section H.1.0. PIC 11-18-89

f. Investigate and determine the reason for the undervoltage.

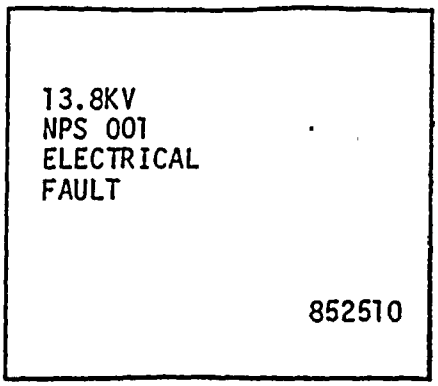
g. Return the plant to normal operation.

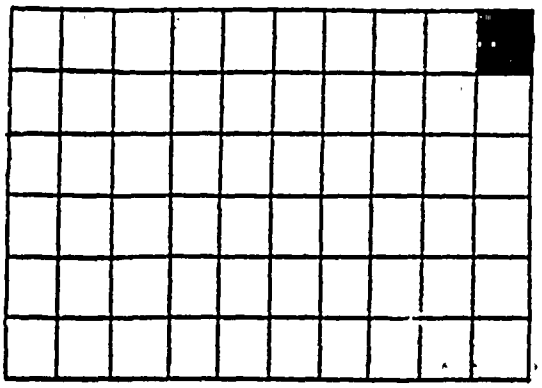
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

27.0 852510 13.8KV Bus NPS001 Electrical Fault

BJB 12/6/90 MJ 12/6/90

Reflash: No





27.1

Computer Point	Computer Printout	Source
NPSUC09	13.8KV Bus NPS 01 LO RLY TRP	NPS-SWG001 Lock Out Relay Trips on Transformers 2ATX-XS1 Time OC & Grnd OC;SWG001 Dir Grnd OC & Time OC; Transformers 2NJS-X1C, -X1D, -X1A, -X1B or -X1G as sensed by 86-2NPSX01

27.2 Automatic Response

a. Trip and lockout reserve supply breakers ACB 1-1 and 1-16.

b. Trip and lockout normal supply breaker ACB 1-3.

c. Lockout "A" and "C" condensate booster pumps (ACB 1-7 and ACB 1-13).

d. Loss of loads on: 2NPS-SWG001, 2NNS-SWG011, 12, 14, 2NJS-US1A,C & -US2A, C & -US3A,C & -US4A,C & -US5 & -US7A & -US8A,C & US9A,C & US10A,C; Alt. Access Substation.

27.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

PIC 11-18-89

c. Reduce power to less than 65%, per N2-OP-101D Section H.1.o.

d. Investigate and determine reason for trip.

e. Return plant to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

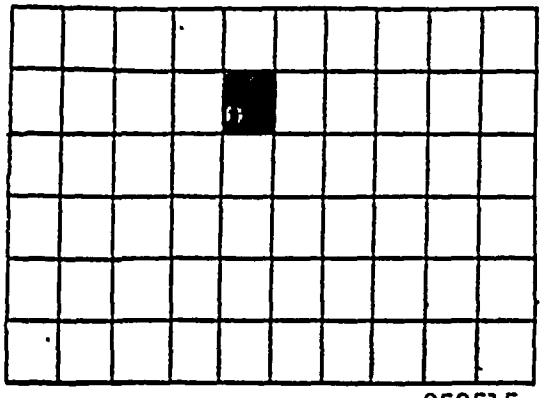
28.0 852515 XFMR XS3 SPLY ACB 3-6 AUTO TRIP / FAIL TO CLOSE ~~Transformers XS3 Supply Air Circuit Breaker 3-6 Auto Trip~~

BOB 12/6/90. JS 12/6/90.

Refresh: No

XFMER XS3
SPLY ACB 3-6
AUTO TRIP /
FAIL TO CLOSE

852515



852515

AB 10-30-90

10-30-90

28.1	Computer Point	Computer Printout	Source
	NNSUC02	XS3 Supply ACB 3-6 AUTO TRIP	XFMR 2 ATX-XS3 ~~Transformer XS3~~ Supply ~~Air Circuit Breaker (ACB)~~ 3-6 Auto Trip as sensed by 1 & 52 2NNSX06 (ACB 3-6 open & SW ACB 3-6 Normal After Close)

or fail to close

28.2 Automatic Response

a. Trip or fail to close of ACB 3-6.

b. Loss of power to busses NNS-SWG013 & 015.

28.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for alarm.

c. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

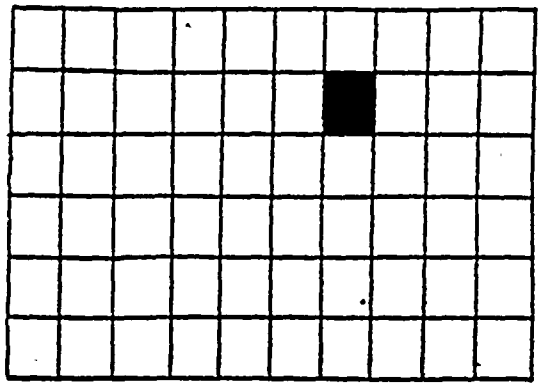
29.0 852517 4KV Bus NNS012 Undervoltage

BOB 12/6/90 MY 12/6/90

Reflash: No

4KV BUS
NNS 012
UNDERVOLTAGE

852517



852517

29.1	Computer Point	Computer Printout	Source
	NNSEC03	4KV bus NNS012 Undervolt	2NNS-SWG012 undervoltage as sensed by 27A&B 2NNSX18

29.2 Automatic Response

a. Loss of voltage to 4160V bus NNS-SWG012.

b. Trip or block auto start of 2CCS-P1C.

c. Trip 2HDL-P1C.

d. Trip or block auto start of 2CCP-P1A.

e. Fire pump 2FPW-P2 undervoltage.

29.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

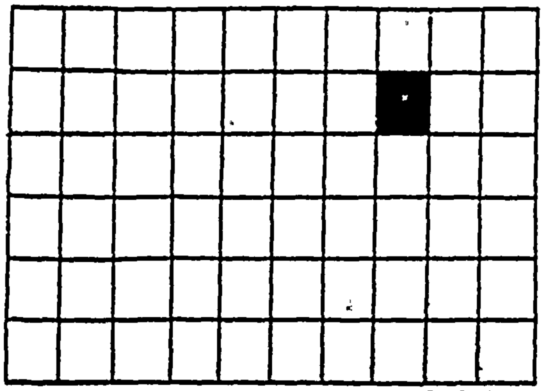
d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

30.0 852518 4KV Stub Bus NNS 014 Electrical Fault

Reflash: No

4KV STUB BUS NNS 014 ELECTRICAL FAULT 852518



852518

30.1

Computer Point	Computer Printout	Source
NNSUC19	4KV BUS E14 LO RLY TRIP	NNS-SWG014 Lockout Relay Tripped on High time or Ground Overcurrent as-sensed by 86-2NNSX15

30.2 Automatic Response

a. Trips and lockout breakers 14-1 and 14-2.

b. Loss of voltage to 4160V stub bus 014.

c. Loss of voltage to 600V load center 2NJS-US5.

d. Trip or block auto start of Rx bldg. closed loop cooling pump "C", 2CCP-P1C (ACB 14-9).

e. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

f. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C", 2CCP-P3C (ACB 14-6).

30.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 014 from emergency bus ENS*SWG101.

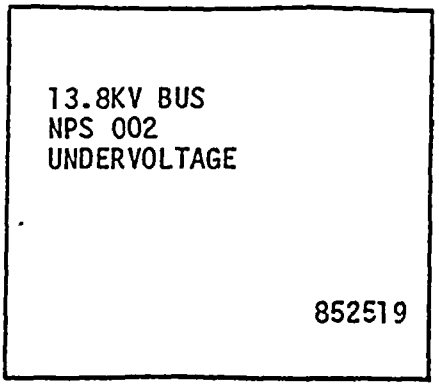
e. Return system to normal.

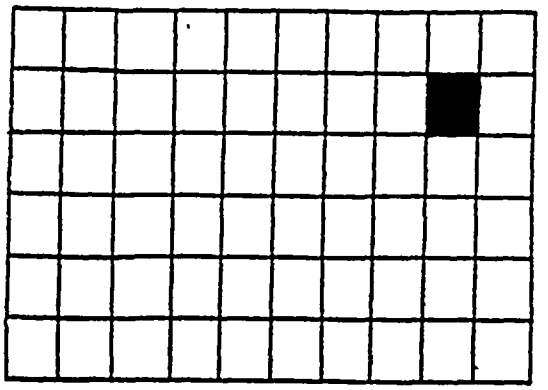
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

31.0 852519 13.8KV Bus NPS002 Undervoltage

BCB 12/6/90 AH 12/6/90

Reflash: No





852519

31.1

Computer Point	Computer Printout	Source
NPSEC13	13.8KV BUS NPS 2 UNDR VLT	2NPS-SWG002 sustained bus undervoltage as sensed by 27A&B-2NPSZ18

31.2 Automatic Response

a. 2NPS-SWG002 supply air circuit breaker, ACB 2-5, Trip.

b. 2NPS-SWG002 supply air circuit breaker, ACB 2-1, Trip.

c. The loads on 2NPS-SWG002, Auxiliary Boiler A&B will trip.

d. If either 2NPS-SWG001 or SWG003 is connected to 2NPS-SWG002, they will trip their loads (unusual lineup).

e. If either emergency bus 2ENS*SWG101 or *SWG103 is being powered from 2NPS-SWG002 via 2NNS-SWG018, their emergency diesels will start (unusual line up).

31.3 Corrective Actions

a. Determine the cause of the undervoltage (loss of 115KV from Scriba or Auxiliary Boiler electrical fault).

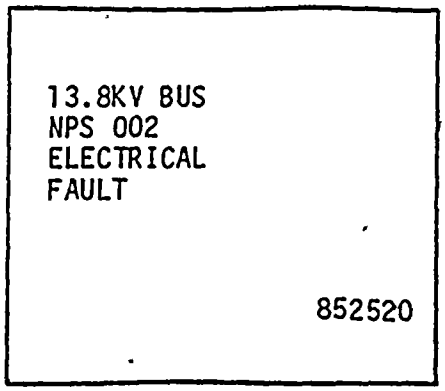
b. Restore power to 2NPS-SWG002 as required using Mds-20 (or Mds-10).

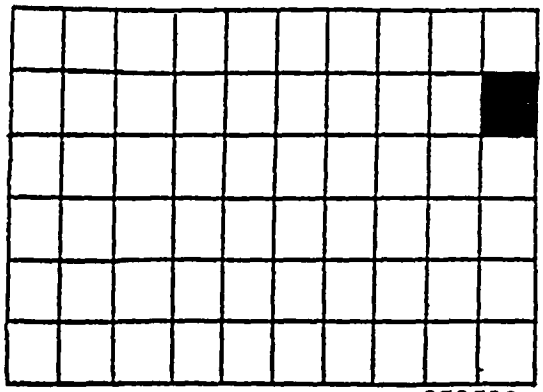
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

32.0 852520 13.8KV Bus NPS002 Electrical Fault .

BJT 12/6/90 AM 12/5/90

Reflash: No





32.1

Computer Point	Computer Printout	Source
NPSUC11	13.8KV BUS 02 LO RLY TRIP	NPS-SWG002 Lockout Relay Trip on time ground OC or Phase OC as sensed by 86-2NPSZ01.

32.2 Automatic Response

a. Trip and lockout normal and alternate supply breakers to 13.8KV bus 002 (ACB 2-5, & ACB 2-1).

b. Loss of voltage to the bus.

c. Auxiliary boilers will trip if operating.

d. If either 2NPS-SWG001 or SWG003 is connected to 2NPS-SWG002 (unusual lineup), their loads will trip.

32.3 Corrective Action

a. Verify automatic response.

b. Dispatch operator to aux. boilers (if operating)

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

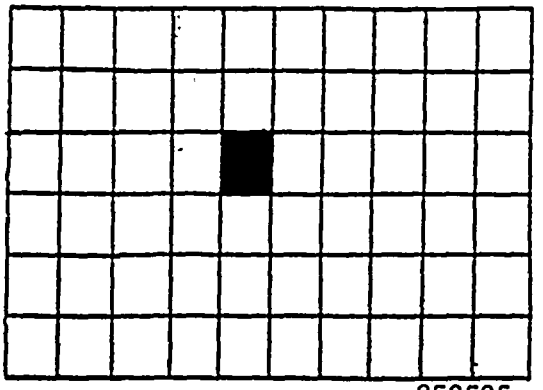
33.0 852525 4KV Bus NNS 11/12/13 Supply ~~Breaker~~ ACB Auto Trip/ FTC

SB 12/6/90 JAB 12/6/90

Reflash: Yes

4KV BUS
NNS 11/12/13
SUPPLY ACB
AUTO TRIP/FTC

852525



852525

JAB 10-30-90

10-30-90

33.1

	Computer Point	Computer Printout	Source
a.	NNSUC03	4KV BUS 011 ACB 11-3 AT	NNS-SWG011 ~~Air Circuit Breaker~~ ACB 11-3 Auto Trip as sensed by 1 & 52 2NNSX20
		or Fail to close	
b.	NNSUC04	4KV BUS 13 ACB 13-6 AT	NNS-SWG013 ~~Air Circuit Breaker~~ ACB 13-6 Auto Trip as sensed by 1 & 52 2NNSY20
		or Fail to close	
c.	NNSUC05	4KV BUS 12 ACB 13-10 AT	NNS-SWG012 ~~Supply Air Circuit Breaker~~ ACB 13-10 Auto Trip as sensed by 1 & 52 2 NNSY08
		or fail to close	
d.	NNSUC06	SWG012 ACB 11-1 AT	NNS-SWG012 ~~Supply Air circuit breaker~~ ACB 11-1 Auto Trip as sensed by 1 & 52 2NNSX07.
		or fail to close	

33.2 Automatic Response

a. Auto trip of supply breakers to 4160V powerboards 011, 012, 013.

b. Auto trip of the motor feeders on the respective bus:

33.3 Corrective Action

a. Verify automatic response.

b. Check computer point to determine which breaker tripped.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

34.0 852526 4KV Bus NNS016 ~~Supply Air Circuit Breaker 16-2 Auto Trip~~ SPLY ACB A 16-2 Auto TRIP / FTC

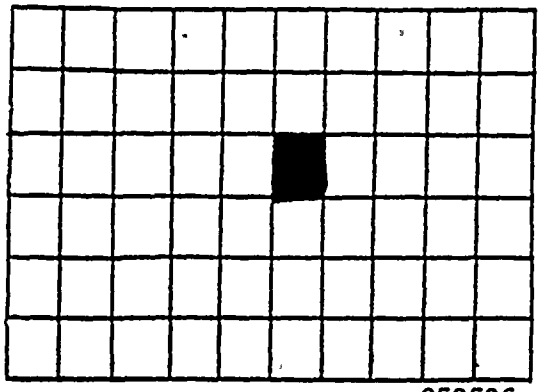
808 12/6/90 per 12/6/90

Reflash: No

GB 10-30-90 SM 10/30/90

4KV BUS
NNS 016
SPLY ACB 16-2
AUTO TRIP / FTC

852526



852526

34.1	Computer Point	Computer Printout	Source
	NNSUC08	4KV BUS 016 ACB 16-2 AT	NNS-SWG016 Supply ~~Air Circuit Breaker~~ ACB 16-2 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX40 (ACB 16-2 ~~Tripped~~ open, SW ACB 16-2 Normal After Close)

34.2 Automatic Response

a. Trip or fail to close-breaker 16-2.

34.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 101. (If breaker 16-2 is supplying bus 102, check bus 102 energized by it's diesel generator).

c. Investigate and determine reason for trip.

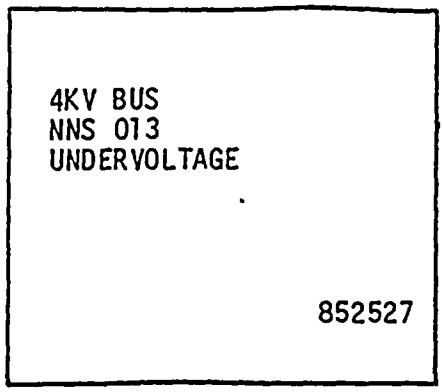
d. Return system to normal.

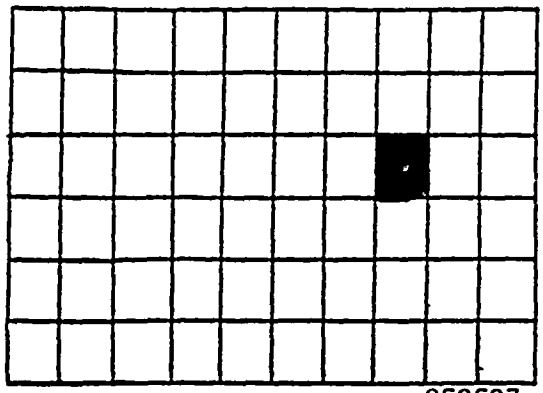
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

35.0 852527 4KV Bus NNS013 Undervoltage

BCB 12/6/90 AB 12/6/91

Reflash: No





35.1

Computer Point	Computer Printout	Source
NNSEC05	4KV BUS NNS013 UNDERVOLT	NNS SWG013 Undervoltage as sensed by 27 A & B 2NNSY09

35.2 Automatic Response

a. Loss of voltage to 4160V bus 2NNS-SWG013.

b. Trip turb. bldg. closed loop cooling pump "B", 2CCS-P1B, ACB-13-8.

c. Trip condensate pump "C", 2CNM-P1C, ACB-13-2.

d. Trip condensate pump "B", 2CNM-P1B, ACB 13-3.

e. Trip fourth point Htr drain pump "B", 2HDL-P1B, ACB 13-4.

f. Trip Reactor. Bldg. closed loop cooling booster pump 2CCP-P3A, ACB 13-9.

35.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

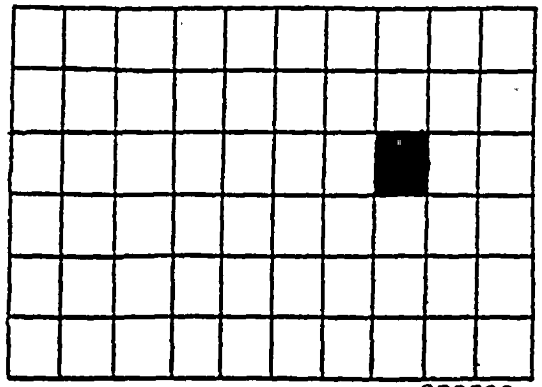
36.0 852528 4KV Stub Bus NNS015 Electrical Fault

PB 12/6/90 NJ 12/6/90

Reflash: No

4KV STUB BUS
NNS 015
ELECTRICAL
FAULT

852528



852528

36.1

Computer Point	Computer Printout	Source
NNSUC20	4KV BUS 015 LO RLY TRIP	NNS-SWG015 Lockout Relay tripped on phase or ground overcurrent as sensed by 86-2NNSY15

36.2 Automatic Response

a. Trip and lock out breakers 15-3 and 15-8.

b. Loss of voltage to 4160V stub bus 015.

c. Loss of voltage to 600V load center 2NJS-US6.

d. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

e. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

f. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

36.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 015 from emergency bus ENS*SWG103.

e. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

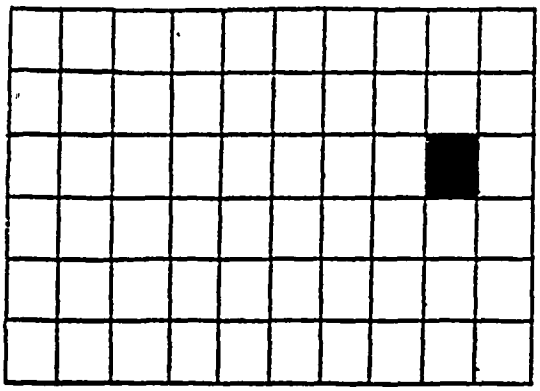
37.0 852529 13.8KV Bus NPS003 Undervoltage

BCB 12/6/90 NM 12/6/90

Refresh: No

13.8KV BUS
NPS 003
UNDERVOLTAGE

852529



852529

37.1

Computer Point	Computer Printout	Source
NPSEC05	13.8KV BUS NPS003 UNDR VLT	NPS-SWG003 Undervolt as sensed by 27 A & B-2NPSY09

37.2 Automatic Response

a. Trip normal supply breaker ACB 3-14.

b. Trip condensate booster pumps "B" & "C" (ACB 3-5, 3-11) prevent auto closure.

c. Trip reactor feed pumps "B" & "C" (ACB 3-7, 3-12).

d. Trip reactor recirc pump "B", ACB 3-4.

e. Trip circ. water pumps "B", "D", & "F" (ACB3-10, 3-9, 3-8).

f. Trip supply breaker to 4160V bus 013, ACB 3-6.

g. Permit residual transfer to reserve breaker ACB3-1 or ACB3-16.

h. Loss of loads on: 2NPS-SWG003; 2NNS-SWG013, 15; 2NJS-US1B & US-2B & US-3B & US-4B & US6 & US7B & US8B & US9B & US10B.

37.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 65%, per N2-OP-101D Section H.1.0.

PIC 11-18-87

d. Investigate and determine reason for undervoltage.

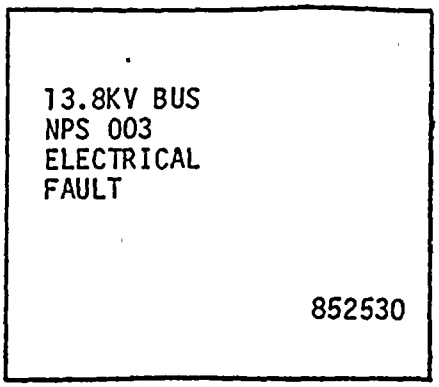
e. Return plant to normal operation.

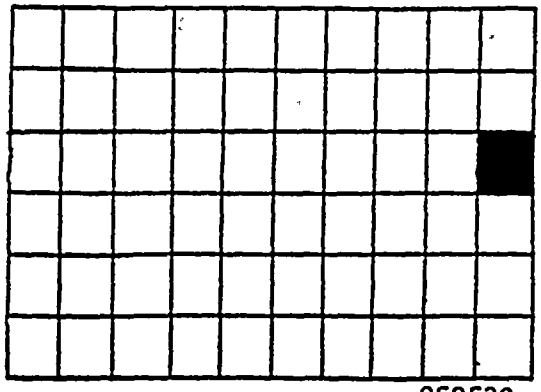
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

38.0 852530 13.8KV Bus NPS003 Electrical Fault

BCS 12/6/90 MS 12/6/90

Reflash: No





852530

38.1

Computer Point	Computer Printout	Source
NPSUC10	13.8KV BUS 03 LO RLY TRP	NPS-SWG003 Lockout Relay Trip as sensed by 86-2NPSY01.

38.2 Automatic Response

a. Trip and lockout reserve supply breakers 3-1 and 3-16.

b. Trip and lockout normal supply breaker 3-14.

c. Lockout "B" and "C" condensate booster pumps (ACB 3-5, 3-11).

d. Loss of loads on: 2NPS-SWG003; 2NNS-SWG013, 015, 2NJS-US1B & US2B & US3B & US4B & US6 & US7B & US8B & US9B & US10B.

38.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

PIC 11-18-89

c. Reduce power to less 65%, per N2-OP-101D section H.1.10.

d. Investigate and determine reason for trip.

e. Return system to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

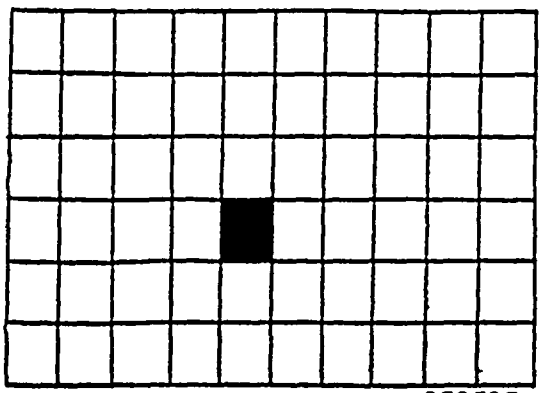
39.0 852535 4KV Bus NNS014 Supply ~~Air Circuit Breaker Auto Trip~~ ACB Auto TRIP / FTC

Reflash: Yes

SB 12/6/90 AB 12/11/90

4KV BUS
NNS 014
SUPPLY ACB
AUTO TRIP / FTC

852535



852535

AB 10-30-90

10/30/90

39.1	Computer Point	Computer Printout	Source
a.	NNSUC10	SWG014 ACB 14-2 Auto Trip	2NNS-SWG014 Supply ~~Air Circuit Breaker~~ ACB 14-2, Auto Trip or Failure to Close as sensed by 1 & 52 2NNSX11 (ACB 14-2 ~~tripped~~ open & SW for ACB 14-2 normal after close).
b.	NNSUC11	SWG014 ACB 14-1 Auto Trip	2NNS-SWG014 Supply ~~Air Circuit Breaker~~ ACB 14-1, Auto Trip or Fail to Close, as sensed by 1 & 52 2NNSX10 (ACB 14-1 ~~tripped~~ open & SW for ACB 14-1 normal after close).

39.2 Automatic Response

a. Trip or fail to close breaker 14-1 or 14-2.

b. Loss of voltage to 4160V stub bus 014.

c. Loss of voltage to 600V load center 2NJS-US5.

d. Trip or block auto start Rx Bldg. closed loop cooling pump "C", 2CCP-P1C (ACB 14-9).

e. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

f. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C:, 2CCP-P3C (ACB 14-6).

39.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 014 from emergency bus.

e. Return system to normal.

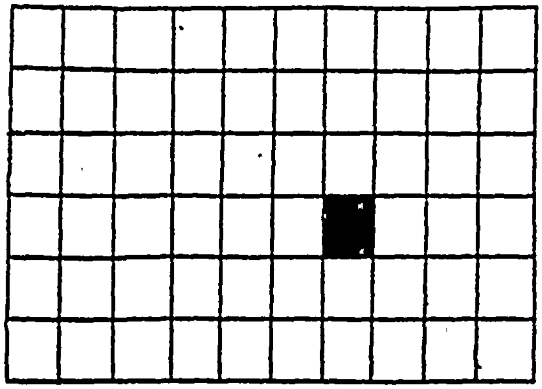
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

40.0 852536 4KV Bus NNS017 SPLY ACB 17-2 AUTO TRIP / FTC ~~Supply Air Circuit Breaker 17-2 Auto Trip~~

Reflash: No

4KV BUS
NNS 017
SPLY ~~SUPPLY~~ ACB 17-2
AUTO TRIP / FTC

852536



852536

40.1	Computer Point	Computer Printout	Source
	NNSUC09	4KV BUS 017 ACB 17-2 AT	2NNS-SWG017 Supply ACB ~~Air Circuit Breaker~~ 17-2 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSY40 (ACB 17-2 open ~~tripped~~ and Ctrl SW for 17-2 Normal after closed)

40.2 Automatic Response

a. Trip or fail to close - breaker 17-2.

40.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 103. (If breaker 17-2 is supplying bus 102, check bus 102 energized by it's diesel generator).

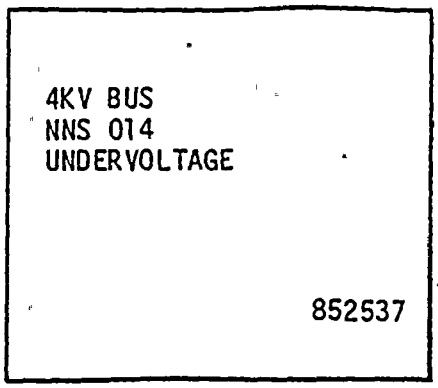
c. Investigate and determine reason for trip.

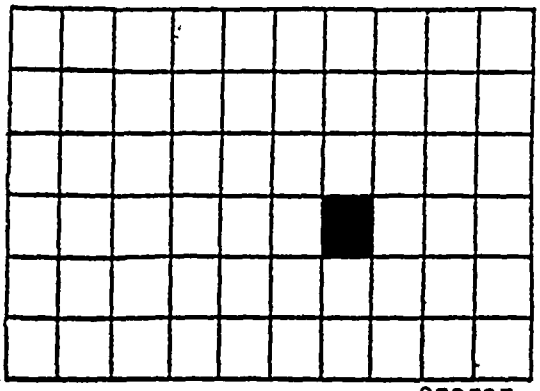
d. Return system to normal.

41.0 852537 4KV Bus NNS014 Undervoltage

BOB 12/6/88 MY 12/6/88

Reflash: No





41.1	Computer Point	Computer Printout	Source
	NNSEC07	4KV BUS NNS014 UNDERVOLT	NNS-SWG014 Norm Sply Brkr Undervolt, as sensed by 27 A & B 2NNSX29

41.2 Automatic Response

a. Loss of voltage to 4160V stub bus NNS014.

b. Loss of voltage to 600V load center 2NJS-US5.

c. Trip or block auto start of Rx bldg. closed loop cooling pump "C:, 2CCP-P1C (ACB 14-9).

d. Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7).

e. Trip or block auto start of Rx bldg. closed loop cooling booster pump "C", 2CCP-P3C (ACB 14-6).

41.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

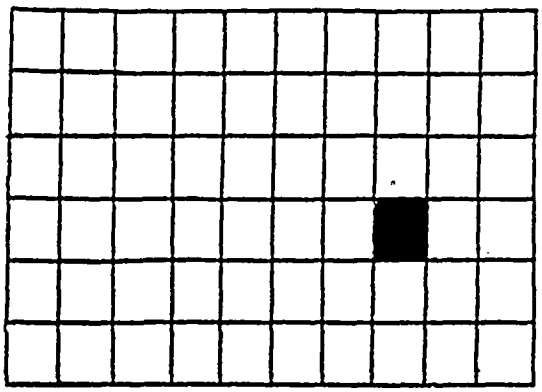
42.0 852538 4KV Bus NNS016 Electrical Fault

BCB 12/6/90 AB 12/6/90

Refbsh = Yes

4KV BUS
NNS 016
ELECTRICAL
FAULT

852538



852538

42.1	Computer Point	Computer Printout	Source
a.	NNSUC21	4KV BUS 016 LO RLY 1 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-1-2NNSX28
b.	NNSUC22	4KV BUS 016 LO RLY 2 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-2-2NNSX28
c.	NNSUC23	4KV BUS 016 LO RLY 3 TRIP	2NNS-SWG016 Lockout Relay Tripped as sensed by 86-3-2NNSX28

42.2 Automatic Response

a. Trip and lockout breaker 16-2.

b. Trip and lockout breaker 101-13 and 102-4.

42.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 101. (If breaker 16-2 is supplying bus 102, check bus 102 energized by it's diesel generator.

c. Investigate and determine reason for trip.

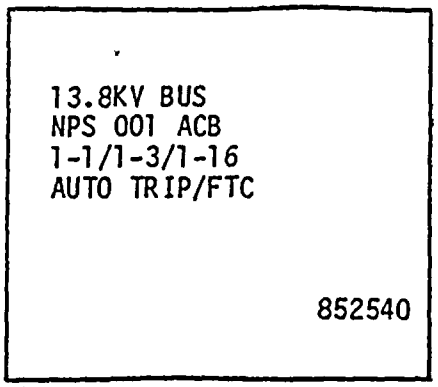
d. Return system to normal.

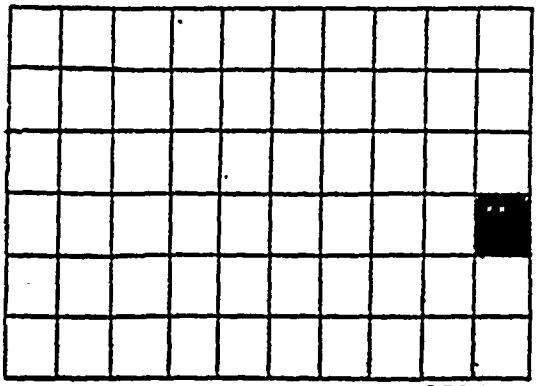
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

43.0 852540 13.8KV Bus NPS001 Air Circuit Breaker 1-1/1-3/1-16/Auto Trip/Failure to Close

BCB 1=14/90 AD 14/6/90

Reflash: Yes




852540

43.1	Computer Point	Computer Printout	Source
a.	NPSUC01	SWG001 ACB 1-3 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-3 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX04
b.	NPSUC02	SWG001 ACB 1-16 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-16 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX06
c.	NPSUC07	SWG001 ACB 1-1 AUTO TRIP	NPS-SWG001 Air Circuit Breaker, 1-1 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX05

43.2 Automatic Response

a. Auto trip or fail to close of reserve or normal supply breaker to 13.8KV bus 001. This could result in 2NPS-SWG001 undervoltage check for annunciator 852509.

43.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

c. Return system to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

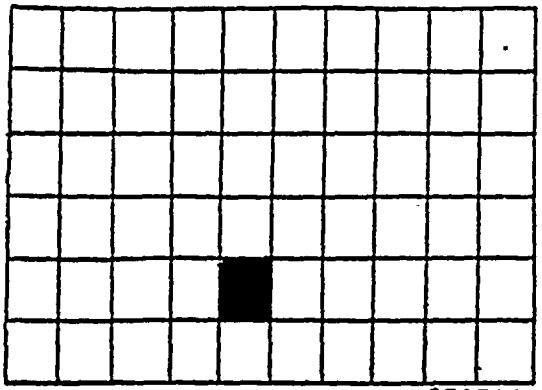
44.0 852545 4KV Bus NNS015 Supply ~~Air Circuit Breaker Auto Trip~~ ACB Auto Trip / FTC

Reflash: Yes

SCB 12/16/91 MJ 12/16/91

4KV BUS
NNS 015
SUPPLY ACB
AUTO TRIP/FTC

852545



852545

JB 10-30-90

10-30-90

44.1	Computer Point	Computer Printout	Source
a.	NNSUC12	SWG015 ACB 15-3 AUTO TRIP	NNS-SWG015 ~~Air Circuit~~ ACB ~~Breaker~~ 15-3 Auto Trip ~~FTC~~ or fail to close as sensed by 1 & 52 2NNSY11
b.	NNSUC13	SWG015 ACB 15-8 AUTO TRIP	NNS-SWG015 ~~Air Circuit~~ ACB ~~Breaker~~ 15-8 Auto Trip or fail to close as sensed by 1 & 52 2NNSY21

44.2 Automatic Response

a. Trip and lock out breakers 15-3 or 15-8.

b. Loss of voltage to 4160V stub bus 015.

c. Loss of voltage to 600V load center 2NJS-US6.

d. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

e. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

f. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

44.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for trip.

d. If necessary, supply bus 015 from emergency bus ENS*SWG103.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

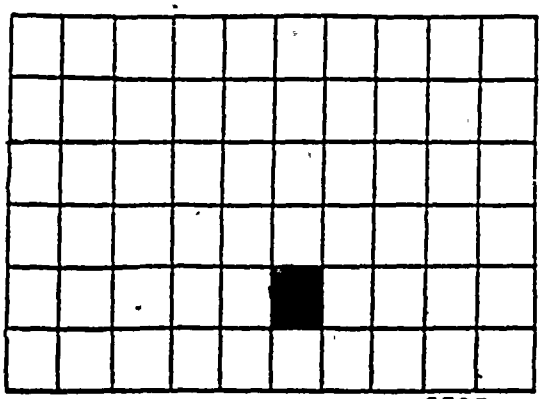
45.0 852546 4KV Bus NNS018 ~~Supply Air Circuit Breaker 18-2 Auto Trip~~ SPLY ACB 18-2 AUTO TRIP / FTC

Reflash: No

SS 12/6/90 MM 12/11/90

4KV BUS
NNS 018
SPLY ACB 18-2
AUTO TRIP / FTC

852546



852546

SS 10-30-90

SS 10-30-90

45.1	Computer Point	Computer Printout	Source
	NNSUC07	4KV BUS 018 ACB 18-2 AT	NNS-SWG018 Supply ~~Air Circuit Breaker~~ ACB 18-2 Auto Trip or Failure to close as sensed by 1 & 52 2NNSZ40 (ACB 18-2 open and sw ACB 18-2 in Normal After Close)

45.2 Automatic Response

a. Trip or fail to close - Breaker 18-2.

45.3 Corrective Action

a. Verify automatic response.

b. If aux. boiler transformer is supplying emergency bus 2ENS*SWG101 or *SWG103, check auto start of emergency diesel gen.

c. Investigate and determine reason for trip.

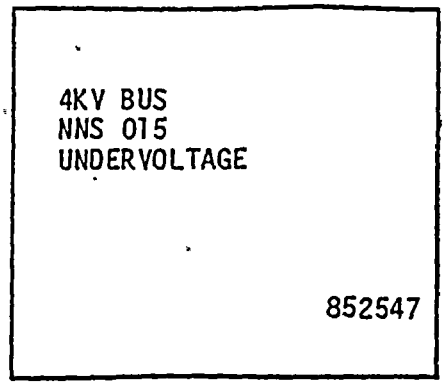
d. Return system to normal.

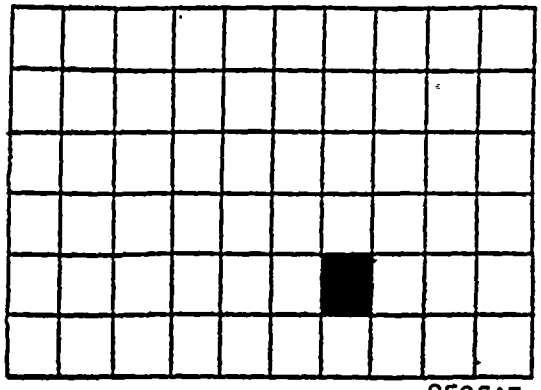
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

46.0 852547 4KV Bus NNS015 Undervoltage

BCB 12/6/90 MS 12/6/90

Reflash: No





46.1

Computer Point	Computer Printout	Source
NNSEC09	4KV BUS NNS015 UNDERVOLT	2NNS-SWG015 undervoltage as sensed by 27A & B 2NNSY17

46.2 Automatic Response

a. Loss of voltage to 4160V stub bus 015.

b. Loss of voltage to 600V load center 2NJS-US6.

c. Trip Rx bldg. closed loop cooling pump "B", 2CCP-P1B, ACB 15-4.

d. Trip control rod drive pump "B", 2RDS-P1B, ACB 15-2.

e. Trip Rx bldg. closed loop cooling booster pump "B", 2CCP-P3B, ACB 15-6.

46.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby pumps.

c. Investigate and determine reason for undervoltage.

d. If necessary, supply bus 2NNS-SWG015 from emergency bus ENS*SWG103.

e. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

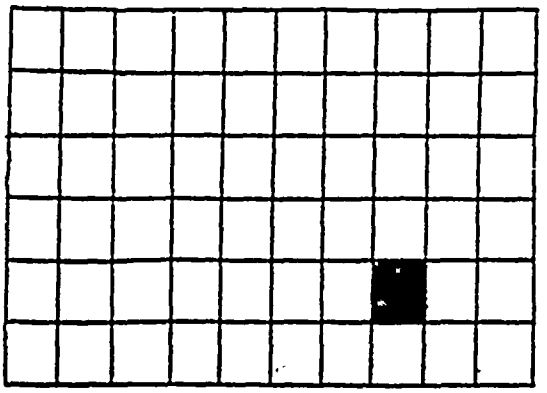
47.0 852548 4KV Bus NNS017 Electrical Fault

BCB 12/6/90 AY 12/6/90

Refish: Yes

4KV BUS
NNS 017
ELECTRICAL
FAULT

852548



852548

47.1	Computer Point	Computer Printout	Source
a.	NNSUC24	4KV BUS E17 LO RLY 1 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-1 2NNSY28
b.	NNSUC25	4KV BUS E17 LO RLY 2 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-2 2NNSY28
c.	NNSUC26	4KV BUS E17 LO RLY 3 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-3 2NNSY28

47.2 Automatic Response

a. Trip and lockout breaker 17-2.

b. Trip and lockout breaker 103-4 and 102-5.

47.3 Corrective Action

a. Verify automatic response.

b. Verify auto start and diesel generator supplying emergency bus 2ENS*SWG103. (If breaker 17-2 is supplying bus 2ENS*SWG*102, ensure that bus 102 is energized by it's diesel generator.

c. Investigate and determine reason for trip.

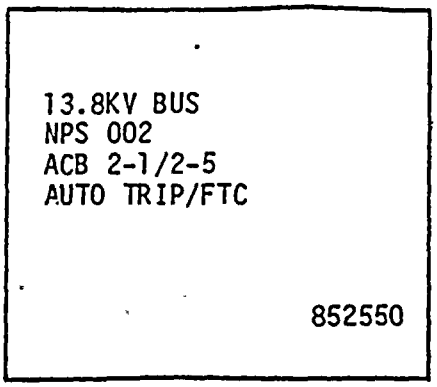
d. Return system to normal.

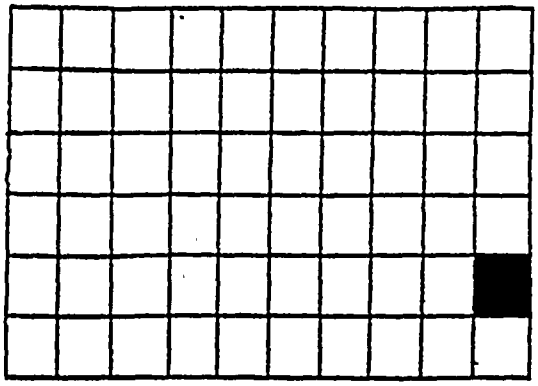
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

48.0 852550 13.8KV Bus NPS002 Air Circuit Breaker 2-1/2-5 Auto Trip/Failure to Close

BCB 12/6/90 NM 12/6/90

Reflash: Yes





852550

48.1	Computer Point	Computer Printout	Source
a.	NPSUC06	SWG002 ACB 2-1 AUTO TRIP	NPS-SWG002 Air Circuit Breaker 2-1 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ13
b.	NPSUC05	SWG002 ACB 2-5 AUTO TRIP	NPS-SWG002 Air Circuit Breaker 2-5 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ15

48.2 Automatic Response

a. Trip or fail to close normal or alternate supply breakers to 13.8KV bus 002. Check for the undervoltage annunciator 852519.

48.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

c. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

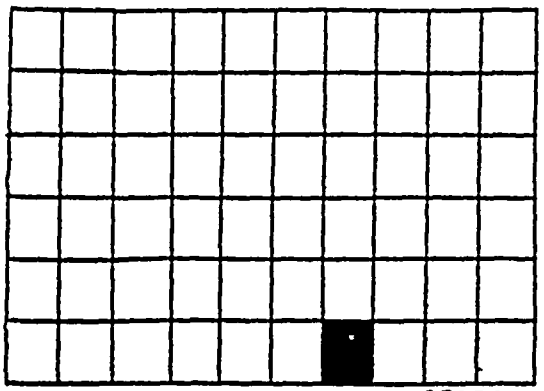
49.0 852557 4KV Bus NNS011 through 018 Protection Circuit Loss of Power

SCB 12/6/90 MJ 12/6/90

Reflash = Yes

4KV BUS
NNS 011-018
PROT CIRCUIT
LOSS OF POWER

852557



852557

49.1	Computer Point	Computer Printout	Source
a.	NNSBC14	125VDC CONT PWR PNL814	Loss of 125VDC Power to 2NNS-SWG012, Incoming from SWG011; protection circuits for: GND DIR OC, Phase OC, DIR OC, sensed by 74-2NNSZ01
b.	NNSBC15	125VDC CONT PWR PNL814	Loss of 125VDC Power to 2NNS-SWG011, Protection Circuits for: Phase OC, Gnd OC, DIR OC
c.	NNSBC16	125VDC CONT PWR PNL813	Loss of 125VDC Power to 2NNS-SWG013, Protection Circuits for: Phase OC, GND DIR OC
d.	NNSBC17	125VDC CONT PWR PNL815	Loss of 125VDC Power to 2NNS-SWG012, (incoming from SWG013) Protection Circuits for: Grnd OC, Dir OC
e.	NNSBC18	125VDC CONT PWR PNL815	Loss of 125VDC Power to 2NNS-SWG012, protection Circuits for: Grnd OC, Dir OC

49.1	Computer Point	Computer Printout	Source (cont.)
	f. NNSBC19	125VDC CONT PWR PNL 803	Loss of 125VDC Power to 2NNS-SWG014 Phase OC, Gnd OC protection circuits. Sensed by 74-2NNSX15
	g. NNSBC20	125VDC CONT PWR PNL 804	Loss of 125VDC Power to 2NNS-SWG015 Phase OC, Gnd OC protection circuits. Sensed by 74-2NNSY15
	h. NNSBC21	125VDC CONT PWR PNL 805	Loss of 125VDC Power to 2NNS-SWG016, Inst. Gnd, Overcurrent, Transformer 2RTX-XSR1A Gnd, Phase OC, Transfer Trip, Teritiary winding differential as sensed by 74-2NNSX28.
	i. NNSBC22	125VDC CONT PWR PNL808	Loss of 125VDC Power to 2NNS-SWG017, Inst Gnd OC, Xfmr 2RTX-XSR1B Gnd, Phase OC, Transfer Trip, 2RTX-XSR1A Tertiary Winding differential as sensed by 74-2NNSY28
	j. NNSBC23	125VDC CONT PWR PNL 811	Loss of 125VDC Power to 2NNS-SWG018 Prot. Ckt. Inst. Gnd OC, Xfmr 2ABSX1 Tertiary Winding Gnd, Phase OC, Transfer Trip, 2ABSX1 Tertiary Winding Differential as sensed by 74-2NNSZ28
	k. NNSBC24	4KV BUS PROT CKT LOS PWR	Loss of 125VDC Power to the paralleling light indicators for 2NNS-SWG011 as sensed by 74-2NNSN12

49.2 Automatic Response

a. Loss of prot. ckt control pwr for the respective 4160V normal switchgear 2NNS-SWG011 through 2NNS-SWG018 as indicated by the source, above.

49.3 Corrective Action

a. Check computer to determine which bus has a loss of power.

b. Move fuses (see section H of N2-OP-73A). 2NNS-SWG)16, 017, 018, move fuses to the alternate position. 2NNS-SWG011, move fuses to bus B positions.

c. NNSBC14 - check for 125VDC at panel 2CEC-P814, circuit 2BYSA16.

d. NNSBC15 - Check for 125VDC at panel 2CEC-P812, circuit 2BYSA16.

e. NNSBC16 - Check for 125VDC at panel 2CEC-P813, circuit 2BYSA01.

f. NNSBC17 - Check for 125VDC at panel 2CEC-P815, circuit 2BYSB01.

g. NNSBC18 - Check for 125VDC at panel 2CEC-P815, circuit 2BYSB01.

h. NNSBC19 - Check for 125VDC at panel 2CEC-P803, circuit 2BYSA16.

i. NNSBC20 - Check for 125VDC at panel 2CEC-P804, circuit 2BYSA01.

j. NNSBC21 - Check for 125VDC at panel 2CEC-P805, circuit 2BYSA16.

k. NNSBC22 - Check for 125VDC at panel 2CEC-P808, circuit 2BYSA01.

l. NNSBC23 - Check for 125VDC at panel 2CEC-P811, circuit 2BYSA01.

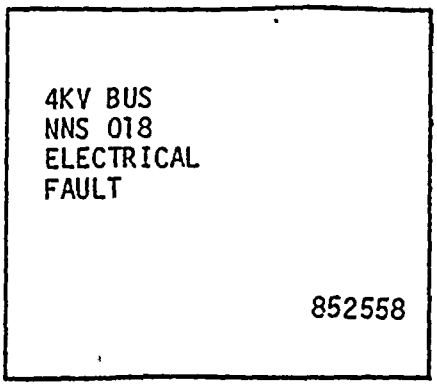
m. NNSBC24 - Check for 125VDC (Sta Bat "A") at the switchgear.

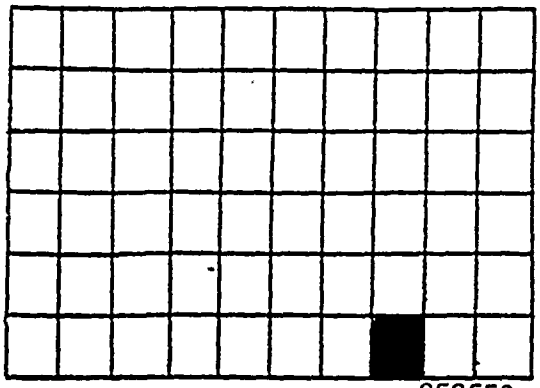
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

50.0 852558 4KV Bus NNS018 Electrical Fault

BOB 12/6/90 MM 12/6/90

Reflash: Yes





50.1	Computer Point	Computer Printout	Source
a.	NNSUC27	4KV BUS E18 LO RLY 1 TRIP	2NNS-SWG018 Lockout Relay 1 Tripped as sensed by 86-1 2NNSZ28
b.	NNSUC28	4KV BUS E18 LO RLY 2 TRIP	2NNS-SWG018 Lockout Relay 2 Tripped as sensed by 86-1 2NNSZ28
c.	NNSUC29	4KV BUS E18 LO RLY 3 TRIP	2NNS-SWG018 Lockout Relay 3 Tripped as sensed by 86-1 2NNSZ28

50.2 Automatic Response

a. Trip and lockout breaker 18-2.

b. Trip and lockout breaker 101-10 and 103-2.

50.3 Corrective Action

a. Verify automatic response.

b. If aux. boiler transformer is supplying emergency bus 2ENS*SWG101 or *SWG103, check auto start of emergency diesel gen.

c. Investigate and determine reason for trip.

d. Return system to normal.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

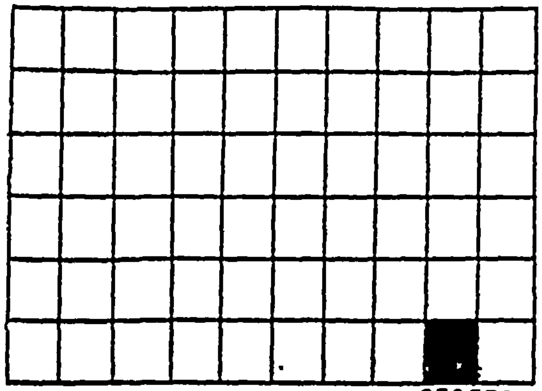
51.0 852559 13.8KV Bus 001/003 Protection Circuit Loss of Power

Reflash: Yes

RLB 12/6/90 12/6/90

13.8KV BUS
001/003
PROT CIRCUIT
LOSS OF POWER

852559



852559

51.1

	Computer Point	Computer Printout	Source
a.	NPSBC09	125VDC CONT PWR PNL812	Loss of 125VDC Protection Power for Phase OC, GND. OC, DIR OC for 2NPS-SWG001 as sensed by 74-2NPSX01
b.	NPSBC10	125VDC CONT PWR PNL813	Loss of 125VDC Protection Power for Phase OC, GND OC, DIR OC for 2NPS-SWG003 as sensed by 74-2NPSY01
c.	NPSBC11	125VDC CONT PWR PNL815	Loss of 125VDC Protection Power for Phase OC, GND OC, DIR OC for 2NPS-SWG002 as sensed by 74-2NPSZ01
d.	NPSBC12	125VDC CONT PWR PNL812	Loss of 125VDC for 2NPS-SWG001 bus load Trip and Fast Transfer Circuits as sensed by 74-2NPSX17
e.	NPSBC13	125VDC CONT PWR PNL813	Loss of 125VDC for 2NPS-SWG001 bus load Trip and Fast Transfer Circuits as sensed by 74-2NPSY21

51.2 Automatic Response

a. Loss of prot. CKT control power for 13.8 switchgear.

51.3 Corrective Action

a. Check computer to determine which bus has a loss of control power.

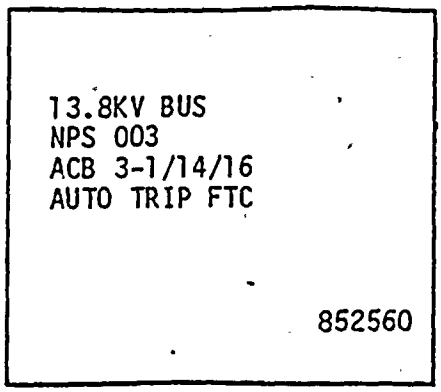
b. Restore control power as soon as possible.

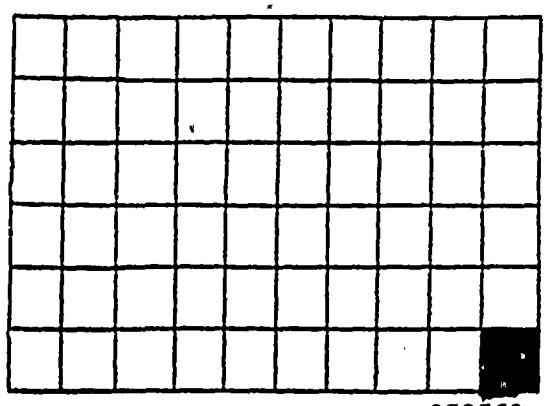
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

52.0 852560 13.8KV Bus NPS003 3-1, 3-14, 3-16, Auto Trip Failure to Close

Reflash: Yes

BOB 12/6/90 AM 12/6/90





52.1	Computer Point	Computer Printout	Source
a.	NPSUC03	SWG003 ACB 3-14 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-14 Auto Trip or Failure to Close (ACB 3-14 open & SW-ACB 3-14 Normal after close) as sensed by 1 & 52 2NPSY04
b.	NPSUC04	SWG003 ACB 3-1 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-1 Auto Trip or Failure to Close (ACB 3-1 open & SW-ACB 3-1 Normal after close) as sensed by 1 & 52 2NPSY06
c.	NPSUC08	SWG003 ACB 3-16 AUTO TRIP	2NPS-SWG003 Air Circuit Breaker 3-16 Auto Trip or Failure to Close (ACB 3-16 open & SW-ACB 3-16 Normal after close) as sensed by 1 & 52 2NPSY05

52.2 Automatic Response

a. Auto trip or fail to close, reserve or normal supply breakers to 13.8KV bus 003.

52.3 Corrective Action

a. Verify automatic response.

b. Investigate and determine reason for trip.

c. Return system to normal operation.

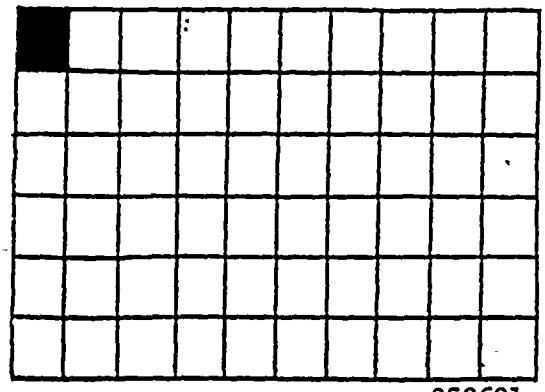
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

53.0 852601 Auxiliary Transformer XS1, Auxiliary Transformer XS3 Protection Control Power Failure

Reflash: Yes

AUX XFMER XS1
AUX XFMER XS3
PROT CONT PWR
FAILURE

852601



852601

53.1	Computer Point	Computer Printout	Source
a.	SPXBC01	XS1 PROT RLY CONT PWR	Loss of 125VDC to protect circuits: GND OC, GND INST OC, PHASE OC, AUX XFMR 2ATX-XS1 DIFF, 2ATX-XS1 Fault Press as sensed by 74-2SPXY01
b.	SPXBC02	XS3 PROT RLY CONT PWR	Loss of 125VDC to protect circuits: GND OC, PHASE OC, AUX XFMR 2ATX-XS3 DIFF, 2ATX-XS3 Fault Press as sensed by 74-2SPXX01

53.2 Automatic Response

NONE

53.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Restore control power as soon as possible.

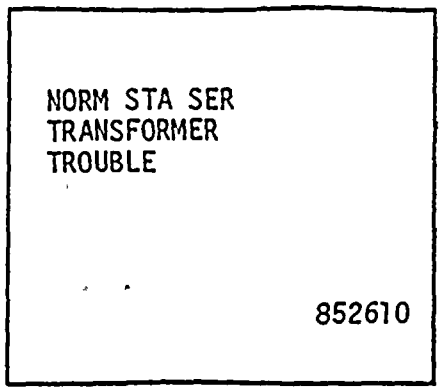
c. For computer point SPXBC01, check 125VDC PNL 2CEC-PNL807 (circuit 2BYSB16).

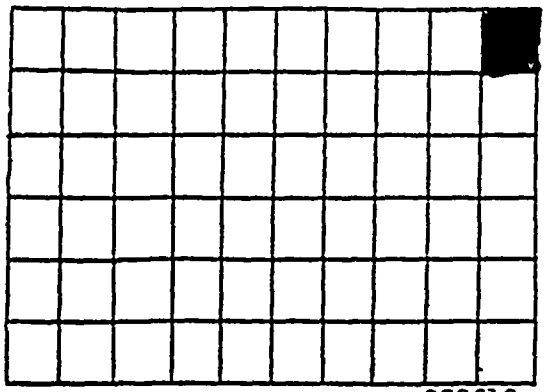
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

54.0 852610 Normal Station Service Transformer Trouble

RB 12/6/90
RB 12/6/90

Refresh: Yes





54.1	Computer Point	Computer Printout	Source
a.	SPSTC02	XNSI WDG HOT SPOT T	2STX-XNSI Winding Hot Spot Temp High as sensed by 49T, 1,2,&3-2SPSN02
b.	SPSAC01	XNSI GAS DET ACTUATED	2STX-XNSI Gas Detector Actuated as sensed by 63TCG-2SPSN02
c.	SPSFC01	XNSI CLR GP1 OIL FLOW	2STX-XNSI Cooler Oil Flow Low as sensed by 74-1-2SPSN02
d.	SPSLC01	2STX-XNSI RSVR OIL LEVEL	2STX-XNSI Reservoir Oil Level Low as sensed by 71 QL (TR)-2SPSN02
e.	SPSLC02	XNSI LTC RSVR OIL LEVEL	2STX-XNSI LTC Reservoir Oil Level Low as sensed by 71 QL (LTC)-2SPSN02
f.	SPSPC01	XNSI PR RLF ACTUATED	2STX-XNSI Pressure Relief actuated as sensed by 63 PR (TR)-2SPSN02
g.	SPSPC02	XNSI FLT PR HE SIDE	2STX-XNSI Fault Pressure HE side as sensed by 30X-2SPSY01
h.	SPSPC03	XNSI FLT PR GR SIDE	2STX-XNSI Fault Pressure GR side as sensed by 30Y-2SPSY01

54.1	Computer Point	Computer Printout	Source (cont.)
	i. SPSPC04	XNSI LTC PR RLF ACT	2STX-XNSI LTC Pressure Relief Valve actuated as sensed by 63PR (LTC)-2SPSN02
	j. SPSPC05	2STX-XNSI LTC FP GR SIDE	2STX-XNSI LTC Fault Pressure GR side as sensed by 30LX-2SPSY03
	k. SPSTC01	XFMR 2STX-XNS1 OIL TEMP	2STX-XNSI Oil Temp High as sensed by 26Q-2SPSN02
	l. SPSPC07	XNSI FAULT PRESS MID	2STX-XNSI Fault Pressure as sensed by 30C-2SPSY01
	m. SPCPC08	2STX-XNSI LTC FAULT PRESS	2STX-XNSI Fault Pressure as sensed by 30C-2SPSY03.

54.2 Automatic Response

NONE

54.3 Corrective Action

a. Check the computer to determine which point is alarming.

b. Dispatch an operator to the Normal Station Service Transformer to investigate and determine the cause.

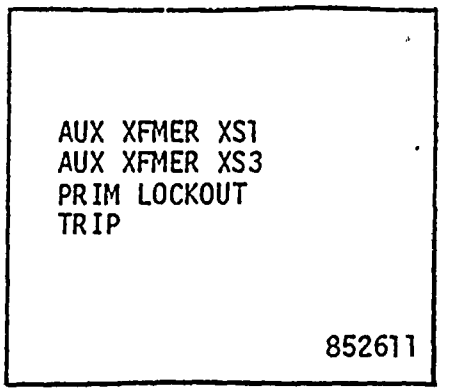
c. Monitor the alarming parameters and take corrective action as required.

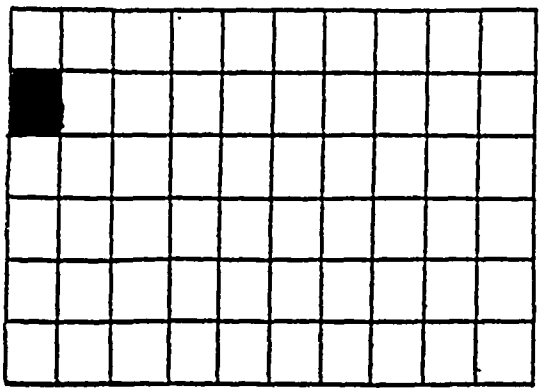
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

55.0 852611 Auxiliary Transformer XS1 Auxiliary Transformer XS3 Primary Lockout Trip

BCB 12/6/89 NS 12/6/89

Reflash: Yes





852611

55.1	Computer Point	Computer Printout	Source
a.	SPXUC01	XS1 PRIM LOCKOUT RLY	2ATX-XS1 Primary Lockout Relay Trip as sensed by 86-2SPXY01
b.	SPXUC02	XS3 PRIM LOCKOUT RLY	2ATX-XS3 Primary Lockout Relay Trip as sensed by 86-2SPXX01

55.2 Automatic Response

a. If 86-2SPXY01, trip 13.8KV supply breaker 1-4, 4160V breakers 11-3 and 14-2.

b. If 86-2SPXX01, trip 13.8KV supply breaker 3-6, 4160V breakers 13-6 and 15-3.

55.3 Corrective Action

a. Verify automatic response.

b. Check auto start of standby equipment.

c. Reduce power to less than 85%. per N2-op-101D Section H.1.0.

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d. Investigate and determine reason for trip.

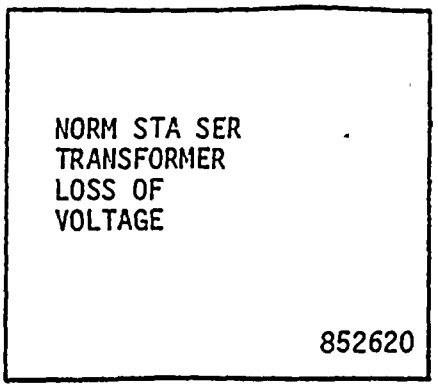
e. Return plant to normal operation.

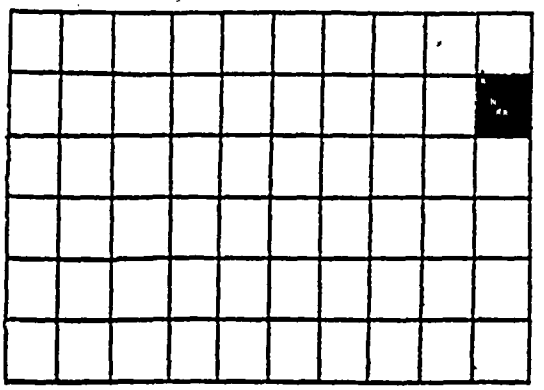
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

56.0 852620 Normal Station Service Transformer Loss of Voltage

BG 12/6/90 NB 12/6/90

Reflash: Yes





852620

56.1	Computer Point	Computer Printout	Source
a.	NPSEC09	BUS SWG001 AUTO -XFR BLK	2NPS-SWG001 Transfer Blocked as sensed by 59-2NPSX18
b.	NPSEC10	BUS SWG003 AUTO -XFR BLK	2NPS-SWG003 Transfer Blocked as sensed by 59-2NPSY22

56.2 Automatic Response

a. Block closing of the Normal Supply Breaker 1-3 to 2NPS-SWG001.

b. Block closing of the Normal Supply Breaker 3-14 to 2NPS-SWG003.

56.3 Corrective Action

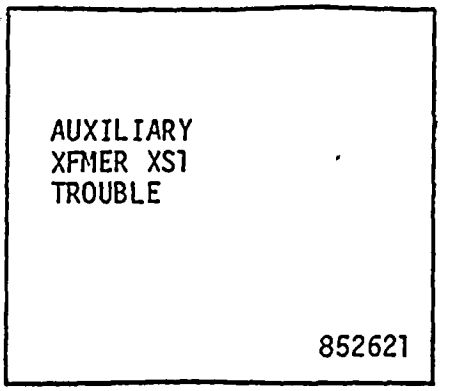
NONE

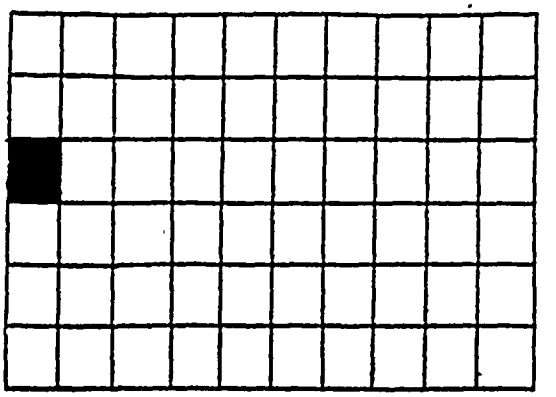
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

57.0 852621 Auxiliary Transformer XS1 Trouble

SOB 12/6/90 MS 12/6/90

Reflash: Yes





852621

57.1	Computer Point	Computer Printout	Source
a.	SPXAC01	XS1 GAS DETECTOR ACTUATED	2ATX-XS1 Gas Detector Actuated as sensed by 63 GD-2SPXA01
b.	SPXLC01	2ATX-XS1 RSVR OIL LEVEL	2ATX-XS1 Reservoir Oil Level Low as sensed by 710-2SPXA01
c.	SPXPC01	XS1 PR RELIEF ACTUATED	2ATX-XS1 Pressure Relief Actuated as sensed by 63 PR-2SPXA01
d.	SPXTC01	XFMR 2ATX-XS1 OIL TEMP	2ATX-XS1 Oil Temperature High as sensed by 26Q-2SPXA01
e.	SPXTC03	XS1 WDG HOT SPOT	2ATX-XS1 Winding Hot Spot Temperature High as sensed by 49-2SPXA01

57.2 Automatic Response

NONE

57.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Dispatch operator to transformer.

c. Investigate and determine reason for alarm.

d. Return system to normal operation or consider removing transformer from service.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

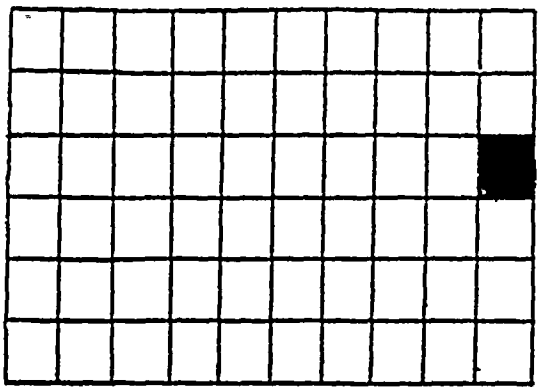
58.0 852630 Normal Station Service Transformer Lockout Relay Trip

Reflash: No

RCB 12/6/90 MJ 12/6/90

NORM STA SER
TRANSFORMER
LOCKOUT RELAY
TRIP

852630



852630

58.1	Computer Point	Computer Printout	Source
	SPGUC02	NSS XFMR LOCKOUT RELAY TRP	2STX-XNS1 Lockout Relay Trip as sensed by 86-2-2SPGZ01

58.2 Automatic Response

a. Lockout reserve breakers ACB 1-1, 1-16, 3-1, 3-16.

b. Blocks fast and modified transfer.

c. Trips normal supply breakers.

58.3 Corrective Action

a. Check power available to emergency buses 2ENS*SWG101, 102, 103.

b. Verify turbine trip and Rx scram.

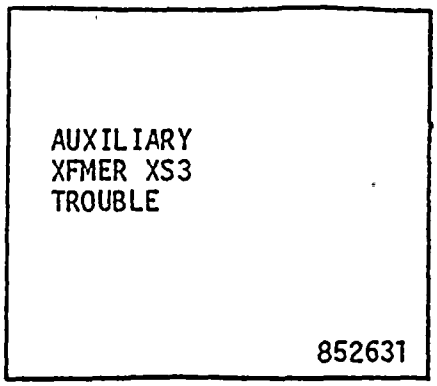
c. Determine the cause of the trip and correct any problems.

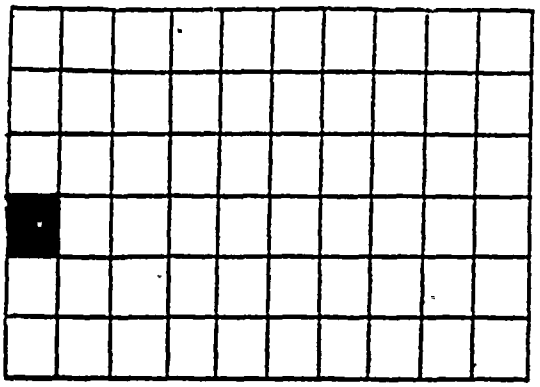
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

59.0 852631 Auxiliary Transformer XS3 Trouble

SCS 12/6/90 AH 12/6/90

Reflash: Yes





852631

59.1	Computer Point	Computer Printout	Source
a.	SPXAC02	XS3 GAS DET ACTUATED	2ATX-XS3 Gas Detector Actuated as sensed by 63GD-2SPXB01
b.	2SPXLC02	2ATX-XS3 RSVR OIL LEVEL	2ATX-XS3 Reservoir Oil Level Low as sensed by 71Q-2SPXB01
c.	SPXPC02	XS3 PR RELIEF ACTUATED	2ATX-XS3 Pressure Relief Actuated as sensed by 63PR-2SPXB01
d.	SPXTC02	XFMR 2ATX-XS3 OIL TEMP	2ATX-XS3 Oil Temperature High as sensed by 26Q-2SPXB01
e.	SPXTC04	XS3 WDG HOT SPOT	2ATX-XS3 Winding Hot Spot Temperature High as sensed by 49-2SPXB01

59.2 Automatic Response

NONE

59.3 Corrective Action

a. Check computer to determine which point is in alarm.

b. Dispatch operator to transformer.

c. Investigate and determine reason for alarm.

d. Return system to normal operation or consider removing transformer from service.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

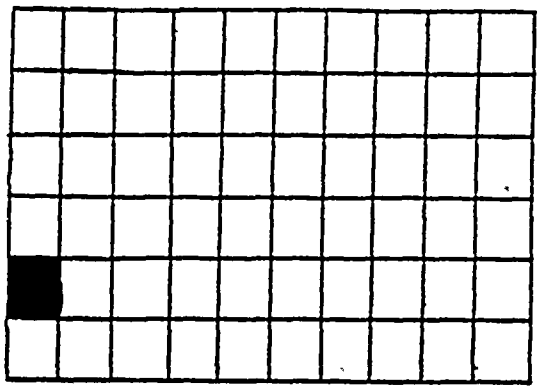
60.0 852641 Auxiliary Transformer XS1 Sudden Pressure

BJB 12/4/89 MM 12/6/89

Reflash: Yes

AUX XFMER XS1
SUDDEN
PRESSURE

852641



852641

60.1	Computer Point	Computer Printout	Source
a.	SPXBC03	2ATX-XS1 SUDD PR CKT PWR	2ATX-XS1 Sudden Pressure Circuit Power as sensed by 74-2SPXX05
b.	SPXPC03	XS1 SUDDEN PRE LEFT	2ATX-XS1 Sudden Pressure Left as sensed by 30X-2SPXX05
c.	SPXPC06	XS1 SUDDEN PRE RIGHT	2ATX-XS1 Sudden Pressure Right as sensed by 30Y-2SPXX05

60.2 Automatic Response

a. Trip 13.8KV supply breaker ACB 1-4, to 2NPS-SWG001 and 4160V breaker ACB 11-3 to 2NNS-SWG011 and ACB 14-2 to 2NNS-SWG014, OR loss of sudden pressure control circuit.

60.3 Corrective Action

a. Verify automatic response.

b. If control power loss, restore as soon as possible.

c. If breakers tripped, check auto start of standby equipment.

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d. Reduce power to less than 85%, per N2-OP-101D Section H.1.0.

e. Investigate and determine reason for trip.

f. Return plant to normal operation.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)

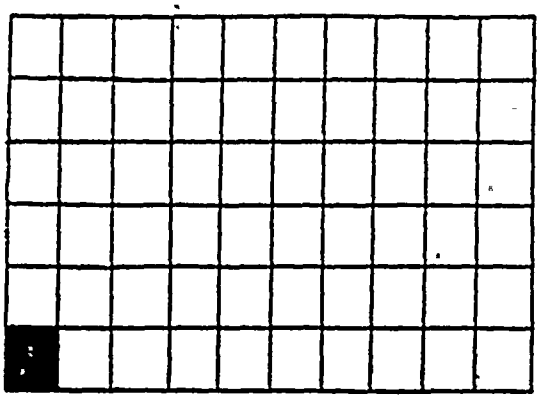
61.0 852651 Auxiliary Transformer XS3 Sudden Pressure

BJB 12/6/90 MJ 12/6/90

Reflash = Yes

AUX XFMER XS3
SUDDEN
PRESSURE

852651



852651

61.1	Computer Point	Computer Printout	Source
a.	SPXBC04	2ATX-XS3 SUDD PR CKT PWR	2ATX-XS3 Loss of Sudden Pressure DC Circuit Power as sensed by 74-2SPXY05
b.	SPXPC05	XS3 SUDDEN PRE LEFT	2ATX-XS3 Sudden Pressure Left as sensed by 30X-2SPXY05
c.	SPXPC07	XS3 SUDDEN PRE RIGHT	2ATX-XS3 Sudden Pressure Right as sensed by 30Y-2SPXY05

61.2 Automatic Response

a. Trip 13.8KV supply breaker ACB 3-6 to 2NPS-SWG003 and 4160V breakers ACB 13-6 to 2NNS-SWG0013 and ACB 15-3 to 2NNS-SWG015 OR loss of sudden pressure control circuit.

61.3 Corrective Action

a. Verify automatic response.

b. If control power loss, restore as soon as possible.

c. If breakers tripped, check auto start of standby equipment.

d. Reduce power to less than 85%, per N2-OP-101D Section H.1.0.

P:C 4-18-85

e. Investigate and determine reason for trip.

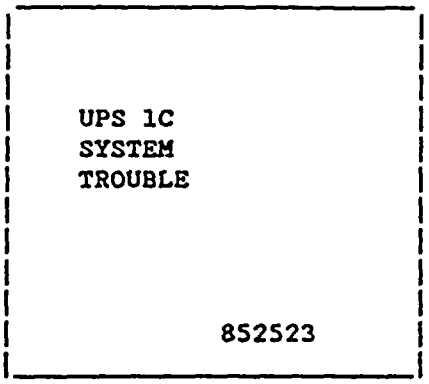
f. Return plant to normal operation.

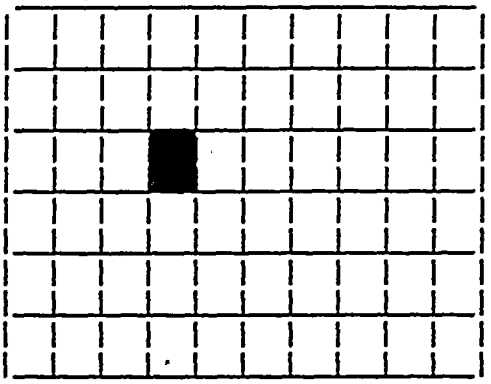
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

62.0 852523 Uninterruptable Power Supply 2VBB-UPS1C System Trouble

BB 12/16/87 AG 12/6/87

Reflash : No





62.1

Computer Point	Computer Printout	Source
VBBTC05	UPS1C SYSTEM TROUBLE	2VBB-UPS1C Relay K-6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

62.2 Automatic Response

UPS1C will realign power supplies to provide power to vital bus.

62.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1C panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

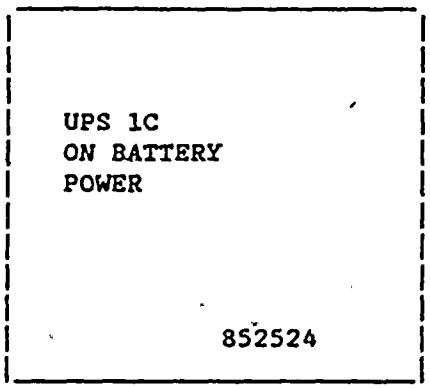
c. Initiate maint. activities if the unit needs repair.

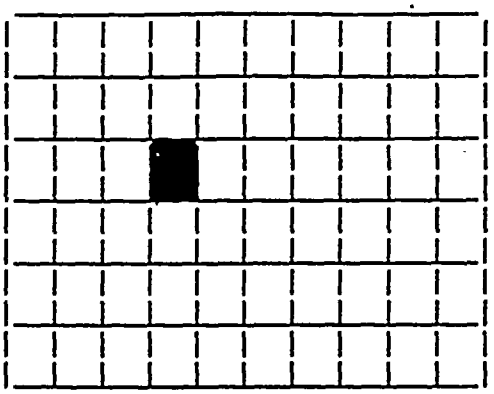
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

63.0 852524 Uninterruptable Power Supply 2VBB-UPS1C on Battery Power

Refresh: No

BCB 12/6/90 NJ 12/6/90





63.1

Computer Point	Computer Printout	Source
VBBTC06	UPS1C ON BATT PWR	2VBB-UPS1C Relay K-2; (On Battery Power)

63.2 Automatic Response

2VBBUPS1C Auto Transfer to DC battery power. 3

63.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1C to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

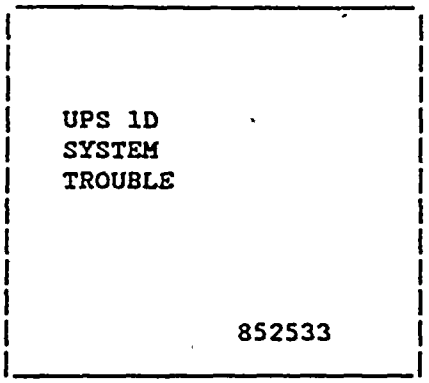
c. Initiate maint. activities if the unit needs repair.

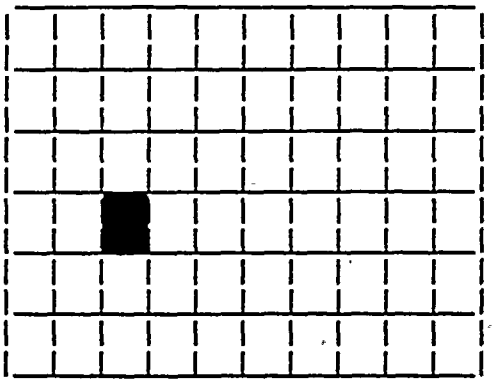
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

BCB 12/6/90
NS 12/6/90

64.0 852533 Uninterruptable Power Supply 2VBB-UPS1D System Trouble

Reflash: No





64.1 Computer Point	Computer Printout	Source
VBBTC07	UPS1D SYSTEM TROUBLE	2VBB-UPS1D Relay K-6 sensing: Ground on battery, over temperature on the inverter or charger, ov current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

64.2 Automatic Response

UPS1D will realign power supplies to provide power to vital bus.

64.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1D panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

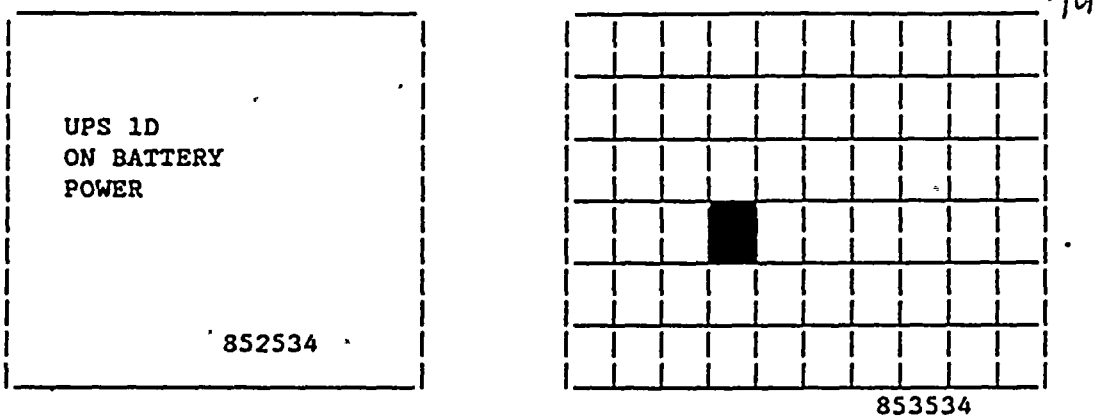
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

65.0 852534 Uninterruptable Power Supply 2VBB-UPS1D on Battery Power

RDB 12/6/90 MH 12/6/90

Reflash: No



65.1

Computer Point	Computer Printout	Source
VBBTC08	UPS1C ON BATT PWR	2VBB-UPS1D Relay K-2; (On Battery Power)

3

65.2 Automatic Response

2VBBUPS1C Auto Transfer to DC battery power.

3

65.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1D to record indications on the UPS front panel.

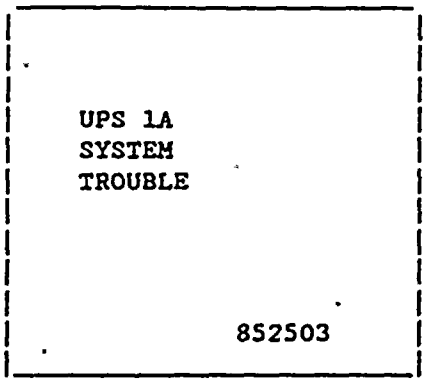
b. Refer to Section H to align power supplies to the desired off normal configuration.

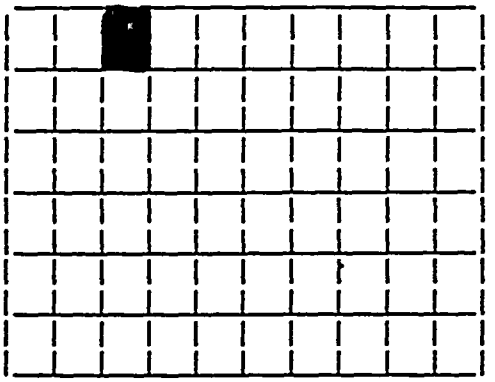
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

66.0 852503 Uninterruptable Power Supply 2VBB-UPS1A System Trouble

Reflash: No





66.1 Computer Point	Computer Printout	Source
VBBTC09	UPS1A SYSTEM TROUBLE	UPS1A-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

66.2 Automatic Response

UPS1A will realign power supplies to provide power to vital bus.

66.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1A panel to record indications on the UPS front panel.

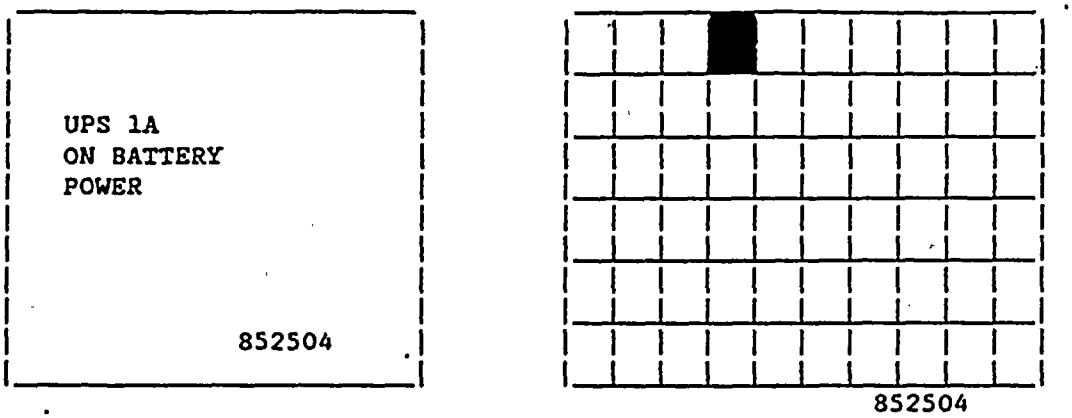
b. Refer to Section H to align power supplies to the desired off normal configuration.

c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

67.0 852504 Uninterruptable Power Supply UPS1A on Battery Power

"Reflash: NO"



67.1 Computer Point	Computer Printout	Source
VBBTC10	UPS1A ON BATT PWR	UPS1A-K2 (On Battery Power)

67.2 Automatic Response

2VBB-UPS1A Auto Transfer to DC battery power.

67.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1A to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

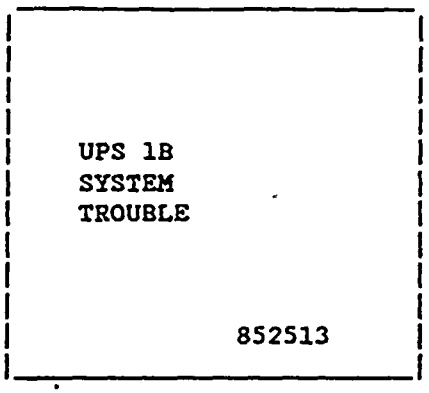
c. Initiate maint. activities if the unit needs repair.

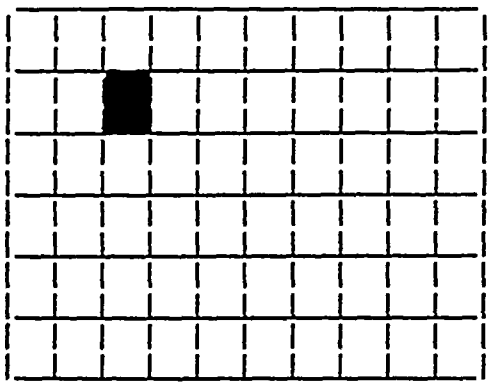
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

68.0 852513 Uninterruptable Power Supply 2VBB-UPS1B System Trouble

BB 12/6/90 NS 12/6/90

Reflash: No.





68.1 Computer Point	Computer Printout	Source
VBBTC11	UPS1B SYSTEM TROUBLE	UPS1B-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

68.2 Automatic Response

UPS1B will realign power supplies to provide power to vital bus.

68.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1B panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

c. Initiate maint. activities if the unit needs repair.

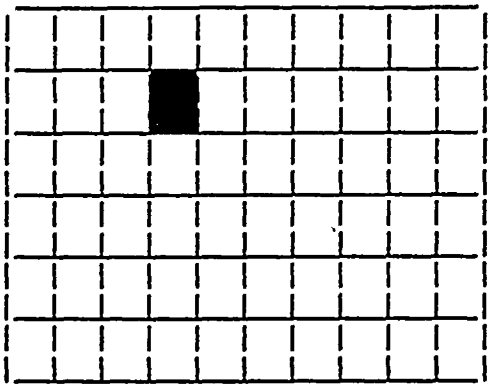
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

69.0 852514 Uninterruptable Power Supply UPS1B on Battery Power

Reflash: No

UPS 1B
ON BATTERY
POWER

852514



852514

69.1 Computer Point / Computer Printout / Source

Computer Point	Computer Printout	Source
VBBTC12	UPS1B ON BATT PWR	UPS1B-K2 (On Battery Power)

69.2 Automatic Response

2VBB-UPS1B Auto Transfer to DC battery power.

69.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1B to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

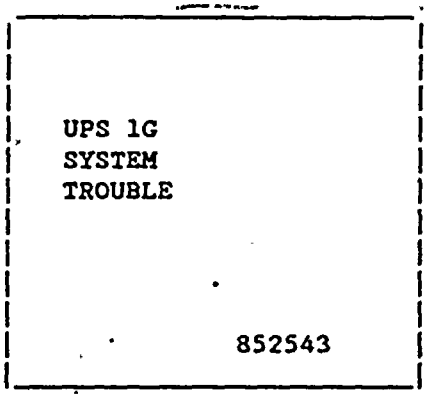
c. Initiate maint. activities if the unit needs repair.

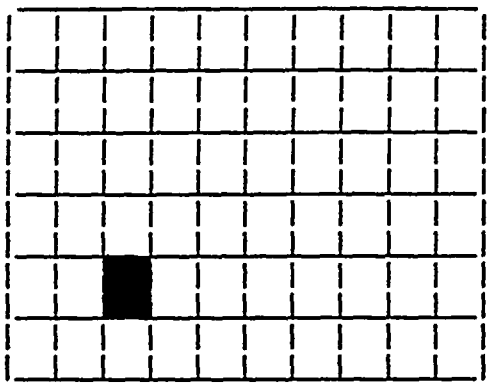
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

74.0 852543 Uninterruptable Power Supply 2VBB-UPS1G System Trouble

FCS 12/6/90 MS 12/6/90

Reflash: No





74.1 Computer Point	Computer Printout	Source
VBBTC01	UPS1G SYSTEM TROUBLE	UPS1G-K6 sensing: Ground on battery, over temperature on the inverter or charger, over current on the inverter, DC Low Voltage/Battery Operation Loss of DC input, Loss of maintenance AC input, Loss of Sync, Loss of inverter output.

3

74.2 Automatic Response

UPS1G will realign power supplies to provide power to vital bus.

3

74.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS1G panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

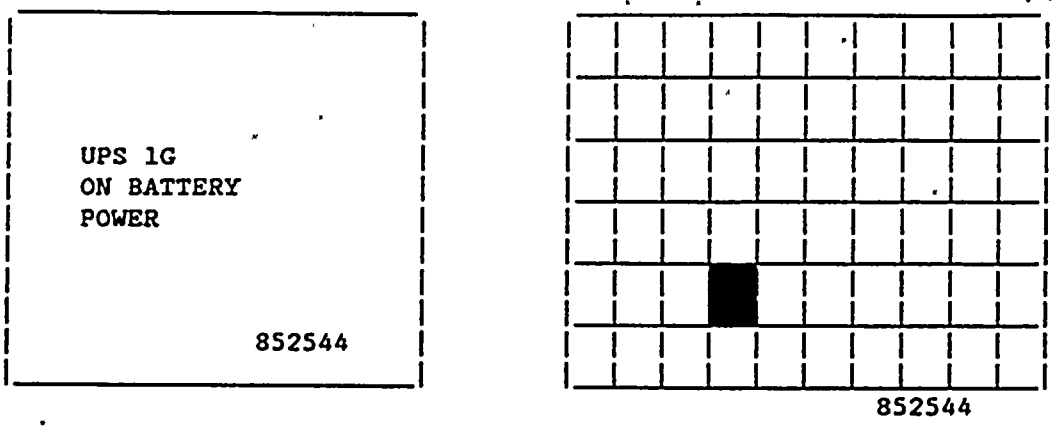
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

75.0 852544 Uninterruptable Power Supply UPS1G on Battery Power

BS 12/6/90
NG 12/6/90

Reflash: No



75.1 Computer Point	Computer Printout	Source
VBBTC02	UPS1G ON BATT PWR	UPS1G-K2 (On Battery Power)

3

75.2 Automatic Response

2VBB-UPS1G Auto Transfer to DC battery power.

3

75.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS1G to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration.

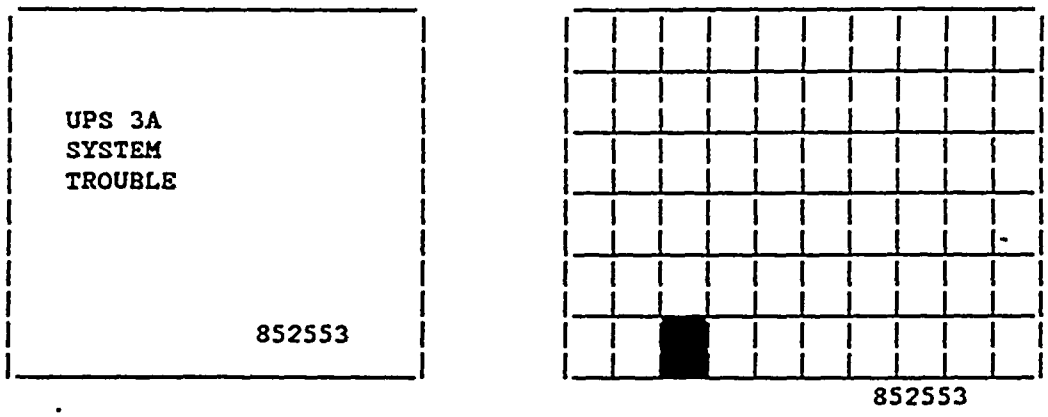
c. Initiate maint. activities if the unit needs repair.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

BCB 12/6/90 MJ 12/6/90

76.0 852553 Uninterruptable Power Supply 2VBB-UPS3A System Trouble

Reflash: No



76.1 Computer Point	Computer Printout	Source
VBBEC13	UPS3A SYSTEM TROUBLE	UPS3A-K2

NOTE: UPS3A-K2 is energized by initiation of any local alarm (See Section 76.3). | 3

76.2 Automatic Response

UPS3A wil realign power supplies to provide power to vital bus.

76.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS3A panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. | 3

c. Initiate maint. activities if the unit needs repair.

76.3 Corrective Action (Cont'd)

d. Evaluate local alarm indication per description below:

Local Alarm Description - Corrective Action

Alarm	Description	Corrective Action
Sync Loss	a) Maintenance AC is out of frequency tolerance	Notify maintenance
	b) Maintenance AC is not present	Restore Alt. AC (if fuse is blown in maintenance supply regulator, notify maintenance)
	c. UPS inverter out of freq. tolerance	Verify Freq. meter - notify maintenance
Low Inverter Voltage	UPS inverter output voltage is 15% low	Verify on voltmeter - Notify maintenance - if EPA was tripped with this alarm in, manually transfer to maintenance A.C. power
Inverter Overtemp	Unit overheating	Maintenance required
Fuse Blown	Fuse within UPS blown	Maintenance to replace fuses
Rectifier DC Grounded	UPS internal D.C. Bus grounded	Maintenance required
Low D.C. Bus	UPS internal D.C. Bus voltage is low	Notify Elec./I&C for Repair/adjustment
Overload	UPS inverter supplying over 100% rating of unit	Check output ammeter - if unit loaded, clear non-essential load If alarm false, contact Elec./I&C
Low Battery	UPS internal D.C. Bus voltage is below 110 volts	If batteries connected, (CB-2 Closed) Check battery volts, if battery volts OK, contact Elect/I&C
Battery Drain/Charge	Current being drawn from batteries caused by: a) Loss of normal A.C. to UPS b) Voltage on associated D.C. switchgear higher than UPS internal D.C. voltage	a) Restore normal AC b) If associated charger on equalize, verify UPS D.C. setpoint @ 140.5, charger @ 139.9 VDC - notify Elect./I&C

Local Alarm Description - Corrective Action (Cont'd)

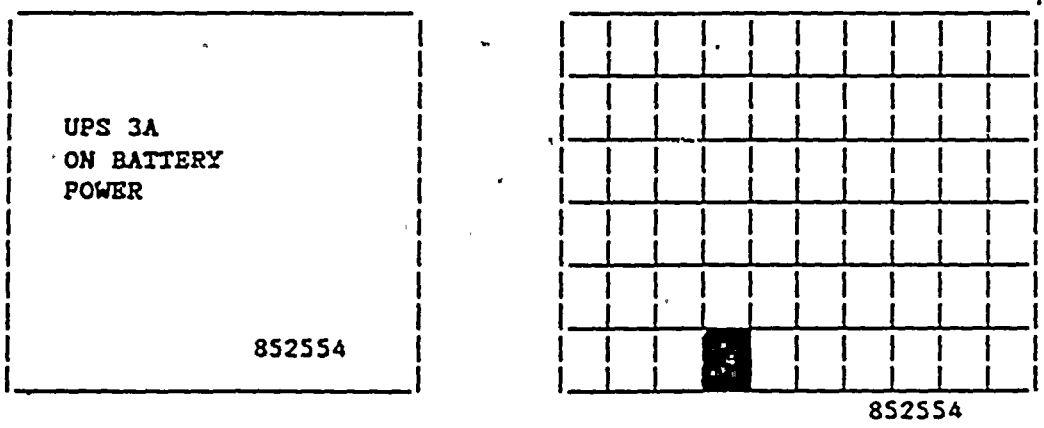
Alarm	Description	Corrective Action
Rectifier AC Loss	Loss of normal AC to Unit	a) Verify CB-1 not tripped - if tripped, notify Elect/I&C b) If CB-1 is closed, restore upstream normal AC supply
Reverse Transfer	Static switch is in maintenance position	a) If other alarms present, correct other alarms first b) If all other alarms clear, verify UPS AC output voltage present (meter), then push forward transfer (to inverter) push button

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

77.0 852554 Uninterruptable Power Supply UPS3A on Battery Power

BJB 12/6/90 ab 12/6/90

Reflash: No



77.1 Computer Point | Computer Printout | Source

Computer Point	Computer Printout	Source
VBBBC11	UPS3A ON BATT PWR	UPS3A-K3

TCN-1

NOTE: UPS3A-K3 initiated by local alarm "Battery drain/charge" (See Section 76.3)

77.2 Automatic Response

2VBB-UPS3A will operate on DC battery power.

77.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS3A to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required.

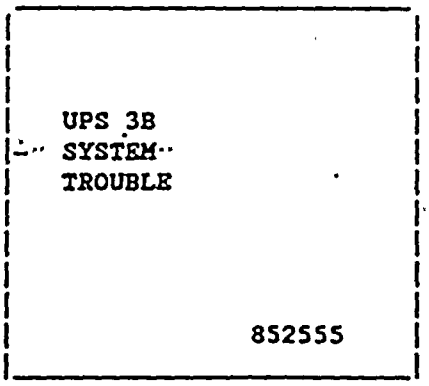
c. Initiate maint. activities if the unit needs repair.

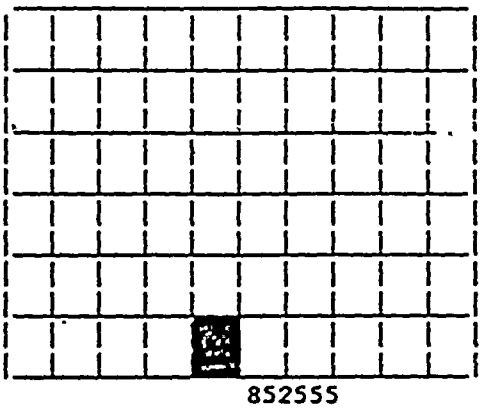
d. Evaluate cause of local alarm "Battery drain/charge" per Section 76.3.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

78.0 852555 Uninterruptable Power Supply 2VBB-UPS3B System Trouble

Reflash: No





78.1

Computer Point	Computer Printout	Source
VBBEC14	UPS3B SYSTEM TROUBLE	UPS3B-K2

NOTE: UPS3B-K2 initiated by any local alarm (See Section 76.3) 3

78.2 Automatic Response

UPS3B will realign power supplies to provide power to vital bus. 3

78.3 Corrective Action

a. Dispatch an operator to the local 2VBB-UPS3B panel to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. 3

c. Initiate maint. activities if the unit needs repair.

d. Evaluate local alarm indication per Section 76.3. 3

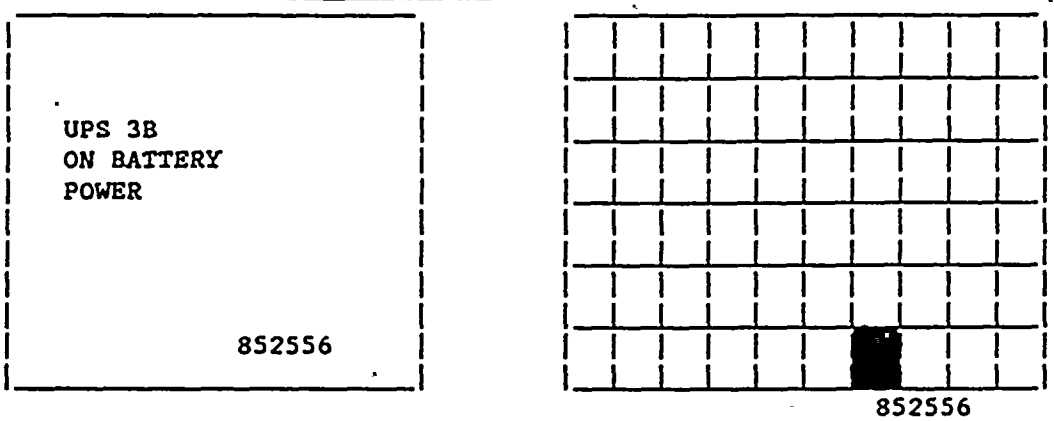
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

79.0 852556 Uninterruptable Power Supply UPS3B on Battery Power

BJB 12/6/90

Refash: NO

NP 12/6/90



79.1 Computer Point | Computer Printout | Source

VBBBC12	UPS3B ON BATT PWR	UPS3B-K3

NOTE: UPS3B-K3 is initiated by local alarm: "Battery drain/charge" (See Section 76.3). | 3

79.2 Automatic Response

2VBB-UPS3B will operate on DC battery power. | 3

79.3 Corrective Action

a. Dispatch an operator to 2VBB-UPS3B to record indications on the UPS front panel.

b. Refer to Section H to align power supplies to the desired off normal configuration, if required. | 3

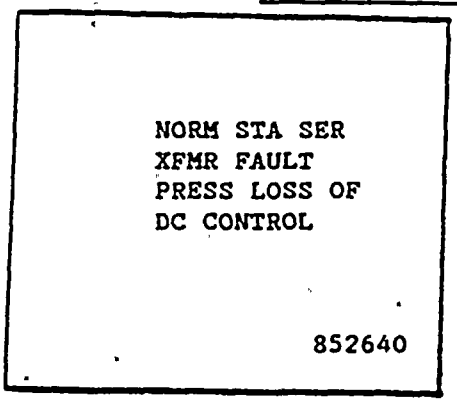
c. Initiate maint. activities if the unit needs repair.

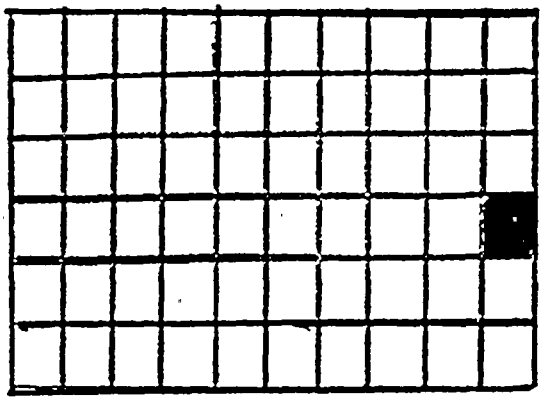
d. Evaluate local alarm "Battery drain/charge" per Section 76.3. | 3

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

80.0 852640 Normal Station Service Transformer Fault Pressure Loss of D.C. Control

Reflash: No





852640

80.1	Computer Point	Computer Printout	Source
	SPSBC01	125VDC CONT PWR PNL865	74-2SPSY01 Control Power Relay in panel 2CEC-PNL865

80.2 Automatic Response

None

80.3 Corrective Action

a. Check fuses in panel 2CEC-PNL865 circuit 2SPSY01.

b. Check battery switchgear 2BYS-SWG001B circuit 29 (2BYSB17)

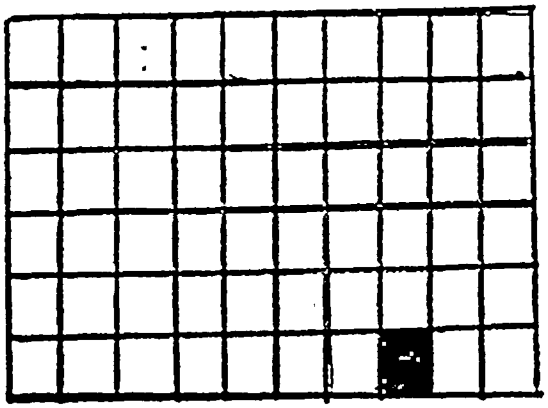
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

81.0 851158 Relay Room Instrument Panels Power Failure

Reflash = Yes

RELAY ROOM
INSTR PANELS
POWER FAILURE

851158



851158

81.1

Computer Point	Computer Printout	Source
CECBC01	P825 PWR SUPPLY FAIL	Panel Power Supply relays K2 & K3
CECBC02	P826 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC04	P827 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC05	P828 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC06	P829 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC08	P830 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC10	P831 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC11	P883 PWR SUPPLY FAIL DIV III	Panel power supply relays K2 & K3
CECBC13	P884 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC15	P885 PWR SUPPLY FAIL	Panel power supply relays K2 & K3

81.0 851158 Relay Room Instrument Panels Power Failure (Cont'd)

81.1

Computer Point	Computer Printout	Source
CECBC16	P886 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC17	P887 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC19	P888 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
CECBC21	P890 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC22	P891 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC23	P894 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC24	P895 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3
CECBC26	P896 PWR SUPPLY FAIL DIV I	Panel power supply relays K2 & K3
CECBC27	P897 PWR SUPPLY FAIL DIV II	Panel power supply relays K2 & K3

81.2 Automatic Response

None

81.3 Corrective Action

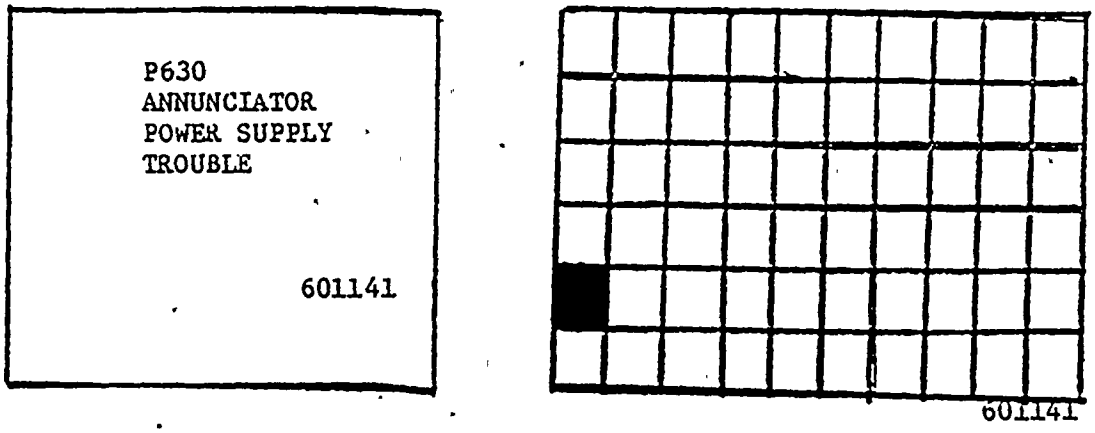
a. Notify I&C of the alarm.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

82.0 601141 Panel 630 Annunciator Power Supply Trouble

BOP 12/6/90 RB 12/6/90

Reflash: Yes



82.1

Computer Point	Computer Printout	Source
IHABC13	NSS ANN PW GROUND	Panel 630 internal power supply ground
IHABC18	NSS ANN PWR SUPPLY FAILURE	Panel 630 circuit 2IHAA06 circuit breaker A8CB2 or UPS1A 2VBS-PNLA101 circuit 3

82.2 Automatic Response

None

82.3 Corrective Action

a. Check panel circuits and breaker shown as "source".

b. Notify I&C of the alarm.

c. Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators," if applicable

DMN 2/6/91 ic 2-6-91

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

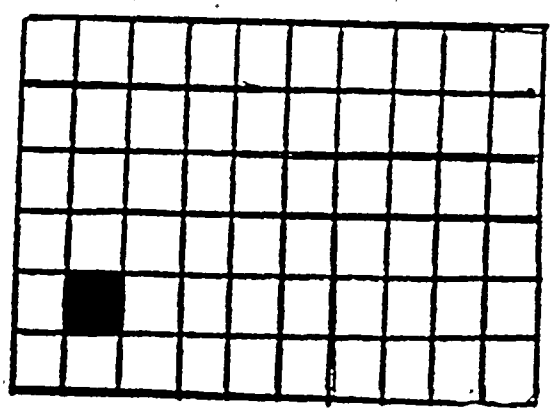
BOR 12/6/90 · MM 12/6/90

83.0 601142 Panel 630 Alarm Retransmit Power Supply Trouble

Reflash: Yes

P630 ALARM
RETRANSMIT
POWER SUPPLY
TROUBLE

601142



601142

83.1

Computer Point	Computer Printout	Source
IHABC14	NSS ANN PWR SUPPLY FAIL	Panel 630 circuit 2IHAN06 circuit breaker A8CB3 or UPS1B 2VBS-PNLB101 circuit 4
IHABC15	ALM REFL PS LOSS OF PWR	Panel 630 circuit 2IHAN05 loss of power

83.2 Automatic Response

None

83.3 Corrective Action

a. Check circuits and breaker shown as "source".

b. Notify I&C of the alarm if unable to restore power to annunciator isolators, or retransmitter relays.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

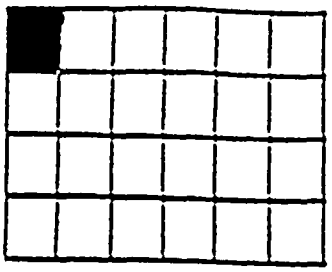
84.0 842101 Balance of Plant - Division I Isolation Card Out-of-File/Loss of Power

BCB 12/6/90 MG 12/6/90

Reflash: Yes

BOP DIV I
ISOLATOR CARD
OUT-OF-FILE
LOSS OF POWER

842101



842101

84.1

Computer Point	Computer Printout	Source
CECBC29	P837 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 837 circuit 2CECA01 Fuse F1
CECBC35	P838 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 838 circuit 2CECB01 Fuse F1
CECBC39	P874 ~~DIV I~~ D1 BOP ISOL ~~CARD~~ CD OOF	Panel 874 circuit 2CECC01 Fuse F1

mrl 4/3/91

84.2 Automatic Response

None

84.3 Corrective Action

a. Check the fuse in the circuit and panel shown as the "source".

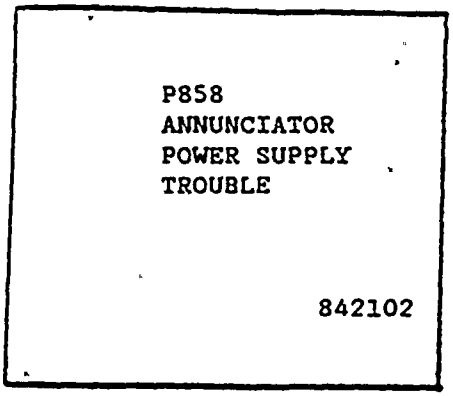
b. Contact I&C if unable to restore power to isolator cards.

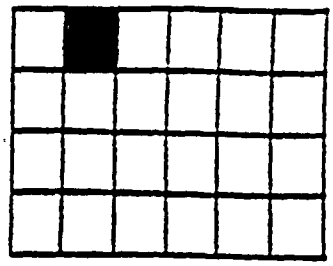
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

BOB 12/6/90 MM 12/6/90

85.0 842102 Panel 858 Annunciator Power Supply Trouble

Reflash: Yes





842102

85.1

Computer Point	Computer Printout	Source
IHABC04	BOP ANN PWR SUPPLY FAIL	Vital Bus 2VBS-PNLA101 ckt 8 Panel 858 ckt 2IHAA02 circuit breaker CB1
IHABC10	ANN PS GROUNDED	Panel 858 ground detector for: 2VBS-PNLA01 ckt 8 or 2VBS-PNLB101 ckt 37

85.2 Automatic Response

None

85.3(a) Corrective Action

IHABC04 - 1. Check panel 858 circuit 2IHAA02 circuit breaker A13CB1.

2. Check UPS1A panel 2VBS-PNLA101 circuit 8.

3. Notify I&C if unable to restore power to annunciators.

(b) IHABC10 - 1. Check panel 858 circuit 2IHAA02 circuit breaker A13CB1 and 2IHAN02 circuit breaker A13CB3.

2/6/91 2-6-91

(c) Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators, if applicable

85.0 842102 Panel 858 Annunciator Power Supply Trouble (Cont'd)

85.3(b) (Cont'd) 2. Check UPS1A panel 2VBS-PNLB101 circuit 37 and 2VBS-PNLA101 circuit 8.

3. Notify I&C if unable to restore power to annunciator.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

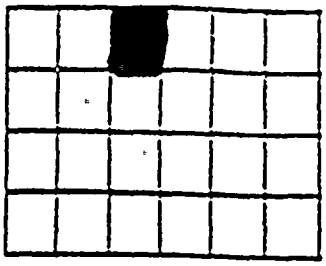
86.0 842103 Emergency Response Facility Panel Isolation Card Out-of-File/Loss of Power

BCB 12/6/90 MS 12/6/90

Reflash: Yes

ERF PANEL
ISOLATION CARD
OUT-OF-FILE/
LOSS OF POWER

842103



842103

86.1	Computer Point	Computer Printout	Source
	CECBC45	P899D1 ERF ISOL CD OOF	Panel 899 circuit 2CECA03 Fuse F1 or UPS2A 2VBS*PNL101A circuit 3
	CECBC46	P899D2 ERF ISOL CD OOF	Panel 899 circuit 2CECB02 Fuse F1 or UPS2B 2VBS*PNL301B circuit 20
	CECBC47	P899 ~~BLK~~ ERF ISOL CD OOF	Panel 899 circuit 2CECB04 Fuse F1 or 2SCI-PNLA102 circuit 17

mrt 1/3/91

86.2 Automatic Response

None

86.3 Corrective Action

a. Check fuses and breakers in panels listed as "source".

b. Notify I&C if unable to restore power to isolator circuits.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

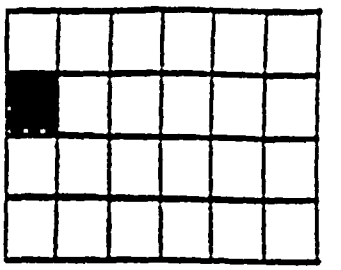
87.0 842107 Balance of Plant Division II Isolator Card Out-of-File/Loss of Power

SCB 12/6/90 AB 12/6/91

Reflash = Yes

BOP DIV II
ISOLATOR CARD
OUT-OF-FILE/
LOSS OF POWER

842107



842107

86.1	Computer Point	Computer Printout	Source
	CECBC30	P874 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 874 Isol cards ZG-A, B, C, D
	CECBC36	P837 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 837 Isol cards ZAJ-A, B, C, D
	CECBC40	P838 ~~DIV 2~~ D2 BOP ISOL ~~CARD~~ CD OOF	Panel 838 Isol cards ZAH-A, B, C, D or panel 838 circuit 2CECB01 Fuse F1
	IHABC02	DIV 2 ISOL INP CARD OUT	Panel 838 Div 2 Isol input card(s) from 99-1A through 99-11B any card(s) out of file

MA 1/3/91

87.2 Automatic Response

None

87.3 Corrective Action

a. Check panel cards and fuse as shown as "source".

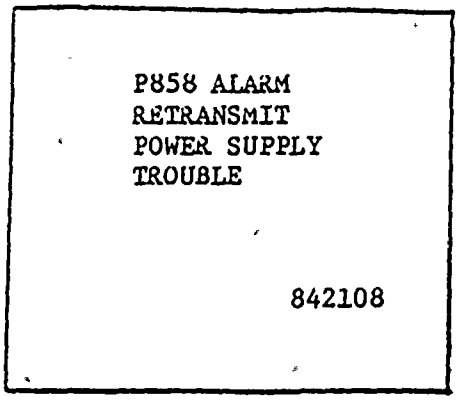
b. Notify I&C if unable to restore power to isolator circuits.

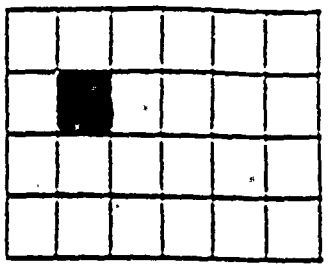
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

88.0 842108 Panel 858 Alarm Retransmit Power Supply Trouble

BCB 12/6/90 MM 12/6/90

Reflash: Yes





842108

88.1

Computer Point	Computer Printout	Source
IHABC11	BOP ANN PWR SUPPLY FAIL	74-2IHAN02 Panel 858 circuit 2IHAN02 circuit breaker A13CB3 or UPS1A 2VBS-PNLB101 ckt 37
IHABC12	ALM REFL PS LOSS	74B-2IHAN03 Panel 858 power supply to alarm retransmit relay circuit 2IHAN03

88.2 Automatic Response

None

88.3 Corrective Action

a. Check breakers in panels listed as "source".

b. Notify I&C if unable to restore power to retransmission circuits.

I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

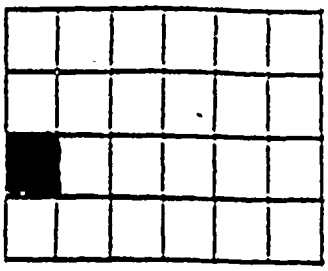
89.0 842113 Balance of Plant Division II Isolator Card Out-of-File/Loss of Power

BB 12/6/90 N7 12/6/90

Reflash: yes

BOP DIV III
ISOLATOR CARD
OUT-OF-FILE
LOSS OF POWER

842113



842113

89.1	Computer Point	Computer Printout	Source
	IHABC03	DIV 3 ISOL INP CARD OUT	Panel 874 Div 3 Isol input card 99-1 or 99-2 any card(s) out-of-file (DC)
4 11/3/91	CECBC31	P874 ~~DIV 3~~ BOP ISOL ~~CARD~~ CD 03 OOF	Panel 874 Div 3 isol input card analog or digital (HC) out-of-file

89.2 Automatic Response

None

89.3 Corrective Action

a. Notify I&C that panel 874 Div 3 isolator input card(s) is (are) out-of-file.

b. Check panel 2CES-IPNL414 circuit 18.

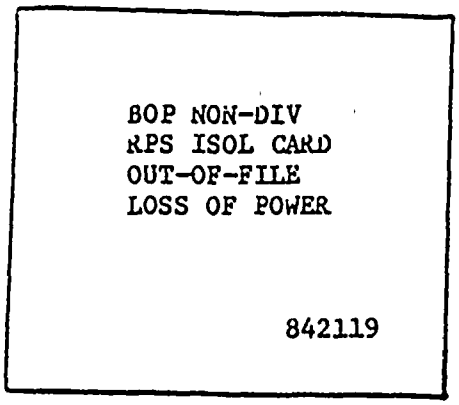
c. Check panel 874 circuit 2IHAC01 Fuse F1.

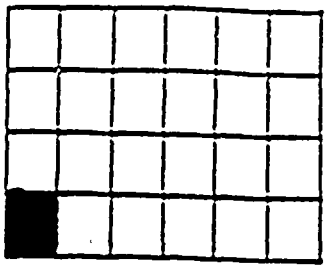
I. PROCEDURES FOR CORRECTING ALARM CONDITIONS

BB 12/6/90
NA 10/6/90

90.0 842119 Balance of Plant Non-Divisional/Reactor Protection System Isolation Card Out-of-File/Loss of Power

Reflash: Yes





842119

90.1

Computer Point	Computer Printout	Source
CECBC32	P837 ~~BLK BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 837 analog or digital isolator output card out-of-file
CECBC33	P838 ~~BLK BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 838 analog or digital isolator output card out-of-file
CECBC34	P874 ~~BLK BOP~~ NON-DIV ISOL ~~CARD~~ CD OOF	Panel 874 analog or digital isolator output card out-of-file
CECBC37	P837 RPS D1 ~~BOP~~ ISOL ~~CARD~~ CD OOF	Power from panel 856 circuit 2SCIA06 fuse F1
CECBC38	P838 RPS D2 ~~BOP~~ ISOL ~~CARD~~ CD OOF	Power from panel 857 circuit 2SCIB06 fuse F1
IHABC07	DIV 1 ISOL OUTP CARD OUT	Panel 857 optic Isol output card out-of-file

11/3/91

90.1	Computer Point	Computer Printout	Source (Cont'd)
	IHABC08	DIV 2 ISOL OUTP CARD OUT	Panel 838 optic Isol output card out-of-file
	IHABC09	DIV 3 ISOL OUTP CARD OUT	Panel 874 optic Isol output card out-of-file

90.2 Automatic Response

None

90.3 Corrective Action

a. Check panel cards and fuses listed as "source".

b. Notify I&C of the alarm.

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2RTX-XSR1A	13.8KV Reserve Station Service XFMR	2NPS-SWG001	1-1	Open			~~DG Power Fuses in MAIN FEED~~ Note 1
2STX-XNS1	13.8KV Normal Station Service XFMR Breaker (Norm Sta Svce XFMR 2STX-XNS1)	2NPS-SWG001	1-3	Closed			Note 1
2RTX-XSR1B	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1B)	2NPS-SWG001	1-16	Cubicle Only			
2RTX-XSR1A	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1A)	2NPS-SWG002	2-1	Cubicle Only			
2ABS-X1	13.8KV Aux Boiler Service XFMR Breaker (Aux Blr Svce XFMR 2ABS-X1)	2NPS-SWG002	2-5	Closed			~~DG Power fuses in MAIN FEED~~
2RTX-XSR1B	13.8KV Reserve Station Service XFMR Breaker (RSV Sta Svce XFMR 2RTX-XSR1B	2NPS-SWG003	3-1	Open			Note 1
2STX-XNS1	13.8KV Normal Station Service XFMR Breaker (Norm Sta Svce XFMR 2STX-XNS1)	2NPS-SWG003	3-14	Closed			Note 1
2NPS-SWG003	Metering Cubicle DC Control Power Fuses	2NPS-SWG003	3-15	Fuses Installed			DC Power fuses in MAIN FEED
2NPS-SWG001	Metering Cubicle DC Control Power Fuses	2NPS-SWG001	1-2	Fuses Installed			DC Power fuses in MAIN FEED
2NPS-SWG002	Metering Cubicle DC Control Power Fuses	2NPS-SWG002	2-4	Fuses Installed			DC Power fuses in UA and UD

Note 1: Bkr. may be Open or Closed depending upon plant status.

TABLE 1[illegible]

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2RTX-XSR1A	13.8KV Reserve Station Service XFMR (Breaker (RSV Sta Svce XFMR 2RTX-XSR1A)	2NPS-SWG003	3-16	Cubicle Only			
2ATX-XS3	13.8KV Feed to Aux Stepdown transformer 2ATX-XS3	2NPS-SWG003	3-6	Closed			
2RCS-MG1A	Slow speed breaker for Reactor Recirc Pump 2RCS-P1A	2NPS-SWG004	4-1	Open			
2RCS-MG1B	Slow speed breaker for Reactor Recirc Pump 2RCS P1B	2NPS-SWG005	5-1	Open			
2NJS-X1H,J,K	13.8KV/600V Aux transformer 2NJS-X1H, 2NJS-X1J, 2NJS-X1K	2NPS-SWG001	1-1A	Closed			
2NJS-X1C,D	13.8KV/600V Aux transformer 2NJS-X1C, 2NJS-X1D	2NPS-SWG001	1-5	Closed			
2NJS-X1A,B,G	13.8KV/600V Aux transformer 2NJS-X1A, 2NJS-X1B, 2NJS-X1G	2NPS-SWG001	1-14	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2ATX-XS1	13.8KV/4.16KV Aux Stepdown XFMR (Aux stepdown XFMR 2ATX-X51)	2NPS-SWG001	1-4	Closed			
2NJS-X3, H,J,K	13.8KV/600 Aux XFMR 2NJS-X3H, 2NJS-X3J, 2NJS-X3K	2NPS-SWG003	3-1A	Closed			
2NJS-X3C,D	13.8KV/600V Aux XFMR 2NJS-X3C,2NJS-X3D	2NPS-SWG003	3-3	Closed			
2NJS-X3A,B,G	13.8KV/600V Aux XFMR 2NJS-X3A,2NJS-X3B, 2NJS-X3G	2NPS-SWG003	3-13	Closed			
2ATX-XS1	4.16KV to 2NNS-SWG011 (Aux stepdown XFMR 2ATX-XS1)	2NNS-SWG011	11-3	Closed			DC Fuses in BAT A Bus A and BAT B Bus B
2NNS-SWG012	4.16KV to 2NNS-SWG012 (Bus tie to 2NNS-SWG011)	2NNS-SWG011	11-1	Closed			~~DC Fuses in BAT A Bus A, BAT B, Bus B~~
2ATX-XS1	4.16KV feed to 2NNS-SWG-014 (TAG) (Aux Stepdown XFMR 2ATX-XS1)	2NNS-SWG014	14-2	Closed			
2ENS-SWG101	4.16KV Tie to emergency Bus 2ENS-SWG101 (TAG) (4.16KV emergency switchgear 2ENS-SWG101	2NNS-SWG014	14-1	Open			

TABLE (I

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X1F	4.16KV/600V Aux transformer (TAG) (Aux stepdown XFMR 2NJS-X1F)	2NNS-SWG014	14-4	Closed			
2NJS-X1E	4.16KV/600V Aux transformer (TAG) (Aux stepdown XFMR 2NJS-X1E)	2NNS-SWG014	14-8	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B
2ATX-XS3	4.16KV to 2NNS-SWG013 (TAG) (Aux transformer 2ATX-XS3)	2NNS-SWG013	13-6	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B
2NNS-SWG012	4.16KV Tie Breaker to 2NNS-SWG012 (TAG) (Bus Tie Breaker Cubicle)	2NNS-SWG013	13-10	Open			
2ATX-XS3	4.16KV to 2NNS-SWG015 (TAG) (Aux transformer 2ATX-XS3)	2NNS-SWG015	15-3	Closed			
2ENS-SWG103	4.16KV Tie Breaker emerg. Bus 2ENS-SWG103 (TAG)(4.16KV Emerg. Switchgear 2ENS-SWG103)	2NNS-SWG015	15-8	Open			
2NJS-X3F	4.16KV/600V Aux transformer (TAG) (4.16KV/600V Aux stepdown XFMR 2NJS-X3F)	2NNS-SWG015	15-1	Closed			DC Fuses in BAT A BUS A, BAT B, BUS B

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3E	4.16KV/600V Aux transformer (TAG) (4.16KV/600V Aux stepdown XFMR 2NJS-X3E)	2NNS-SWG015	15-7	Closed			
2RTX-XSR1A	4.16KV to 2NNS-SWG016 (TAG) (RSV Sta Svce XFMR 2RTX-XSR1A)	2NNS-SWG016	16-2	Closed			
2RTX-XSR1B	4.16KV to 2NNS-SWG017 (TAG) (RSV Sta Svce XFMR 2RTX-XSR1B)	2NNS-SWG017	17-2	Closed			
2ABS-X1	4.16KV to 2NNS-SWG018 (TAG) (Aux BLR Svce XFMR 2ABS-X1)	2NNS-SWG-18	18-2	Closed			
Aux XFMR 2NJS-X1C	600V to 2NJS-US1 Bus A	2NJS-US1	3B	Closed			
Aux XFMR 2NJS-X3C	600V to 2NJS-US1 Bus B	2NJS-US1	14B	Closed			
2NJS-US1A&C	600V Tie Breaker between Bus A & Bus C	2NJS-US1	8B	Closed			
2NJS-US1B&C	600V Tie Breaker between Bus B & Bus C	2NJS-US1	10B	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC003	600V to 2NHS-MCC003 Bus A (TAG) (2NHS-MCC003 Bus A)	2NJS-US1 Bus A	3C	Closed			
2NHS-MCC003	600V to 2NHS-MCC003 Bus B (TAG) (2NHS-MCC003 Bus B)	2NJS-US1 Bus B	13D	Closed			
2LAT-PNL100	600V to distribution panel 2LAT-PNL100 (TAG)(600V Normal Dist. PNL 2LAT-PNL100)	2NJS-US1 Bus C	9C	Closed			
2NJS-PNL100	600V to distribution Panel 2NJS-PNL100 (TAG)(600V Normal Dist. PNL 2NJS-PNL100)	2NJS-US1 Bus C	9B	Closed			
2WPS-PNL100	600V to distribution Panel 2WPS-PNL100 (TAG)(600V welding Distr PNL 2WPS-PNL100)	2NJS-US1 Bus C	8D	Closed			
Aux XFMR 2NJS-X1D	600V to 2NJS-US2 Bus A	2NJS-US2A	3B	Closed			
Aux XFMR 2NJS-X3D	600V to 2NJS-US2 Bus B	2NJS-US2B	12B	Closed			
2NJS-US2	600V Tie Breaker between Bus A and Bus C	2NJS-US2	6B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2	600V Tie Breaker between Bus B and Bus C	2NJS-US2	9B	Open			
2NHS-MCC005	600V to 2NHS-MCC005 Bus A	2NJS-US2 Bus A	5C	Closed			
2NHS-MCC005	600V to 2NHS-MCC005 Bus B	2NJS-US2 Bus B	12C	Closed			
2NHS-MCC014	600V to 2NHS-MCC014 Bus A	2NJS-US2 Bus A	3C	Closed			
2NHS-MCC014	600V to 2NHS-MCC014 Bus B	2NJS-US2 Bus B	10B	Closed			
~~2LAR-PNL200~~ 2NJS-PNL201	600V Feed to Norm Dist Panel ~~2LAR-PNL200~~ 2NJS-PNL201	2NJS-US2 Bus C	~~7C~~ 6D	Closed		1-20-88 1/14/88	
2NJS-PNL200	600V Feed to Norm Dist Panel 2NJS-PNL200	2NJS-US2 Bus C	8B	Closed			
2WPS-PNL200	600V Feed to welding distribution Panel 2WPS-PNL200	2NJS-US2 Bus C	8D	Closed			
2NJS-X1B	600V Feed to Load Center 2NJS-US3 Bus A	2NJS-US3A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3B Aux transformer	600V Feed to Load Center 2NJS-US3 Bus B	2NJS-US3 B	14B	Closed			
2NJS-US3 Bus C	600V Tie Breaker between Bus A & Bus C	2NJS-US3 Bus A	7B	Closed			
2NJS-US3 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US3 Bus B	11B	Open			
2NHS-MCC006 Bus A	600V Feed to motor control center 2NHS-MCC006 Bus A	2NJS-US3 Bus A	3C	Closed			
2NHS-MCC006 Bus B	600V Feed to motor control center 2NHS-MCC006 Bus B	2NJS-US3 Bus B	12D	Closed			
2NJS-PNL300	600V Feed to normal distribution Panel 2NJS-PNL300	2NJS-US3 Bus C	9B	Closed			
2NJS-PNL301	600V Feed to normal distribution Panel 2NJS-PNL301	2NJS-US3	9D	Closed			
2WPS-PNL300	600V Feed to welding distribution Panel 2WPS-PNL300	2NJS-US3 Bus C	7D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2LAT-PNL300	600V Feed to normal distribution Panel 2LAT-PNL300	2NJS-US3 Bus B	12B	Closed			
2VBB-TRS1	600V Feed to automatic transfer switch 2VBB-TRS1	2NJS-US3 Bus B	13A	Closed			
2VBB-TRS1	600V Feed to switchgear room automatic transfer switch 2VBB-TRS1	2NJS-US4 Bus A	6C	Closed			
2NJS-X1A Aux Transformer	600V Feed to load center 2NJS-US4 Bus A	2NJS-US4A	3B	Closed			
2NJS-X3A Aux transformer	600V Feed to load center 2NJS-US4 Bus B	2NJS-US4B	15B	Closed			
2NJS-X3A Aux transformer	600V Tie Breaker between Bus A & Bus C	2NJS-US4B	8B	Closed			
2NJS-US4 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US4 Bus B	11B	Open			
2NHS-MCC007 Bus A	600V Feed to motor control center 2NHS-MCC007 Bus A	2NJS-US4 Bus A	3C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC007 Bus B	600V Feed to motor control center 2NHS-MCC007 Bus B	2NJS-US4 Bus B	15C	Closed			
2NHS-MCC013 Bus A	600V Feed to motor Control Center 2NHS-MCC013 Bus A	2NJUS4 Bus A	6D	Closed			
2NHS-MCC013 Bus B	600V Feed to motor control center 2NHS-MCC013 Bus B	2NJS-US4 Bus B	14D	Closed			
2NJS-PNL401	600V Feed to normal distribution Panel 2NJS-PNL401	2NJS-US4 Bus A	4B	Closed			
2NJS-PNL400	600V Feed to normal distribution Panel 2NJS-PNL400	2NJS-US4 Bus C	9B	Closed			
2LAS-PNL400	600V Feed to normal distribution Panel 2LAS-PNL400	2NJS-US4 Bus C	9C	Closed			
2WPS-PNL402	600V Feed to welding distribution Panel 2WPS-PNL 400	2NJS-US4 Bus C	8D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL402	600V Feed to normal distribution Panel 2NJS-PNL402	2NJS-US4 Bus B	14A	Closed			
Aux XFMR 2NJS-X1E	600V Feed to load center 2NJS-US5	2NJS-US5	3B	Closed			
Aux XFMR 2NJS-X1F	600V Feed to load center 2NJS-US5	2NJS-US5	8B	Open			
2NHS-MCC008	600V Feed to motor control center 2NHS-MCC008	2NJS-US5	3D	Closed			
2NHS-MCC008	600V Feed to motor control center 2NHS-MCC008	2NJS-US5	5A	Closed			
2NHS-MCC011	600V Feed to motor control center 2NHS-MCC011	2NJS-US5	4A	Closed			
2NHS-MCC011 Bus B	600V Feed to motor control center 2NHS-MCC011	2NJS-US5	5C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL500	600V Feed to normal distribution Panel 2NJS-PNL500	2NJS-US5	6B	Closed			
Aux XFMR. 2NJS-X3E	600V Feed to load center 2NJS-US6	2NJS-US6	3B	Closed			
Aux XFMR 2NJS-X3F	600V Feed to load center 2NJS-US6	2NJS-US6	7B	Open			
2NHS-MCC009	600V Feed to motor control center 2NHS-MCC009	2NJS-US6	3C	Closed			
2NHS-MCC009	600V Feed to motor control center 2NHS-MCC009	2NJS-US6	5D	Closed			
2NHS-MCC012	600V Feed to motor control center 2NHS-MCC012	2NJS-US6	4D	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC012	600V Feed to motor control center 2NHS-MCC012	2NJS-US6	5A	Closed			
2NJS-PNL600	600V Feed to normal distribution Panel 2NJS-PNL600	2NJS-US6	6B	Closed			
Aux XFMR 2NJS-X1G	600V Feed to load center 2NJS-US7 Bus A	2NJS-US7A	3B	Closed			
Aux XFMR 2NJS-X3G	600V Feed to load center 2NJS-US7 Bus B	2NJS-US7B	7B	Closed			
2NJS-US7	600V Tie Breaker between Bus A & Bus B	2NJS-US7	5B	Open			
2NJS-PNL702	600V Feed to normal distribution Panel 2NJS-PNL702	2NJS-US7 Bus A	3C	Closed			
2NJS-PNL700	600V Feed to normal distribution panel 2NJS-PNL 700	2NJS-US7 Bus A	4B	Closed			
2NJS-PNL704	600V Feed to normal distribution Panel 2NJS-PNL 704	2NJS-US7 Bus A	4C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DRSCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-PNL706	600V Feed to normal distribution Panel 2NJS-PNL706	2NJS-US7 Bus A	4D	Closed			
2NJS-PNL701	600V Feed to normal distribution Panel 2NJS-PNL701	2NJS-US7 Bus B	6B	Closed			
2NJS-PNL705	600V Feed to normal distribution Panel 2NJS-PNL705	2NJS-US6 Bus B	6C	Closed			
2NJS-PNL707	600V Feed to normal distribution Panel 2NJS-PNL707	2NJS-US7 Bus B	6D	Closed			
2NJS-PNL703	600V Feed to normal distribution Panel 2NJS-PNL703	2NJS-US7 Bus B	7C	Closed			
2NJS-X1H Aux. Transformer	600V Feed to Load Center 2NJS-US8 Bus A	2NJS-US8B	3B	Closed			
2NJS-X3H Aux. Transformer	600V Feed to Load Center 2NJS-US8 Bus B	2NJS-US8B	13B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US8 Bus C	600V Tie Breaker between Bus A & Bus C	2NJS-US8 Bus A	7B	Closed			
2NJS-US8 Bus C	600V Tie Breaker between Bus B & Bus C	2NJS-US8 Bus B	9B	Open			
2NHS-MCC002 Bus A	600V Feed to motor control center 2NHS-MCC002 Bus A	2NJS-US8 Bus A	3C	Closed			
2NHS-MCC002 Bus B	600V Feed to motor control center 2NHS-MCC002 Bus B	2NJS-US8 Bus B	13C	Closed			
2NHS-MCC015 Bus A	600V Feed to motor control center 2NHS-MCC015 Bus A	2NJS-US8 Bus A	4D	Closed			
2NHS-MCC015 Bus B	600V Feed to motor control center 2NHS-MCC015 B	2NJS-US8 Bus B	12D	Closed			
2NJS-X1J Aux Transformer	600V Feed to load center 2NJS-US9 Bus A	2NJS-US9A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3J Aux Transformer	600V Feed to load center 2NJS-US9 Bus B	2NJS-US9B	13B	Closed			
2NJS-US9 Bus B	600V Bus Tie between Bus A & Bus C	2NJS-US9 Bus A	7B	Closed			
2NJS-US9 Bus C	600V Bus Tie between Bus B & Bus C	2NJS-US9 Bus B	9B	Open			
2NHS-MCC001 Bus A	600V Feed to motor control center 2NHS-MCC001 Bus A	2NJS-US9 Bus A	4D	Closed			
2NHS-MCC001 Bus B	600V Feed to motor control center 2NHS-MCC001 B	2NJS-US9 Bus B	12D	Closed			
2NHS-MCC016 Bus A	600V Feed to motor control center 2NHS-MCC016 Bus A	2NJS-US9 Bus A	6B	Closed			
2NHS-MCC002	600V Tie Breaker between Bus B & Bus C	2NHS-MCC002	11A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US8 Bus B	600V incoming feed to motor control center 2NHS MCC002 Bus B	2NHS-MCC002B	18A	Closed			
2NJS-US1 Bus A	600V incoming feed to motor control center 2NHS MCC003 Bus A	2NHS-MCC003A	1A	Closed			
2NHS-MCC003	600V tie breaker between Bus A & Bus C	2NHS-MCC003	8A	Closed			
2NHS-MCC003	600V Tie Breaker between Bus B & Bus C	2NHS-MCC003	18A	Open			
2NJS-US1 Bus B	600V incoming feed to motor control center 2NHS MCC003 Bus B	2NHS-MCC003B	19A	Closed			
2NJS-PNL402	600V emergency feed to motor control center 2NHS MCC004	2NHS-MCC004	1A	Closed			
2NJS-PNL401	600V normal feed to motor control center 2NHS MCC004	2NHS-MCC004	1C	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2 Bus A	600V incoming feed to motor control center 2NHS-MCC004 Bus A	2NHS-MCC005A	1A	Closed			
2NHS-MCC005	600V Tie Breaker between Bus A & Bus C	2NHS-MCC005	5A	Closed			
2NHS-MCC005	600V Tie Breaker between Bus B & Bus C	2NHS-MCC005	8A	Open			
2NJS-US2 Bus B	600V incoming feed to motor control center 2NHS-MCC005 Bus B	2NHS-MCC005B	12A	Closed			
2NJS-US3 Bus A	600V incoming feed to motor control center 2NHS-MCC006 Bus A	2NHS-MCC006A	1A	Closed			
2NHS-MCC006	600V tie breaker between Bus A & Bus C	2NHS-MCC006	9A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NHS-MCC006	600V tie breaker between Bus B & Bus C	2NHS-MCC006	14A	Open			
2NJS-US3 Bus B	600V incoming feed to motor control center 2NHS-MCC006 Bus B	2NHS-MCC006B	15A	Closed			
2NJS-US4 Bus A	600V incoming feed to motor control center 2NHS-MCC007 Bus A	2NHS-MCC007A	1A	Closed			
2NHS-MCC016 Bus B	600V feed to motor control center 2NHS-MCC016 Bus B	2NJS-US9 Bus B	10B	Closed			
2NJS-PNL101	600V feed to normal distribution Panel 2NJS-PNL101	2NJS-US9 Bus C	7D	Closed			
2LAN-PNL900	600V feed to normal distribution Panel 2LAN-PNL900	2NJS-US9 Bus C	8D	Closed			
2NJS-X1K Aux transformer	600V feed to load center 2NJS-US10 Bus A	2NJS-US10A	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-X3K Aux transformer	600V feed to load center 2NJS-US10 Bus B	2NJS-US10B	12B	Closed			
2NJS-US10	600V tie breaker between Bus A & Bus C	2NJS-US10	6B	Closed			
2NJS-US10	600V tie breaker between Bus B & Bus C	2NJS-US10	9B	Open			
2NHS-MCC010 Bus A	600V feed to motor control center 2NHS-MCC010 Bus A	2NJS-US10 Bus A	3C	Closed			
2NHS-MCC010 Bus B	600V feed to motor control center 2NHS-MCC010 Bus B	2NJS-US10 Bus B	12C	Closed			
2NHS-MCC017 Bus A	600V feed to motor control center 2NHS-MCC017 Bus A	2NJS-US10 Bus A	4B	Closed			
2NHS-MCC017 Bus B	600V feed to motor control center 2NHS-MCC017 Bus B	2NJS-US10 Bus B	11B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US9 Bus A	600V incoming feed to motor control center 2NHS-MCC001 Bus A	2NHS-MCC001A	1A	Closed			
2NHS-MCC001	600V tie breaker between Bus A & Bus C	2NHS-MCC001	7A	Closed			
2NHS-MCC001	600V tie breaker between Bus B & Bus C	2NHS-MCC001	13A	Open			
2NJS-US9 Bus B	600V incoming feed to motor control center 2NHS-MCC001 Bus B	2NHS-MCC001B	19A	Closed			
2NJS-US8 Bus A	600V incoming feed to motor control center 2NHS MCC002 Bus LA	2NHS-MCC002A	1A	Closed			
2NHS-MCC002 Bus C	600V tie breaker between Bus A & Bus C	2NHS-MCC002 Bus A	8A	Closed			
2NHS-MCC007	Tie Breaker Bus A and C 2NHSMCC007	2NHS-MCC007	5A	Closed			
2NHS-MCC007	Tie Breaker Bus B and C 2NHSMCC007	2NHS-MCC007	10A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC007	14A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC008	1A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC008	9A	Open			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC009	1A	Closed			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC009	7A	Open			
2NJS-US10	600V from 2NJS-US10A (incoming main)	2NHS-MCC010	1A	Closed			
2NHS-MCC010	Tie Breaker Bus A and C 2NHS-MCC010	2NHS-MCC010	13A	Closed			
2NHS-MCC010	Tie Breaker Bus B and C 2NHS-MCC010	2NHS-MCC010	24A	Open			
2NJS-US10	600V from 2NJS-US10B (incoming main)	2NHS-MCC010	36A	Closed			
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC011	1A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US5	600V from 2NJS-US5 (incoming main)	2NHS-MCC011	10A	Open			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC012	1A	Closed			
2NJS-US6	600V from 2NJS-US6 (incoming main)	2NHS-MCC012	10A	Open			
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC013	1A	Closed			
2NHS-MCC013	Tie breaker Bus A and C 2NHS-MCC013	2NHS-MCC013	5A	Closed			
2NHS-MCC013	Tie breaker Bus B and C 2NHS-MCC013	2NHS-MCC013	9A	Open			
2NJS-US4	600V from 2NJS-US4 (incoming main)	2NHS-MCC013	13A	Closed			
2NJS-US2	600V from 2NJS-US2 (incoming main)	2NHS-MCC014	1A	Closed			
2NHS-MCC014	Tie breaker Bus A and C 2NHS-MCC014	2NHS-MCC014	5A	Closed			
2NHS-MCC014	Tie breaker Bus B and C 2NHS-MCC014	2NHS-MCC014	8A	Open			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	POWER SUPPLY Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US2	600V feed from 2NJS-US2 (incoming main)	2NHS-MCC014	12A	Closed			
2NJS-US8	600V feed from 2NJS-US8 (incoming main)	2NHS-MCC015	1A	Closed			
2NHS-MCC015	Tie breaker 2NHS-MCC015 Bus A and C	2NHS-MCC015	7A	Closed			
2NHS-MCC015	Tie breaker Bus B and C 2NHS-MCC015	2NHS-MCC015	12A	Open			
2NJS-US8	600V feed from 2NJS-US8 (incoming main)	2NHS-MCC015	18A	Closed			
2NJS-US8	600V feed from 2NJS-US9 (incoming main)	2NHS-MCC016	1A	Closed			
2NHS-MCC016	Tie breaker Bus A-C 2NHS-MCC016	2NHS-MCC016	6A	Closed			
2NHS-MCC016	Tie breaker Bus B and C 2NHS-MCC016	2NHS-MCC016	9A	Open			
2NJS-US9	600V feed from 2NJS-US9 (incoming line)	2NHS-MCC016	14A	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NJS-US10	600V feed from 2NJS-US10 (incoming line)	2NHS-MCC017	1A	Closed			
2NHS-MCC017	Tie breaker Bus A and C 2NHS-MCC017	2NHS-MCC017	5A	Closed			
2NHS-MCC017	Tie breaker Bus B and C 2NHS-MCC017	2NHS-MCC017	8A	Open			
2NJS-US10	600V feed from 2NJS-US10 (incoming line)	2NHS-MCC017	12A	Closed			
2VBB-UPS3B	600V normal supply to 2VBB-UPS3B	2NJS-PNL402	32	Closed			
2VBB-XRC603	600V supply to 2VBB-XRC603 (UPS3B)	2NJS-PNL600	2	Closed			
2VBB-UPS3B	120V maintenance supply to 2VBB-UPS3B	2VBB-XRC603	CB1	Closed			
2VBB-UPS3B	125VDC supply to 2VBB-UPS3B	2BYS-SWG001B	3D	Closed			
2VBS*ACB1B 2VBS*ACB2B	120V supply breaker from 2VBB-UPS-3B to 2VBS-*ACB1B & *ACB2B	2VBB-BKR3B	3B	Closed			

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2VBS*PNLB~~101~~ 100	120V supply breaker from 2VBB-UPS3B	2VBS 2VBB*ACB1B	1B	Closed			
~~2VBS-PNLB101~~ 2VBS*PNLB100		~~2VBB~~*ACB2B 2VBS	2B				
2VBB-UPS3A	600V normal supply to 2VBB-UPS3A	2LAT-PNL100	26	Closed			
2VBB-XRC503	600V supply to 2VBB-XRC503 (UPS3A)	2NJS-PNL500	2	Closed			
2VBB-UPS3A	120V maintenance supply 2VBB-UPS3A	2VBB-~~XD503~~ XRC503	CB1	Closed			
2VBB-UPS3A	125VDC supply to 2VBB-UPS3A	2BYS-SWG001C	2D	Closed			
2VBS*ACB1A 2VBS*ACB2A	120V supply breaker from 2VBB-UPS3A to 2VBS*ACB1A & 2VBS*ACB2A	2VBB-BKR3A	3A	Closed			
2VBS*PNLA~~101~~ 100	120V supply breaker from 2VBB-UPS3A	2VBS 2VBB*ACB1A	1A	Closed			
	to 2VBS*PNLA~~101~~ 100	~~2VBB~~*ACB2A 2VBS	2A				
2VBB-UPS1C	600V normal supply to 2VBB-UPS1C	2LAT-PNL300	~~45~~ Sub Feed	Closed			

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TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS	
2VBB-XD501	600V supply to 2VBB-XD501 (UPS1C)	2NJS-US5	4B	Closed				3
2VBB-UPS1C	120V maintenance supply to 2VBB-UPS1C	2VBB-XD501	CB1	Closed				3
2VBB-UPS1C	125VDC supply to 2VBB-UPS1C	2BYS-SWG001A	2D	Closed				
2VBB-UPS1A	600V normal supply to 2VBB UPS1A	2VBB-PNL301	1	Closed				
2VBB-XD500	600V supply to 2VBB-XD500 (UPS1A)	2NJS-US5	8D	Closed				3
2VBB-UPS1A	125VDC backup power to 2VBB-UPS1A	2BYS-SWG001A	2C	Closed				3
2VBB-UPS1B	600V normal supply to 2VBB-UPS1B	2VBB-PNL301	2	Closed				
2VBB-UPS1G	600V normal supply to 2VBB-UPS1G	2VBB-PNL301	7	Closed				3
2VBB-UPS1A	120V maintenance supply to 2VBB-UPS1A	2VBB-XD500	CB1	Closed				3

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number	Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2VBB-XD601	600V maintenance supply to 2VBB-XD601 (UPS1B)	2NJS-US6	4B	Closed			
2VBB-UPS1B	125VDC supply to 2VBB UPS1B	2BYS-SWG001C	2A	Closed			
2VBB-UPS1D	600V normal supply to 2VBB UPS1D	2NHS-MCC006	8A	Closed			
2VBB-XD600	600V supply to 2VBB-XD600 (UPS1D)	2NJS-US6	6C	Closed			
2VBB-UPS1D	125VDC supply to 2VBB-UPS1D	2BYS-SWG001B	2D	Closed			
2VBB-UPS1B	120V maintenance supply to 2VBB-UPS1B	2VBB-XD601	CB1	Closed			
2VBB-UPS1D	120V maintenance supply to 2VBB-UPS1D	2VBB-XD600	CB1	Closed			
2VBB-UPS1C	125VDC supply to 2VBB-UPS1C	2BYS-SWG001C	2C	Closed			
2VBB-UPS1C	120VAC maintenance supply to 2VBB-UPS1C	2VBB-XD602	CB1	Closed			
2VBB-XD602	600VAC supply to 2VBB-XD602 (UPS1C)	2NJS-US6	6D	Closed			
2VBB-UPS1H	Normal supply to 2VBB-UPS1H	2NJS-PNL901	26	Closed			