07.750.91

October 4, 1991

MEMORANDUM FOR: NMP-2 IIT Team Members

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FROM: Richard J. Conte, Team Member

SUBJECT: ANSWERS TO QUESTIONS ON CERTAIN FACTS AS DESCRIBED IN THE DRAFT IIT REPORT

During the review of the subject report, I and other team members questioned some facts as documented in the report. Those questions were posed to Fred White of the Niagara-Mohawk training department; and, for record purposes, he provided answers as noted below.

- QUESTION 1: When the STA function is separated out of the ASSS function at NMP-2, will the ASSS lead the EOPs thereby freeing up the SSS to be Emergency Director and better concentrate on "the big picture" during emergencies?
- ANSWER TO 1: Yes, the ASSS will lead the EOPs when the STA function is taken out of the ASSS function.
- QUESTION 2: After the event of August 13, 1991, could the simulator be programmed to dynamically run the scenario of events as known when the IIT was on site?
- ANSWER TO 2: Partially yes. Prior to the event, programming was begun to simulate the loss of UPSs but the project was stopped. They dynamically did run the sequence with a load reject malfunction and loss of feedwater malfunction and with "remote functions" to lose annunciators. The lack of simulation occurred because of the loads off UPS were not completely known and therefore could not be simulated. Further, there has been no validation again because of the incomplete loads list.

If you have any comments or questions in this regard, please contact me. I don't believe the report needs to be changed as a result of this information, but if your responsible chapter contains this information, you should check it for accuracy.

Thank you for your attention on this matter.

achard J Richard J. Conte

cc: NMP-2 IIT Bibliography

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cc: NMP-2 IIT Bibliography

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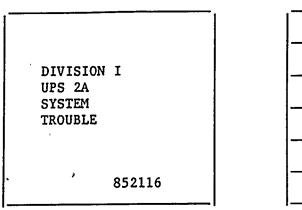
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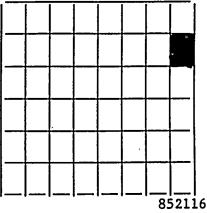
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5.0

852116 Division I UPS 2A System Trouble

Reflash: No





5.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	VBABC03	UPS2A SYSTEM TROUBLE	UPS2A/A9-K51

NOTE:

A9-K51 is initiated by any local alarm. This relay will stay de-energized as long as any local alarm exists. This annunciator will not reflash if another local alarm comes in.

TCN-13

10-7 Mine Hese are being prepared for 8×17" format: Watt G. ξ. May 1991

If.

5.2 <u>Automatic Response</u>

a.	UPS	may	realign	to	power	the	vital	bus	from	either	backup
	D.C.	, or	maintena	nce	supply	depe	ndent	on th	ne loca	l alarm	•

5.3 <u>Corrective Action</u>

- a. Check the UPS output voltage on Control Room panel 852 meter labelled "Vital bus 2VBS*UPS2A 125VAC Output," or computer point VBSVA100.
- b. Send an operator to record meter readings and status light indications at the UPS.
- NOTE: Consult Tech. Spec. 3.8.3.1 if the UPS is on maintenance power or if the local alarm response indicates that the UPS is inoperable and the plant is in Mode 1, 2 or 3.
- c. Notify electrical maintenance for repair or adjustments to the UPS.
- d. See Section H of this procedure for operation of the UPS with 13 the loss of a source, or sources.

e. Take corrective action as required per following Table:

Local Alarm Description - Corrective Action (NCTS) Description Corrective Action Alarm 1. Maintenance AC frequency a. Initiate a WR Synch Loss is out of tolerance or a. Restore maint. AC (if 2. Maintenance AC is not fuse is blown in the present maintenance AC supply regulator, initiate a WR) or Verify on Frequency meter UPS inverter output a. 3. frequency is out of If valid declare INOP tolerance (60Hz±3Hz) ь. and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1 Initiate a WR c.

N2-OP-72 -36 May 1991

Alarm	Description		Corrective Action
Battery Drain/Charge	Current being drawn from batteries caused by:		x
5	1. Loss of normal AC to UPS or	a.	Restore normal AC
	2. Voltage on DC switchgear higher than UPS internal DC voltage	a.	If the charger is on equalize, notify Electrical to check charger equalize voltage
		b.	If the charger is not on equalize, initiate a WR
	NOTE: Refer to Tech	. Spe	cs. 3.8.2.1 or 3.8.2.2
Rectifier AC Loss	Loss of normal AC to UPS	a.	If CB-51 has tripped, initiate a WR
		b.	If CB-51 is closed, restore upstream normal AC supply
Reverse Transfer	Static switch is in maintenance position	a.	Declare the UPS INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1
• •		b.	If other alarms are present; correct the other alarms prior to restoring the UPS to normal AC power
, .		с.	If all other alarms clear, verify UPS AC output voltage present on AC voltmeter, then push "Forward" static switch pushbutton
'an Fail	One or more fans have stopped	a.	Visually check, if possible, to determine which fan is off
s.		Ъ.	Initiate a WR
, [,]	NOTE: This alarm may Fuse Alarm	be c	concurrent with a Blown

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N2-OP-72 -36a May 1991

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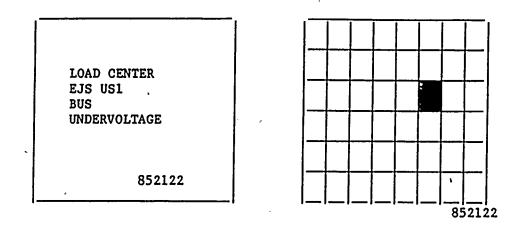
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	Description		Corrective Action
Low Inverter Voltage	UPS inverter output voltage is 15% low (∽103 Vac)	a.	Verify on AC voltmeter
, ,		b .	If valid declare INOP and if the plant is in Mode 1, 2 or 3 refer to Tech Spec. 3.8.3.1
Inverter Over Temp	Unit overheating	а.	Initiate a WR
Fuse Blown	Fuse within UPS blown	a.	Initiate a WR to replace fuses
	operability o	ietermi al alar	not INOP the UPS. The ination must be made based rms (eg. "Low Battery",
Rectifier DC Grounded	UPS internal DC Bus grounded	a.	Initiate a WR
Low DC Bus	UPS internal DC Bus voltage is low (DC Bus Low)	a.	Initiate, a WR for Repair/adjustment
Overload	UPS inverter supplying over 100% rating of unit (~165 Amps)	a.	Check output ammeter i) If unit loaded, clear non- essential loads ii) If alarm false, initiate a WR
Low Battery	UPS-internal DC Bus voltage is below 110 volts (DC Bus Lo/Lo)	a.	<pre>Place S-51, the DC voltmeter selector switch in "Battery" i) If battery voltage indicates</pre>
	•		>110 VDC, notify Electrical
	٩	~	Maintenance

6.0 <u>852122</u> Load Center EJS*US1 Bus Undervoltage

Reflash: No

| TCN-12



6.1	Computer Point	Computer Printout	Source .
•••	a. EJSECOl	LCUSI NORM SPLY BRKR UV	Undervoltage Relays 27A-2EJSA11 AND 27B-2EJSA11 Setpoint: 400V for 3 sec.

6.2 <u>Automatic Response</u>

- a. Trip Reactor Bldg Recirc. Fan A, 2HVR*VC413A. Breaker 1-4C.
- b. Trip Control Bldg Chiller Compressor, 2HVK*CHL1A. Breaker 1-4D.

6.3 <u>Corrective Action</u>

- a. Verify auto-start of redundant units per N2-OP-52 for HVR*UC413A/B, and N2-OP-53A for HVK*CHL1A/B.
- b. Check the voltage on the Div I 4160V bus, 2ENS*SWG101.
- c. Check the voltage on the Div I Load center, 2EJS*US1.
- NOTE: Loss of offsite power for 3 sec. will also bring in this annunciator.
- d. If the 4160 Div I bus is nominally 4160V; trip the load center incoming line breaker in service (bkr 1-3B, or 1-9B), and close the other feeder breaker (bkr 1-9B, or 1-3B).

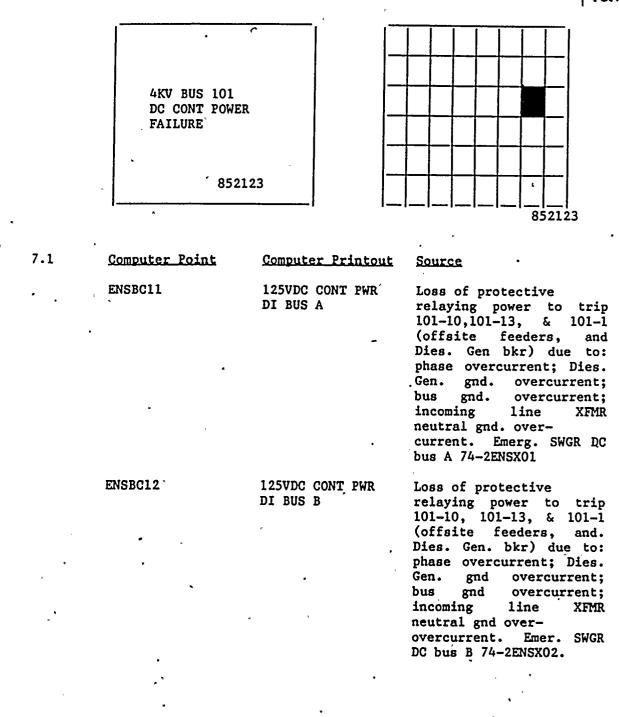
e. Notify elect. maint. of the event, and any tripped breakers.

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7.0 <u>852123</u> 4KV BUS101 DC Control Power Failure

Reflash: Yes

TCN-12



N2-OP-72 -38 January 1991

7.1 (Cont'd)

Computer Point	Computer Printout	Source
ENSBC15	125VDC CONT PWR DI BUS B	Loss of protective relaying power to trip 101-10, 101-13, & 101-N1 (offsite feeders, and Dies. Gen neut. bkr) due to: Stub bus (SWG0014) gnd overcurrent; load center XFMR EJS*X1A phase overcurrent; load center XFMR EJS*X1B phase overcurrent. emer. SWGR DC bus B 74-2ENSX03.

7.2 Automatic Response

NONE

7.3 Corrective Action

- Send an operator to the Div I swgr to check the D.C. bus а. fuses in cubicle 101-2.
- If both D.C. buses are alarming, check the D.C. switchgear ь. 2BYS*SWG002A cubicle 2D.
- c. Notify elect. maint. of the event, the relay number, and any tripped breakers.

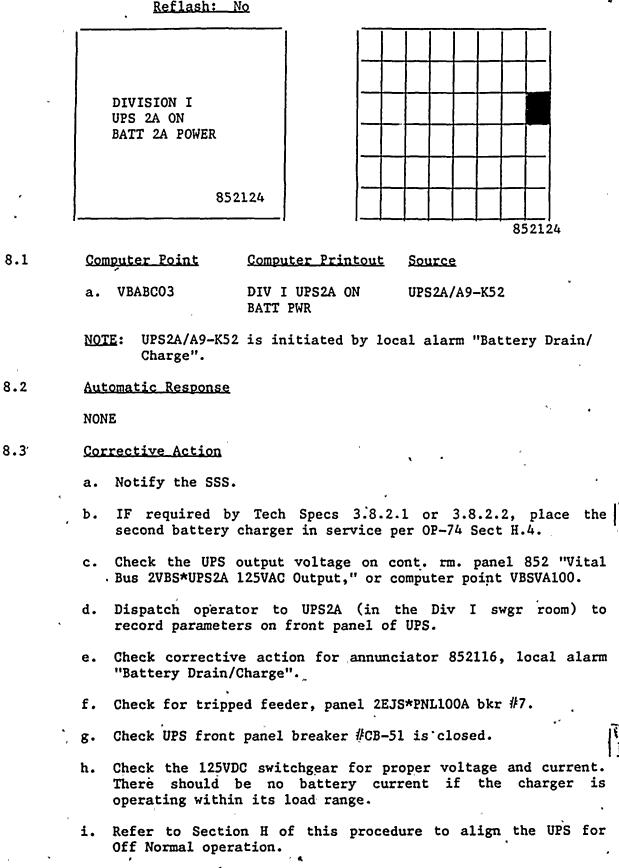
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N2-OP-72 - 39 - May 1987

8.0 852124 Division I UPS 2A On Battery 2A Power

Reflash: No



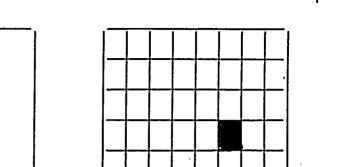
j. If necessary contact Electrical Maintenance to align, or . repair UPS.

> N2-0P-72 -40 May 1991

> BRKR 101-2 BRKR 101-14 AUTO TRIP

Breaker 101-2 or Breaker 101-14 Auto Trip 9.0 852130

Reflash: Yes



852130

			•
Com	puter Point	<u>Computer Printout</u>	Source ·
a.	EJSUCO5	XFMR1A BRKR 101-14 AUTO TRP	52-2EJSX03 4160V bkr to load center 2EJS*US1
Ъ.	EJSUCO6	XFMR1B BRKR 101-2 AUTO TRP	52-2EJSX04 4160V bkr to load center 2EJS*US1

9.2 Automatic Response

None

9.1

9.3 Corrective Action

a. At control room panel 852, close the alternate feeder breaker to load center 2EJS*US1.

This is: load center breaker 1-9B if breaker 101-14 tripped, or load center breaker 1-3B if breaker 101-2 tripped.

- b. Notify elect. maint. of the event, and any breakers tripped.
- c. Refer to tech. specs. if unable to maintain feed to the load · center.

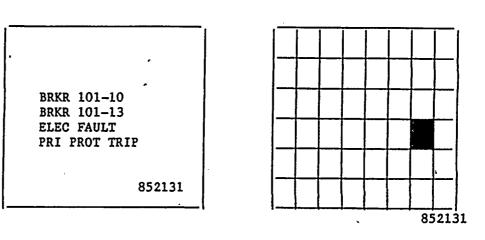
N2-OP-72 -41 January 1991 1 TCN- 1 2

852130

10.0

852131 Breaker 101-10 or 101-13 Electrical Fault or Primary Protection Trip

· Reflash: Yes



10.1	Com	<u>puter Point</u>	Computer Printout Source	
•	а.	ENSUCO9	EM SWGR ACB 101-13 50/51-2ENSA01 LO RLY Emer. bus feeder overcurrent	
	b.	ENSUC10	EM SWGR ACB 101-10 50/51-2ENSA02 LO RLY Emer. bus feeder overcurrent	

10.2

Automatic Response

ENSUCO9 Trips and locks out ACB101-13 (Normal bus feeder), locks out ACB101-10 (alternate bus feeder) and locks out auto closing of ACB 101-1 (Diesel Gen. Bkr.).

ENSUC10 Trips and locks out ACB101-10 (alternate bus feeder), locks out ACB101-13 (Normal bus feeder) and locks out auto closing of ACB 101-1 (Diesel Gen. Bkr.).

Both Category II service water separates from Category I.

TCN-1

10.3 Corrective Action

a. Restart the switchgear per Section E1.0.

b. Notify elect. maint. of the trip and any breakers remaining tripped.

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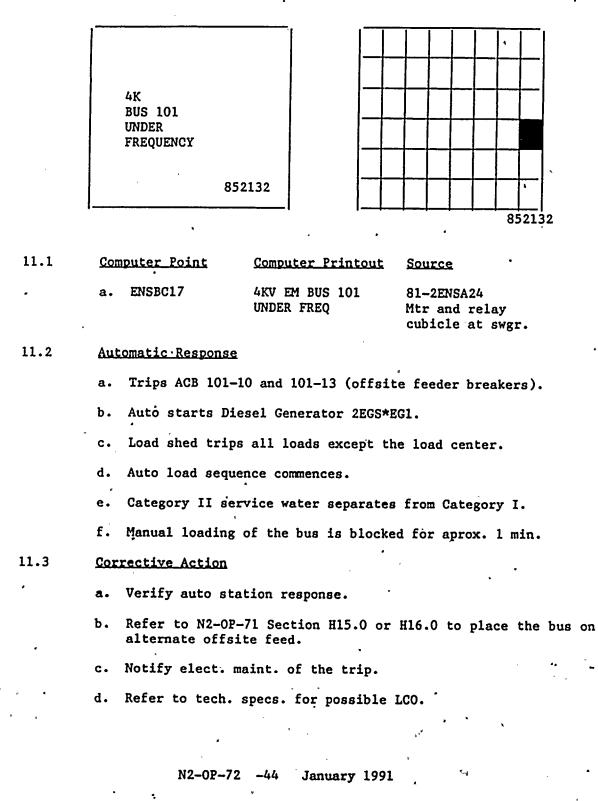
- c. See N2-OP-71 Section H15.0, or H16.0 to place the switchgear on alternate feed.
- 'd. Refer to tech. specs. for possible LCO due to loss of Div I power.

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11.0 <u>852132</u> 4KV BUS 101 Underfrequency

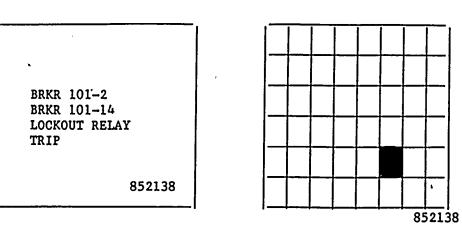
<u>Reflash: No</u>

TCN-1 c



12.0 <u>852138</u> Breaker 101-2 or 101-14 Lockout Relay Trip

Reflash: Yes



12.1	Co	nputer Point	<u>Computer Printout</u>	Source
•	a.	EJSUC01	EM LC XFMR1A LOCKOUT RLY	50G-2EJSA03 or 50/51-2EJSA02 Gnd or phase overcurrent on the 4160V side of load center transformer
	Ъ.	EJSUCO2	EM LC XFMR1B LOCKOUT RLY	50G-2EJSA06 or 50/51-2EJSA05 Gnd or phase overcurrent on the 4160V side of load center transformer
	с.	EJSUC13	EMLC XFMR1A FDR FAULT-BU	51-2EJSAO1 backup overcurrent on the 4160V side of load center transformer
,	d.	ÉJSUC14	EMLC XFMR1B FDR FAULT-BU	51-2EJSA04 backup overcurrent on the 4160V side of load center transformer

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January 1991

| TCN-1

12.2 Automatic Response

- EJSUCO1 Trips & Locks Out US1-38 and ACB101-14. Isolates the load center transformer.
- EJSUCO2 Trips & Locks Out US1-9B and ACB101-2. Isolates the load center 3 transformer.

3

- EJSUC13 Trips & Locks Out ACB 101-13 and 101-10 and prevents auto closing of ACB101-1. Diesel Gen. auto starts and the Div I 4160V bus remains de-energized. Loss of voltage load sheds the bus. Category II service water separates from Category I.
- EJSUC14 Trips & Locks Out ACB-101-13 and 101-10 and prevents auto closing of ACB 101-1. Diesel Gen. auto starts and the Div I 4160V bus remains de-energized. Loss of voltage load sheds the bus. Category II service water separates from Category I.
- 12.3 Corrective Action

EJSUC01 EJSUC02

> a. Verify the trips by checking computer points: EJSUC05 for 3 101-14 and EJSUC09 for US1-38 OR

EJSUC06 for 101-2 and EJSUC10 for US1-98

- b. Close the alternate load center incoming line breaker, at control room panel 852. US1-3B, or US1-9B.
- c. Notify elect. maint. of the trip, and any breakers remaining tripped.
- NOTE: Refer to tech. specs. if unable to maintain feed to the load center.
- NOTE: The load center powers MOV's associated with pumps which may remain running on the 4160V bus.

EJSUCT3 EJSUCT4

- aa. Trip the 4160V breakers feeding the load center. Breaker 101-14, and 101-2.
- bb. At control room panel 852, place the diesel generator breaker 101-1 control switch in pull-to-lock.
- cc. At Div I switchgear, reset lockout relays: 86-2-2EGPX02
 (101-1); 86C-ZENSX01 (101-N2); 86C-2ENSX02 (101-N2).

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12.3 (Cont'd)

- dd. Close the offsite feeder breaker to the Div I 4160V bus, breaker 101-10, or 101-13.
- ee. Close the alternate 4160V breaker to the load center, breaker 101-14, or 101-2.
- ff. Close the 600V incoming line breaker to the load center, breaker US1-3B, or US1-9B.
- gg. At control room panel 852, remove the Div I diesel generator breaker (101-1) control switch from pull-to-lock.
- hh. Close in selected loads on the Div I 4160V bus.
- ii. Place the diesel generator in stand-by per N2-OP-100A.
- jj. Notify Electrical Maintenance of the trip, and any breakers remaining tripped.

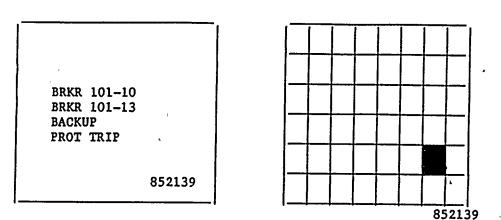
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13.0

852139 Breaker 101-10 or 101-13 Backup Protection Trip

I TCN-1 e



13.1	Computer Point	<u>Computer Printout</u>	Source ·
<i>.</i> ·	a. ENSUC17	EM SWGR ACB 101- 13 lo rly	67N1-2ENSA05 Diesel Gen. gnd directional overcurrent
	b. ENSUC18	EM SWGR ACB 101- 10 lo rly	67N3-2ENSA05 Diesel Gen. gnd .directional overcurrent

13.2 <u>Automatic Response</u>

ENSUC17 ENSUC18

7 Trips and locks out ACB101-13
8 Trips and locks out ACB101-10
a. Load shed trips all loads except loadcenter.

b. Div I diesel gen. auto starts.

- c. Auto load sequence commences.
- d. Category II service water separates from Category I.

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13.3 Corrective Action

- a. Verify the trip by checking computer point ENSUCO8 for 101-10, or ENSUCO5 for 101-13.
- b. Trip breakers 101-1 and 101-N1.
- c. Reset lockout relays 86C-2ENSX01, and 86C-2ENSX02, at switchgear 101-N2.
- d. Close the offsite feeder breaker, 101-10, or 101-13.
- e. Notify elect. maint. of the trip.
- f. Refer to tech. specs. if unable to maintain feed to the Div I bus.

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14.0

852140 4KV Bus 101 Undervoltage Reflash: Yes

4KV BUS 101 UNDERVOLTAGE 852140 852140 Computer Point · Computer Printout Source ENSEC01 BUS ENS 101 UNDV a. 27AA, AB, AC Phase to ground undervoltage relays. b. ENSEC03 **BUS 101 DEGRADED** 27BA, BB, BC VOLT Phase to ground undervoltage relays.

Automatic Response

For one device on either computer point, NONE. a.

- Ъ. For two devices on either computer point, loss of offsite power.
 - Offsite supply breaker ACB101-10 or 101-13 is tripped. 1.
 - 2. Emergency diesel generator EGS*EG1 starts.
 - 3. Manual loading is blocked for approx. 1 min.
 - 4. Load shed trips all loads except the load center.

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14.2

14.1

- 5. Auto load sequence commences.
- 6. Category II service water separates from Category I.

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14.3 Corrective Action

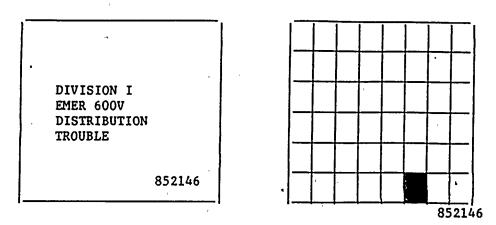
- a. Refer to N2-OP-71 Section H15.0, or H16.0 to place the bus on alternate offsite power.
- b. Notify elect. maint. of the trip.
- NOTE: Refer to tech. specs. for conditions associated with loss of offsite power.

N2-OP-72 - 51 - . May 1987

852146 Division I emergency 600V distribution trouble

Reflash: Yes.

| TCN-12



15.1	<u>Computer Point</u>	Computer Printout	Source ·
• "	EJSBC19	LC US1 SPLY BRKR 1-3C	Breaker Overcurrent
	EJSBC20	LC US1 SPLY BRKR 1-4B	Breaker Overcurrent
	EJSBC21	LC US1 SPLY BRKR 1-5D	Breaker Overcurrent
	EJSBC22	LC US1 SPLY BRKR 1-7D	Breaker Overcurrent
	EJSBC23	LC US1 SPLY BRKR 1-8C	Breaker Overcurrent
	EJSBC24*	LC US1 SPLY BRKR 1-9C	Breaker Overcurrent
	EJSBC31	LC US1 SPLY BRKR 1-6D	Breaker Overcurrent
	EJSBC32	LC US1 SPLY BRKR 1-7C	Breaker Overcurrent

15.2

Automatic Response

Trip and lockout the switchgear breaker

N2-OP-72 -52 January 1991

3 <u>Corrective Action</u>

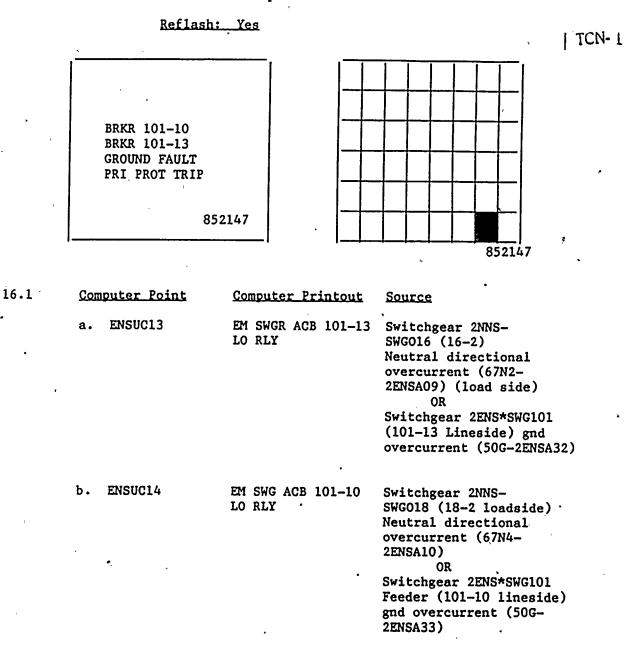
- a. Verify the automatic response. At MCC's observe the voltmeter, for power distribution panels, check the load center breaker.
- b. At MCC's trip the breaker shown in the "LOAD" column (incoming line breaker).
- c. Remove the interlock key, and energize the MCC from the alternate feed breaker.
- d. For power distribution panels:
 - 1. Trip the panel main breaker.
 - 2. Reset and close the load center breaker.
 - 3. If the load center breaker stays closed, trip the panelbranch breakers, and close the panel main breaker.
 - 4. If the main breaker, and load center breaker remain closed, close in branch breakers.
- e. Notify electrical maint. of the event, and any breakers tripped and/or unable to reclose.
- f. Refer to tech. specs. for possible LCO's due to loss of power to an emergency load.

Computer Point	Load	Location	<u>Alternate Feed</u>
EJSBC19	2EHS*MCC102 Bus A Cub 1A	Aux Bay North EL 240	Tie breaker 13A
EJSBC20	2EHS*MCC101 Cub 1A	Screenwell Bldg	Breaker 10A
EJSBC21	2EHS*MCC103 Bus A Cub 1A	Cntl Bldg West St-by Swgr Rm	Tie breaker 16A
EJSBC22 -	2EHS*MCC103 Bus C Cub 27A	Cntl Bldg West St-by Swgr Rm	Tie breaker 16A
EJSBC23	2EHS*MCC102 Bus C Cub 22A	Aux Bay North EL 240	Tie breaker 13A
EJSBC24	2EHS*MCC101 Cub 10A	Screenwell Bldg	Breaker 1A
EJSBC31	2EJS*PNL100A	Cntl Bldg West St-by Swgr Rm	No alternate feed
EJSBC32	2LAC*PNL100A	Cntl Bldg West St-by Swgr Rm	No alternate feed

15.3

16.0

852147 Breaker 101-10 or Breaker 101-13 Ground Fault Primary Protection Trip



N2-OP-72 -54 January 1991

16.2 Automatic Response

ENSUC13 ENSUC14

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Trips and locks out ACB 101-13, and locks out ACB 101-10 Trips and locks out ACB 101-10, and locks out ACB 101-13

- a. Diesel generator 2EGS*EG1 Auto Starts.
- b. Load shed trips all loads except the load center.

c. Diesel generator breaker (101-1) closes.

- d. Load sequencing commences.
- e. Manual loading of the bus is blocked for approx. 1 minute.
- f. Category II service water separates from Category I.

16.3 <u>Corrective Action</u>

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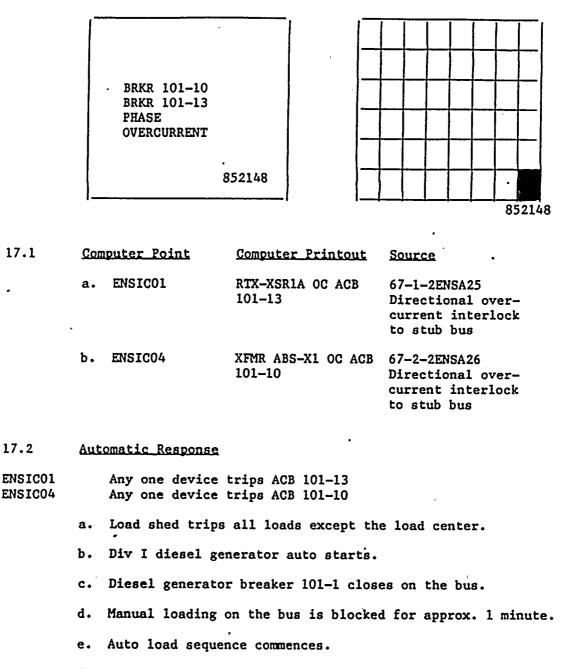
- <u>NOTE</u>: Refer to tech. specs. for operating conditions associated with loss of offsite power.
- a. Notify elect. maint. of the trip.
- b. Refer to N2-OP-71 Section H15.0, or 16.0 to place the bus on alternate offsite feed.
- c. Reset the lockout relays: 86B-2ENSX01 (at switchgear 101-13), and 86B-2ENSX02 (at switchgear 101-10).

N2-OP-72 -55 May 1988

17.0 <u>852148</u> Breaker 101-10 or 101-13 Phase Overcurrent

Reflash: Yes

TCN-1 2



f. Category II service water separates from Category I.

N2-OP-72 -56 January 1991

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17.3 <u>Corrective Action</u>

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- a. Verify the automatic response.
- b. Sync the offsite breaker to the bus.
- c. Open the diesel generator breaker, 101-1.
- d. Notify elect. maint. of the trip, and of the device that caused the trip.
- e. See N2-OP-100A to return the diesel generator to stand-by after offsite power is restored.
- <u>NOTE</u>: See N2-OP-71 Section H15.0 or H16.0 to place the bus on alternate offsite feed.
- <u>NOTE</u>: Refer to tech. specs. if unable to maintain offsite feed to the bus.
- <u>NOTE</u>: Refer to Section H2.0 before closing the stub bus breaker.

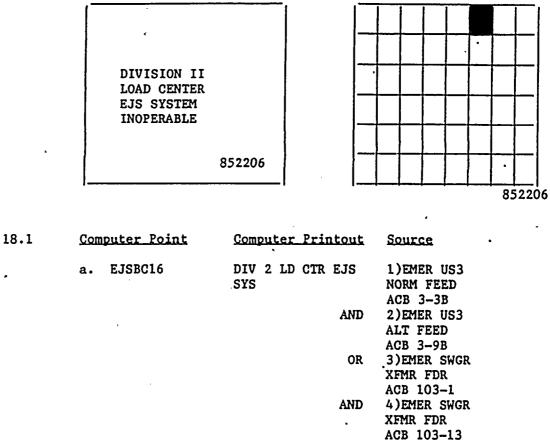
N2-OP-72 -57 May 1988

18.0 <u>852206</u> Division II Load Center EJS System Inoperable

<u>Reflash: No</u>



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18.2 <u>Corrective Action</u>

a. Refer to the following INOP windows for response.

OR

5) EMER US3 MAN OUT OF

SER

N2-OP-72 -58 January 1991

18.2 (Cont'd)

Window	Source	Automatic Action
1. EMER US3 NORM FEED ACB3-3B	(74-2EJSY05) a)Loss of DC Control Power	ANNUN. for any event in both inop windows
2. EMER US3 ALT FEED ACB 3-9B	 b)Control Room Fire disconnect c)Control Room switch PTL d)Breaker racked out (74-2EJSY06) 	

Corrective Action

- a. For loss of 125VDC control power check fuses in cubicle 3-3A, and breaker 4C in 2BYS*SWG002B, D.C. switchgear.
- b. For control room fire, return switch 2CESB20 to normal in control room fire disconnect panel 2CES*PNL416.
- c. For control room panel 852 control switches in pull-to-lock, remove one, or both switches from pull-to-lock.
- d. For breakers not in operate Position, rack in breaker 3-3B and/or 3-9B.

Window

Source

Automatic Action

3.	EMER SWGR	(74-2EJSY03) Annun. for any event	
	XFMR FDR	a)Loss of DC in both inop windows	
	ACB 103-1	Control Power	
4.	EMER SWGR	b)Control Room	
	XFMR FDR	Fire Disconnećt	
	ACB 103-13	c)Control Room	
		Control switch PTL	
	×	d)Breaker racked out	
		(74–2EJSY04)	

Corrective Action

- a. For loss of 125VDC control power, check fuses in cubicle 103-13, and breaker 2D in 2BYS*SWG002B, D.C. switchgear.
- b. For Control Room fire, return switches 2CESB15 and 2CESB16 to normal in Control Room Fire Disconnect Panel 2CES*PNL416.
- c. For breakers not in operate position, rack in breaker 103-1 and/or 103-13.
- d. For Control Room Panel 852 control switches in pull-to-lock, remove one switch, or both switches from pull-to-lock.

N2-OP-72 -59 May 1988

18.2 (Cont'd)

Window	Source	Automatic Action
5. EMER US3 Man Out Of Ser	EMER US3 MAN OUT OF SER PUSHBUTTON	None

Corrective Action

a. Restore the pushbutton to normal.

N2-OP-72 -60 May 1988

19.0 852207 Breaker 103-2 or 103-4 Auto Trip

19.1

<u>Reflash: Yes</u> BRKR 103-2 BRKR 103-4 AUTO TRIP 852207 5 852207

			•
	Computer Point	Computer Printout	Source
	a. ENSUCO6	2ABS-XS1 ACB 103-2 TRIP	52-2ENSY11
	TRI	P SIGNALS ORIGINATE FROM:	
i		FDR-XFMR ACB 103-2	52-2ENSY11
	ENSBC18		
	ENSBC33	•	62X-2ENSY05
	ENSBC34	DEGRADED BUS*103 UNDV	62Y-2ENSY06
	ENSBC35	LD SHED SIGNAL BUS 103	27X3-2ENSY04
	ENSECO2	BUS ENS*103 UNDV	SEE 852240
	ENSEC04	BUS 103 DEGRADED VOLT	
	ENSIC02		SEE 852248
	ENSUC12	EM SWGR ACB 103-2 LO RLY	SEE 852231
	ENSUC16	EM SWGR ACB 103-2 LO RLY	SEE 852247
	ENSUC20	EM SWGR ACB 103-2 LO RLY	SEE 852239
	NNSUC28	4KV BUS E18 LO RLY 2 TRIP	SEE 852558

N2-OP-72 -61 January 1991

TCN-1

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19.1 (Cont'd)

Computer Point	Computer Printout	Source
b. ENSUCO7	2RTX-XSR1B ACB 103-4 TRIP	52-2ENSY10
TB	IP SIGNALS ORIGINATE FROM	:
ENSBC06	FDR XFMR ACB 103-4	52-2ENSY10
. ENSBC18	4KV EH BUS 103 Under Freq	SEE 852232
ENSBC33	LOSS OF BUS 103 Voltage	62X-2ENSY05
ENSBC34	DEGRADED BUS*103 UNDV	62Y-2ENSY06
ENSBC35	LD SHED SIGNAL BUS 103	27 X3-2ENSY 04
ENSEC02	BUS ENS*103 UNDV -	SEE 852240
ENSEC04	BUS 103 DEGRADED Volt	SEE 852240
ENSIC03	RTX-XSRIB PH OC ACB 103-4	SEE 852248
ENSUC11	EM SWGR ACB 103-4 Lo RLY	SEE 852231
ENSUC15	EM SWGR ACB 103-4 Lo RLY	SEE 852247
ENSUC19	EM SWGR ACB 103-4 LO RLY	SEE '852239
NNSUC25	4KV BUS E17 LO RLY2 TRIP	SEE 852548

19.2 <u>Automatic Response</u>

a. Diesel Generator start.

- b. Load shed all but load center breakers.
- c. Auto load sequence commences.
- d. Manual loading blocked for approx. 1 min.
- e. Category II service water separates from Category I.

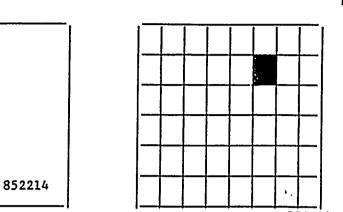
19:3 <u>Corrective Action</u>

- a. See N2-OP-71 Section H17 and H18 to transfer feeders to the emergency bus.
- b. Place the emergency bus on offsite power.
- c. Notify elect. maint. of the event.
- d. See N2-OP-100A to return the diesel generator to stand-by after offsite power is restored.
- NOTE: If computer point ENSBC40 alarms (DIV 2 LOCA SIGNAL), before the bus is restored to offsite power, trip breaker 103-14. N2-OP-72 -62 May 1988

20.0 852214 Load Center EJS*US3 Trouble

<u>Reflash: Yes</u>

LOAD CENTER EJS US3 TROUBLE



852214

20.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source .
•	a. EJSBC18	UV PROT US3 Loss DC PWR	74–2EJSY08
	b. EJSUC11	2EJS US3 NORM BRKR EL FLT	52-2EJSYO5 Bkr overcurrent
	c. EJSUC12	2EJS US3 ALTN BRKR EL FLT	52-2EJSY06 Bkr overcurrent

20.2 Automatic Response

EJSBC18	None		
EJSUC11	Trips	breaker	ACB3-3B
EJSUC12	Trips	breaker	ACB3-9B

N2-0P-72 -63 January 1991

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.3 Corrective Action

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SBC18 For loss of control power, check fuses in load center cubicle 3-3A, and breaker 4C at 2BYS*SWG002B, DC switchgear.

EJSUC11 For breaker overcurrent trip, check annunciator 852246 for a EJSUC12 branch breaker trip, and close in the other load center feeder breaker.

- a. If both feeder breakers trip, send an operator to the east stand-by switchgear room.
 - 1. Open all branch breakers on US3.
 - 2. Reset both feeder breakers.
 - 3. Close feeder breaker 3-3B.
 - 4. Close breaker 3-9B, if breaker 3-3B fails to close.
 - 5. Close in branch breakers.
- a. Notify elect. maint. of the event, and any branch breakers which are tripped, or fail-to-close.

N2-OP-72 -64 May 1988

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21.0 852215

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Breaker 103-8 Lockout Relay Trouble or Trip

Reflash: Yes

BRKR 103-8 LOCKOUT RELAY TROUBLE/TRIP

852215

21.1

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Computer Point

a.

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ENSUC02

Computer Printout

EM SWGR ACB

103-8 LO RLY

Source

2NNS-SWG015 Phase or Ground overcurrent 50/51-2ENSB03 50G-2ENSB04

b. ENSUCO4 EM SWGR ACB 52-2ENSX12 103-8 TRIP (also brings in ENSBCO2) TRIP SIGNALS ORIGINATE FROM:

	ENSBC35	LD SHED SIGNAL	27X3-2ENSY04
4		BUS 103	
	ENSBC40	DIV 2 LOCA SIGNAL	К—110В
	•		•
•	ENSUC24	BUS 103 STUB	Back-Up Ground
		FDR GND RLT	overcurrent
			50G-2ENSB08

January 1991

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21.2 Automatic Response

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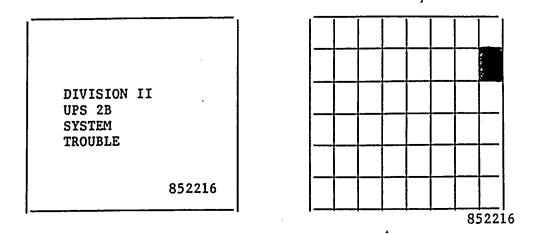
ENSUCO2 ENSUCO4	Non Non	-
ENSUC24	a .	Trips 103-4 and 103-2, both offsite feeder breakers, see 852239.
	b.	Trips 103-N1, Diesel Gen. Neutral breaker, see 852227.
	c.	Category II service water separates from Category I.
	d.	Load shed trips all loads except load center.
	e.	Auto start Diesel generator.
	£.	Auto load sequence commences.
	g٠	Manual loading of the bus is blocked for approx. 1 minute.
21.3	Corr	ective Action
		Verify the stub bus breaker trip. Check computer point ENSBC02.
•		See Section H2.0 to re-energize the stub bus after loss of offsite power.
	с.	Reset lockouts on tripped breakers.
		Notify elect. maint. of the event and any breakers which remain tripped.

e. See N2-OP-100A to return the diesel gen. to stand-by after offsite power is restored.

N2-OP-72 -66 May 1988

22.0 852216 Division II UPS 2B System Trouble

Reflash: No



22.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	a. VBABCO4	UPS2B SYSTEM TROUBLE	UPS2B/A9-K51

NOTE: A9-K51 is initiated by any local UPS2B alarm. This relay will stay de-energized as long as any local alarm exists. This annunciator will not reflash if another local alarm comes in.

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N2-OP-72 -67 May 1991

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22.2 <u>Automatic Response</u>

a.	UPS	may	realign	to	power	the	vital	bus	from	either	backup
	D.C.	, or	maintena	nce	supply	dep	endent	on t	he loc	al alar	m .

22.3 <u>Corrective Action</u>

- a. Check the UPS output voltage on Control Room panel 852 meter labelled "Vital bus 2VBS*UPS2B 125VAC Output," or computer point VBSVA101.
- b. Send an operator to record meter readings and status light indications at the UPS.
- NOTE: Consult Tech. Spec. 3.8.3.1 if the UPS is on maintenance power or if the local alarm response indicates that the UPS is inoperable and the plant is in Mode 1, 2 or 3.
- c. Notify electrical maintenance for repair or adjustments to the UPS.
- d. See Section H of this procedure for operation of the UPS with the loss of a source, or sources.
- e. Take corrective action as required per following Table:

(NCTS)	ŧ	<u>Local Alarm Description - Corrective Action</u>				
Alarm	•	Description		Corrective Action		
Synch Loss	1.	Maintenance AC frequency is out of tolerance or	a.	Initiate a WR		
	2.	Maintenance AC is not present	a.	Restore maint. AC (if fuse is blown in the maintenance AC supply regulator, initiate a WR)		
	•	or	_	Nouifu an England maton		
	3.	UPS inverter output frequency is out of	а.	Verify on Frequency meter		
·		tolerance (60Hz±3Hz)	b.	If valid declare INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1		
· · · ·			c.	Initiate a WR		

N2-OP-72 -68 May 1991

TCN-13

Alarm	Description		Corrective Action	1
Battery Drain/Charge	Current being drawn from batteries caused by:			
•	1. Loss of normal AC to UPS or	a.	Restore normal AC	
•	2. Voltage on DC switchgear higher than UPS internal DC voltage	а.	If the charger is on equalize, notify Electrical to check charger equalize voltage	
		· b •	If the charger is not on equalize, initiate a WR	T
	NOTE: Refer to Tech	. Spec	cs. 3.8.2.1 or 3.8.2.2	• 1
Rectifier AC Loss	Loss of normal AC to UPS	а.	If CB-51 has tripped, initiate a WR	
		b.	If CB-51 is closed, restore upstream normal AC supply	
Reverse Fransfer	Static switch is in maintenance position	а.	Declare the UPS INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1	
		b.	If other alarms are present, correct the other alarms prior to restoring the UPS to normal AC power	
ų		c.	If all other alarms clear, verify UPS AC output voltage present on AC voltmeter, then push "Forward" static switch pushbutton	
an Fail	One or more fans have stopped	а.	Visually check, if possible, to determine which fan is off	ı
,	· .	b.	Initiate a WR	
•	NOTE: This alarm may Fuse Alarm	be c	oncurrent with a Blown	

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N2-OP-72 -68a May 1991

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Alarm	Descrip	tion		Corrective Action			
Low Inverter Voltage	UPS inverter output voltage is 15% low (-103 Vac)		a.	Verif	y on AC voltmeter		
,		' '	b.	if th	lid declare INOP and the plant is in Mode 1 3 refer to Tech Spec 1.1		
Inverter Over Temp	Unit overheating	3	a.	Initi	ate a WR		
Fuse Blown	Fuse within UPS	blown	a.	Initi fuses	ate a WR to replace		
	NOTE:	operability d	eterm 1 ala	oes not ination rms (eg	INOP the UPS. The must be made based . "Low Battery",		
Rectifier DC Grounded	UPS internal DC	Bus grounded	a.	Initi	ate a WR		
Low DC Bus	UPS internal DC is low (DC Bus I		a.		ate a WR for r/adjustment		
Overload	UPS inverter sup 100% rating of u (~165 Amps)		a. ्	Check i)	output ammeter If unit loaded, clear non- essential loads If alarm false, initiate a WR		
Low Battery	UPS-internal DC voltage is below volts (DC Bus Lo	110	a.	voltme	<pre>S-51, the DC eter selector h in "Battery" If battery voltage indicates</pre>		
	NOTE:	With DC Bus he	lov 1	05 VDC.	, CB-52 will trip		

N2-OP-72 68b May 1991

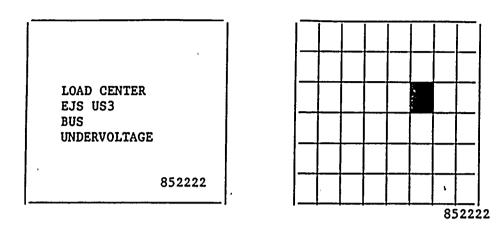
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23.0 852222

Load Center EJS*US3 Bus Undervoltage

Reflash: No





23.1	Com	<u>puter Point</u>	<u>Computer Printout</u>	Source .
,•	а.	EJSEC02	LD CTR US3 BUS UNDERVOLT	Undervoltage relays 27A-2EJSB11 and 27B-2EJSB11 Setpoint: 400V for 3 Sec.

23.2 <u>Automatic Response</u>

- a. Trip Reactor Bldg. Recirc. Fan B, 2HVR*UC413B. Breaker 3-4C.
- b. Trip Control Bldg. Chiller Compressor, 2HVK*CHL1B. Breaker 3-4D.

23.3 <u>Corrective Action</u>

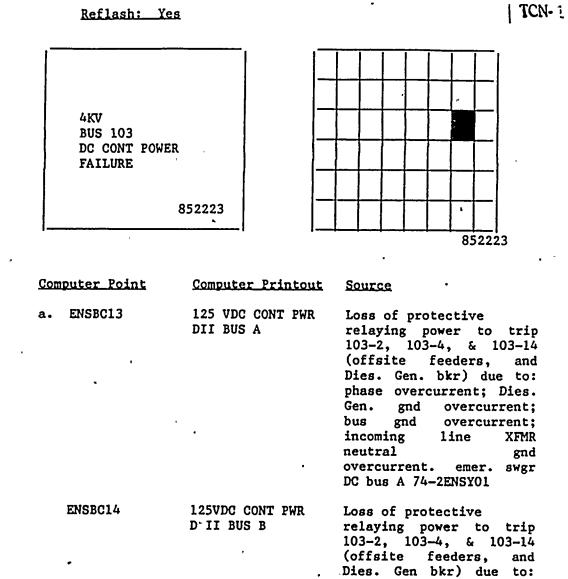
- a. Verify auto-start of redundant units per N2-OP-52 for HVR*UC413A/B, and N2-OP-53A for HVK*CHL1A/B.
- b. Check the voltage on the DIV II 4160V bus 2ENS*SWG103.
- c. Check the voltage on the DIV II load center, 2EJS*US3.
- NOTE: Loss of offsite power for 3 sec. will also bring in this annunciator.
 - d. If the 4160 DIV II bus in nominally 4160V, trip the load center incoming line breaker inservice (bkr 3-3B, or 3-9B), and close the other feeder breaker (bkr 3-9B, or 3-3B).
 - e. Notify elect. maint. of the event, and any tripped breakers.

N2-OP-72 -69 January 1991

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24.0 852223 4KV Bus 103 DC Control Power Failure

24.1



N2-0P-72 -70 January 1991 ā

phase overcurrent; Dies.

overcurrent. emer. swgr DC bus B 74-2ENSY02.

gnd

gnd overcurrent;

line

overcurrent;

XFMR

gnd`

Gen.

incoming

neutral

bus

24.1 (Cont'd)

Computer Point	Computer Printout	Source .
ENSBC16	125VDC CONT PWR D II BUS B	Loss of protective relaying power to trip 103-2, 103-4, & 103-N1 (offsite feeders, and Dies. Gen. neutral bkr) due to: Stub bus (SWG0015) gnd overcurrent; load center XFMR EJS*X3A phase overcurrent; load center XFMR EJS*X3B phase overcurrent. emer. swgr. D.C. bus B 74-2ENSY03
		_

24.2 <u>Automatic Response</u>

NONE

24.3 Corrective Action

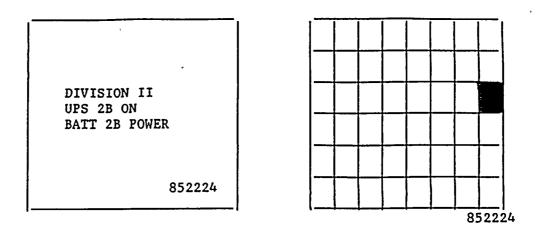
- a. Send an operator to the DIV II swgr to check the D.C. fuses in cubicle 103-13.
- b. If both D.C. buses are alarming, check the D.C. switchgear 2BYS*SWG002B cubicle 2D.
- c. Notify elect. maint. of the event, the relay number, and any tripped breakers.

N2-OP-72 -71 May 1988

्रे**क** २२ 1. PROCEDURE FUR LU: ALLING ALANT CUMPTITIONS (CONC.)

25.0 <u>852224</u> Division II UPS 2B On Battery 2B Power

<u>Reflash: No</u>



25.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u>

VBABCO4 DIV 2 UPS2B ON BATT PWR

UPS2B/A9-K52

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TCN-

NOTE: UPS2B/A9-K52 is initiated by local alarm "Battery Drain/ Charge".

25.2 <u>Automatic Response</u>

NONE

a.

25.3 <u>Corrective Action</u>

a. Notify SSS.

- b. IF required by Tech Spec 3.8.2.1 or 3.8.2.2, place the CNsecond battery charger in service in accordance with N2-OP-74, Sect H.4.
- c. Dispatch operator to 2UPS 2B (in the DIV II swgr room) to record indications on front panel of UPS.
- d. Check the UPS output voltage on cont. rm. panel 852 "Vital Bus 2VBS*UPS2B 125VAC. Output," or computer point VBSVA101.
- e. Check corrective action for annunciator 852116 local alarm "Battery Drain/Charge".
- f. Check for tripped feeder, panel 2EJS*PNL300B bkr #7.
- g. Check the UPS front panel breaker #CB-51 is closed.
- h. Check the 125VDC switchgear for proper voltage and current. There should be no battery current if the charger is operating within its load range.
- i. Refer to Section H of this procedure to align the UPS for Off Normal operation.
- j. If necessary contact Electrical Maintenance to align or repair UPS. N2-OP-72 -72 May 1991

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24.1 (Cont'd)

1.1

Computer Point	Computer Printout	Source
ENSBC16	125VDC CONT PWR D II BUS B	Loss of protective relaying power to trip 103-2, 103-4, & 103-N1 (offsite feeders, and Dies. Gen. neutral bkr) due to: Stub bus (SWG0015) gnd overcurrent; load center XFMR EJS*X3A phase overcurrent; load center XFMR EJS*X3B phase overcurrent. emer. swgr. D.C. bus B 74-2ENSY03
1	1	

24.2 <u>Automatic Response</u>

NONE

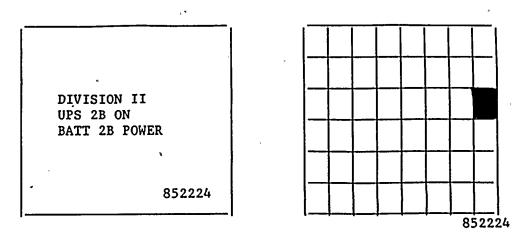
24.3 . Corrective Action

- a. Send an operator to the DIV II swgr to check the D.C. fuses in cubicle 103-13.
- b. If both D.C. buses are alarming, check the D.C. switchgear 2BYS*SWG002B cubicle 2D.
- c. Notify elect. maint. of the event, the relay number, and any tripped breakers.

I. PROCEDURE FOR CO! RECTING ALARM CONDITIONS (Cont.)

25.0 <u>852224</u> Division II UPS 2B On Battery 2B Power

<u>Reflash: No</u>



25.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> a. VBABCO4 DIV 2 UPS2B ON UPS2B/A9-K52 BATT PWR

> NOTE: UPS2B/A9-K52 is initiated by local alarm "Battery Drain/ Charge".

25.2 <u>Automatic Response</u>

NONE

25.3 <u>Corrective Action</u>

a. Notify SSS.

- b. IF required by Tech Spec 3.8.2.1 or 3.8.2.2, place the CNsecond battery charger in service in accordance with N2-OP-74, Sect H.4.
- c. Dispatch operator to 2UPS 2B (in the DIV II swgr room) to record indications on front panel of UPS.
- d. Check the UPS output voltage on cont. rm. panel 852 "Vital Bus 2VBS*UPS2B 125VAC Output," or computer point VBSVA101.
- e. Check corrective action for annunciator 852116 local alarm "Battery Drain/Charge".
- f. Check for tripped feeder, panel 2EJS*PNL300B bkr #7.
- g. Check the UPS front panel breaker #CB-51 is closed.

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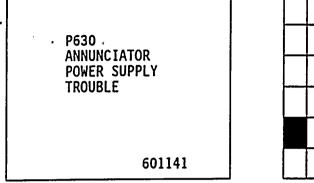
- h. Check the 125VDC switchgear for proper voltage and current. There should be no battery current if the charger is operating within its load range.
- i. Refer to Section H of this procedure to align the UPS for Off Normal operation.
- j. If necessary contact Electrical Maintenance to align or repair UPS.

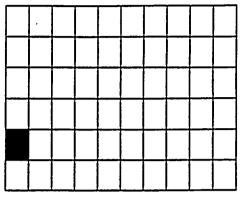
N2-OP-72 -72 May 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

1.0 <u>601141</u> Panel 630 Annunciator Power Supply Trouble

<u>Reflash: Yes</u>





601141

.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
•	IHABC13	NSS ANN PW GROUND	Panel 630 internal power supply ground
	IHABC18	NSS ANN PWR SUPPLY FAILURE	Panel 630 circuit 2IHAAO6 circuit breaker A8CB2 or UPS1A 2VBS-PNLA101 circuit 3

1.2 <u>Automatic Response</u>

None

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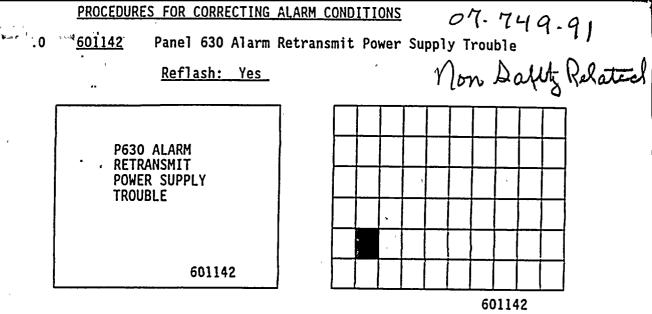
- 1.3 <u>Corrective Action</u>
 - a. Check panel circuits and breaker shown as "source".
 - b. Notify I&C of the alarm.
 - c. Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators", if applicable.

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N2-OP-71 -67 September 1991

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2.1 Computer Point Computer Printout Source IHABC14 NSS ANN PWR SUPPLY Panel 630 circuit FAIL 2IHANO6 circuit breaker A8CB3 or UPS1B 2VBS-PNLB101 circuit 4 ALM REFL PS LOSS · IHABC15 Panel 630 circuit OF PWR 2IHAN05 loss of power

2.2 <u>Automatic Response</u>

None

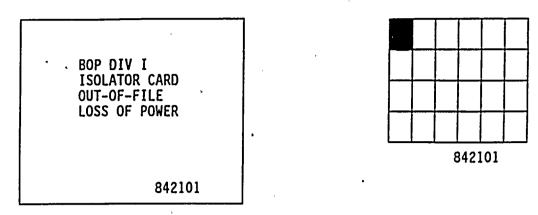
- 2.3 <u>Corrective Action</u>
 - a. Check circuits and breaker shown as "source".

b. Notify I&C of the alarm if unable to restore power to annunciator isolators, or retransmitter relays.

THOREWILL FOR COMPLETING VERMI CONDITIONS

3.0 <u>842101</u> Balance of Plant - Division I Isolation Card Out-of-File/Loss of Power

<u>Reflash: Yes</u>



3.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	CECBC29	P837 D1 BOP ISOL CD OOF	Panel 837 circuit 2CECAOl Fuse Fl
	CECBC35	P838 D1 BOP ISOL CD OOF	Panel 838 circuit 2CECbOl Fuse Fl
×	CECBC39	P874 D1 BOP ISOL CD OOF	Panel 874 circuit 2CECCOl Fuse Fl

3.2 <u>Automatic Response</u>

None

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- 3.3 <u>Corrective_Action</u>
 - 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.

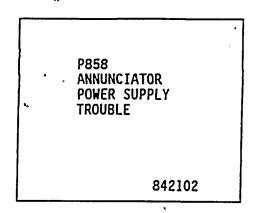
N2-OP-71 -69 September 1991

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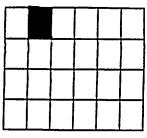
PROCEDURES FOR CORRECTING ALARM CONDITIONS

4.0 <u>842102</u> Panel 858 Annunciator Power Supply Trouble

<u>Reflash: Yes</u>



I.



842102

4.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	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

4.2 <u>Automatic Response</u>

None

- 4.3(a) Corrective Action
 - IHABCO4 1. Check panel 858 circuit 2IHAAO2 circuit breaker Al3CB1.
 - 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.
- (c) Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators, if applicable .

N2-OP-71 -70 September 1991

4.0 <u>842102</u> Panel 858 Annunciator Power Supply Trouble (Cont'd)

4.3(b) (Cont'd) 2. Chec! UPSIA panel 2VBS-PNLB101 circuit 37 and 2VBS-PNLA101 circuit 8.

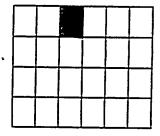
3. Notify I&C if unable to restore power to annunciator.

N2-0P-71 -71 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

5.0 <u>842103</u> Emergency Response Facility Panel ³solation Card Out-of-File/Loss of Power

<u>Reflash: Yes</u> ERF PANEL ISOLATION CARD OUT-OF-FILE/ LOSS OF POWER 842103



842103

5.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	CECBC45	P899D1 ERF ISOL CD OOF	Panel 899 circuit 2CECA03 Fuse Fl or 2UPS2A 2VBS*PNL101A circuit 3
	CECBC46	P899D2 ERF ISOL CD OOF	Panel 899 circuit 2CECB02 Fuse F1 or UPS 2B 2VBS*PNL301B circuit 20
	CECBC47	P899 ERF ISOL CD OOF	Panel 899 circuit 2CECB04 Fuse Fl or 2SCI-PNLA102 circuit 17

5.2 <u>Automatic Response</u>

None . .

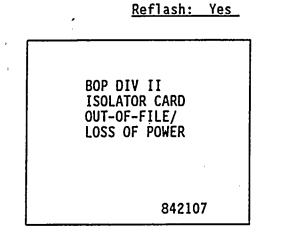
- 5.3 <u>Corrective Action</u>
 - a. Check fuses and breakers in panels listed as "source".

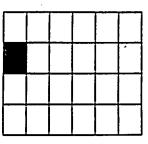
b. Notify I&C if unable to restore power to isolator circuits.

N2-OP-71 -72 September 1991

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6.0 <u>842107</u> Balance of Plant Divisior II Isolator Card Out-of-File/Loss of Power





842107

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L	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	CECBC30	P874 D2 BOP ISOL CD OOF	Panel 874 Isol cards ZG-A, B, C, D
	CECBC36	P837 D2 BOP ISOL CD OOF	Panel 837 Isol cards ZAJ-A, B, C, D
1	CECBC40	P838 D2 BOP ISOL CD OOF	Panel 838 Isol cards ZAH-A, B, C, D or panel 838 circuit 2CECB01 Fuse F1
	IHABCO2	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

6.2 . <u>Automatic Response</u>

None

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6.3 <u>Corrective Action</u>

a. . Check panel cards and fuse as shown as "source".

b. Notify I&C if unable to restore power to isolator circuits.

N2-OP-71 -73 September 1991

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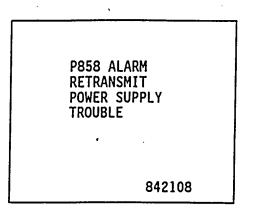
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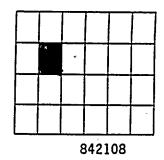
PROCEDURES FOR CORRECTING ALARM CONDITIONS

7.0 842108

Panel 858 Alarm Retransmit Power Supply Trouble

Reflash: Yes





7.1	<u>Computer_Point</u>	<u>Computer Printout</u>	<u>Source</u>
	IHABC11	BOP ANN PWR SUPPLY FAIL	74-2IHANO2 Panel 858 circuit 2IHANO2 circuit breaker Al3CB3 or UPS1A 2VBS-PNLB101 ckt 37
	IHABC12	ALM REFL PS LOSS	74B-2IHANO3 Panel 858 power supply to alarm retransmit relay circuit 2IHANO3

7.2 <u>Automatic_Response</u>

None

7.3 <u>Corrective Action</u>

a. Check breakers in panels listed as "source".

b. Notify I&C if unable to restore power to retransmission circuits.

N2-OP-71 -74 September 1991

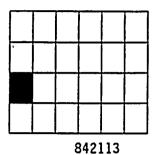
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PROCEDURES_FOR CORRECTING ALARM CONDITIONS

Reflash: Yes

8.0 <u>842113</u> Balance of Plant Division II Isolator Card Out-of-File/Loss of Power

BOP DIV III ISOLATOR CARD OUT-OF-FILE LOSS OF POWER 842113



8.1 **Computer Point** Computer Printout Source IHABC03 DIV 3 ISOL INP Panel 874 Div 3 Isol CARD OUT input card 99-1 or 99-2 any card(s) out-of-file (DC) CECBC31 P874 D3 BOP ISOL Panel 874 Div 3 isol CD 00F input card analog or digital (HC) out-of-file

8.2 <u>Automatic Response</u>

None

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- 8.3 <u>Corrective Action</u>
 - a. Notify I&C that panel 874 Div 3 isolator input card(s) is (are) outof-file.
 - b. Check panel 2CES-IPNL414 circuit 18.
 - c. Check panel 874 circuit 2IHACO1 Fuse F1.

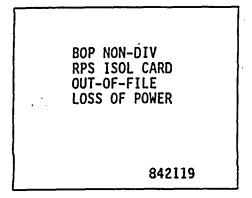
N2-OP-71 -75 September 1991

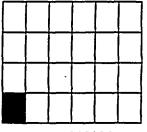
· I.

PROCEDURES FOR CORRECTING ALARM CONDITIONS

9.0 <u>842119</u> Balance of Plant Non-Divisional/Reactor Protection System Isolation Card Out-of-File/Loss of Power

Reflash: Yes





842119

9.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
,	CECBC32	P837 NON-DIV ISOL CD 00F	Panel 837 analog or digital isolator output card out-of-file
	CECBC33	P838 NON-DIV ISOL CD QOF	Panel 838 analog or digital isolator output card out-of-file
	CECBC34	P874 NON-DIV ISOL CD 00F	Panel 874 analog or digital isolator output card out-of-file
	CECBC37	P837 RPS D1 ISOL CD OOF	Power from panel 856 circuit 2SCIA06 fuse Fl
	CECBC38	P838 RPS D2 ISOL CD OOF	Power from panel 857 circuit 2SCIB06 fuse Fl
	IHABCO7	DIV 1 ISOL OUTP CARD OUT	Panel 857 optic Isol output card out-of-file

N2-OP-71 -76 September 1991

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9.1	<u>Computer Point</u>	a	Computer Printout	<u>Source</u> (Cont'd)
١	IHABC08		DIV 2 ISOL OUTP CARD OUT	Panel 838 optic Isol output card out-of-file
	IHABCO9		DIV 3 ISOL OUTP CARD OUT	Panel 874 optic Isol output card out-of-file

9.2 <u>Automatic Response</u>

None

9.3 <u>Corrective Action</u>

a. Check panel cards and fuses listed as "source".

b. Notify I&C of the alarm.

PROCEDURES FOR CORRECTING ALARM CONDITIONS

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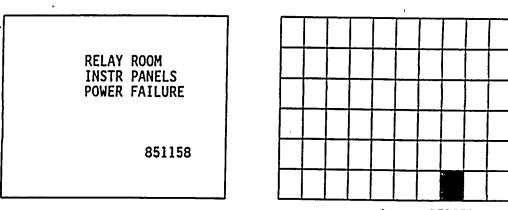
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10.0 <u>851158</u> Relay Room Instrument Panels Power Failure

<u>Reflash: Yes</u>



851158

10.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
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

N2-OP-71 -78 September 1991

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10.0 <u>851158</u> Relay Room Instrument Panels Power Failure (Cont'd)

10.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	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

10.2 <u>Automatic Response</u>

None

10.3 <u>Corrective Action</u>

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a. Notify I&C of the alarm.

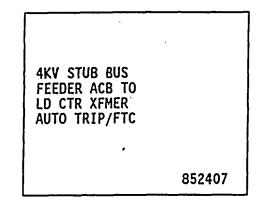
N2-OP-71 -79 September 1991

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS

11.0 <u>852407</u> ¹XV Stub Bus Feeder Air Circuit Breaker to Load Center Transformer Auto Trip Failure to Close

Reflash: Yes

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852407

11.1 <u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	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
с.	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

11.2 Automatic Response

a. Trip 4160 stub bus feeders to 600V load centers US5 or US6.

11.3 Corrective Action

- a. Verify auto station response.
- b. Investigate and determine reason for trip.
- c. When the cause for the trip is corrected, re-energize the system per N2-OP-71 Section E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Section H.2.0 as appropriate.

N2-OP-71 -80° September 1991

12.2 <u>Automatic Response</u>

- a. Trip stub bus feeder 5-8B '36-2NJS-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.

12.3 <u>Corrective Action</u>

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a. Verify automatic response.

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- b. Check computer and panel 852 to determine which breaker tripped.
- c. Investigate and determine reason for trip.
- d. When the cause for the trip is corrected, re-energize the system per N2-OP-71 Section E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Section H.2.0 as appropriate.

N2-OP-71 -82 September 1991

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12.0 <u>252408</u> 4KV Stub Bus Feeder to Load Center Transformer Electrical Fault

<u>Reflash: Yes</u>

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	4KV STUB BUS FEEDER TO LD CTR XFMER ELEC FAULT	852408	
12.1 <u>Cor</u>	<u>nputer_Point</u>	<u>Computer_Printout</u>	852408 Source
a.	NJSUCO9	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 IS-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-SWGO14 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-SWGO15 feeder ACB 15-7 to US-6 trips and locks out 600V Breaker US-6-3B on high: INST, Time or GND over- current

N2-OP-71 -81 September 1991

Lock out Relay 86-2NJSX10 on 2NPS-SWG003 feeder ACB 3-13 to 2NJS-US3, -US4, US-7, trips on transformer 2NJS-X3A, -X3B or X3G high: phase Inst. or Time over current; ground inst. or time OC.

13.2 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.
- 13.3 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.

N2-OP-71 -84 September 1991

13.0 <u>852409</u> 13.8KV Feeder to Load Center Transformer Electrical Fault

Reflash: Yes

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	13.8KV FDR TO LD CTR XFMER ELECTRICAL FAULT		
	4	852409	
	L		852409
13.1 <u>Computer Point</u>		<u>Computer Printout</u>	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.	NJSUCO2	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.
с.	NJSUCO5	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 Timer over current; ground inst. or time OC.

N2-OP-71 -83 September 1991

14.3 <u>Corrective Action</u>

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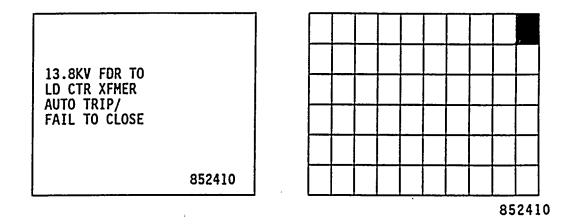
a. Investigate and determine reason for trip or failure to close.

b. Return system to normal.

N2-OP-71 -86 September 1991

14.0 <u>852410</u> 13.8KV Feeder to Load Center Transformer Auto Trip/Failure to Close

<u>Reflash: Yes</u>



14.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. NJSUCO3	NPSOO1 ACB 1-5 AT/F-T-C	2SWG-NPSOO1 Air Circuit Breaker 1-5 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSYO1
b. NJSUCO4	NPSOO1 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. NJSUCO7	NPSOO3 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. NJSUCO8	NPSOO1 ACB 3-13 AT/F-T-C	2SWG-NPSOO3 Air Circuit Breaker 3-13 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSX10

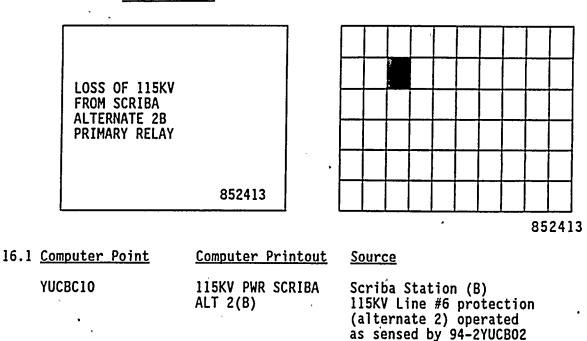
14.2 Automatic Response

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.

N2-OP-71 -85 September 1991

16.0 <u>852413</u> Loss of 115KV From Scriba Alternate 2B Backup Relay

Reflash: No



16.2 <u>Automatic Response</u>

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

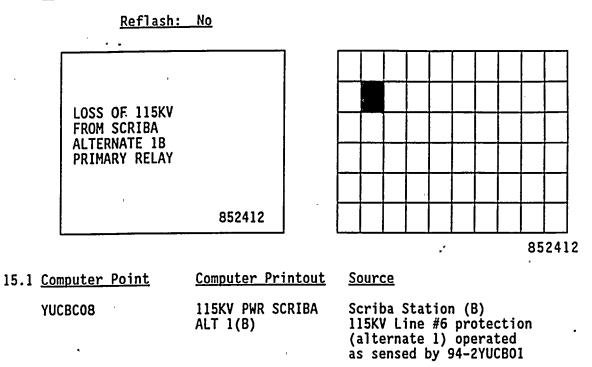
16.3 <u>Corrective Action</u>

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

N2-OP-71, -88 September 1991

15.0 <u>852412</u> Loss of 115KV From Scriba Alternate 1B Primary Relay



15.2 <u>Automatic Response</u>

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

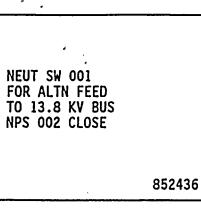
15.3 Corrective Action

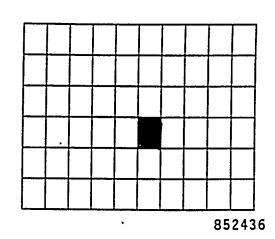
- a. Determine the cause of the protection circuit actuation.
- b. Restore to normal.

N2-OP-71 -87, September 1991

18.0 <u>852436</u> Neutral Switch 001 for Alternate Feed to BUS 2NPS-SWG002 close

<u>Reflash: No</u>





18.1 <u>Computer Point</u>

NPSZC01

Computer Printout Source

Neut SWOO1 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

18.2 Automatic Response

NONE

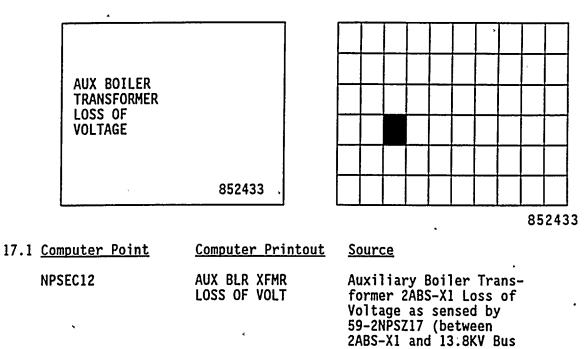
- 18.3 <u>Corrective Action</u>
 - a. Verify that 2NPS-SWG002 is the only 13.8KV bus to be connected to 2RTX-XSR1A.

N2-OP-71 -90* September 1991

17.0 <u>852433</u> Auxiliary Boiler Transformer Loss of Voltage

Reflash: No

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17.2 Automatic Response

NONE (unless 13.8KV Bus 2NPS-SWG002 Supply ACB 2-5 is closed, then annunciator 852519 would also be lit.

2NPS-SWG002)

17.3 Corrective Action

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

N2-OP-71 -89 September 1991

19.1	l <u>Comp</u>	<u>outer Point</u>	<u>Computer Printout</u>	Source (cont.)
	f.	NJSUC	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
	1.	NJSUC51 	US9B-& US9C Sply Bkr ACB 9-9B	2NJS-US9A & 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

N2-OP-71 -92 September 1991

19.0 <u>852437</u> NJS US1, 8, 9, 10, Electrical Fault

<u>Reflash: Yes</u>

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	US1,8,9,10 ELECTRICAL		╞╌╀╌┞╌┞╌┠╍┛╌┼╌┤╌┤
	FAULT		
		852437	
			852437
19.1 <u>Cor</u>	nputer Point	<u>Computer Printout</u>	<u>Source</u>
a.	NJSUC21	US1A ACB 1-3B Elec. Fault	2NJS-US1A Air Circuit Breaker 1-3B Electrical Fault as sensed by 520C-2NJSA01
b.	NJSUC22		2NJS-US1B Air Circuit Breaker 1-14B Electrical Fault as sensed by 520C-2NJSB01
с.	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

N2-OP-71 -91 September 1991

20.0 852438 - Load Center 2NJS-US2 Electrical Fault

	<u>Reflash</u> :	: Yes	1											
-	LOAD CENTER 2NJS-US2 ELECTRICAL FAULT		v								4 4 4			
		. 852438												
												85	243	38
<u>Con</u>	<u>puter Point</u>	<u>Computer Pri</u>	<u>ntout</u>	<u>Sc</u>	ouro	<u>:e</u>							,	
a.	NJSUC32	US2A ACB 2-3B Elec. Flt		Load Center 2NJS-US2A Air Circuit Breaker ACB 2-3B Electrical Fault as Sensed by 520C-2NJSA02							•			
b.	NJSUC33	US2B ACB 2-12B Elec. Flt		Load Center 2NJS-US2B Air Circuit Breaker ACB 2-12B Electrical Fault as Sensed by 520C-2NJSB02										
c.	NJSUC36	US2A ACB 2-6B Elec. Flt		Load Center 2NJS-US2A Air Circuit Breaker ACB 2-6B Electrical Fault as Sensed by 520C-2NJSN33										

d. NJSUC38 US2B ACB 2-9B Load Center 2NJS-US2B Elec. Flt Air Circuit Breaker ACB 2-9B Electrical Fault as Sensed by 520C-2NJSN35

20.2 Automatic Response

20.1

a. Trip 600V supply or tie breaker, load center 2NJS-US2.

20.3 <u>Corrective Action</u>

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.

N2-OP-71 -94 September 1991

19.1	<u>Comp</u>	<u>uter Point</u>	<u>Computer Printout</u>	<u>Source</u> (cont.)	
	0	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	

19.2 <u>Automatic Response</u>

a. Trip 600V supply <u>or</u> tie breaker on 2NJSUS1, US8, US9, or US10 (whichever breaker fault occurred on).

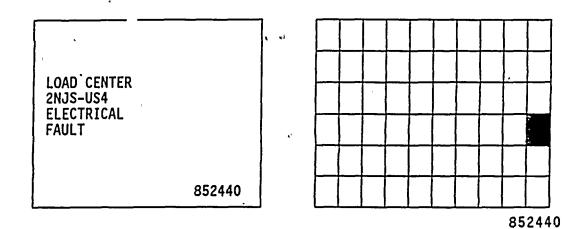
19.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -93 September 1991

22.0 <u>852440</u> Load Center 2NJS-US4 Electrical Fault

.. <u>Reflash: Yes</u>



22.1	Comp	<u>uter Point</u>	<u>Computer Printout</u>	Source
	a.	NJSUC34	US4A ACB 4-3B Elec. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-3B Electrical Fault as Sensed by 520C-2NJSA04
	b.	NJSUC35	US4B ACB 4-15B Elec. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 2-15B Electrical Fault as Sensed by 520C-2NJSB04
	c.	NJSUC37	US4A ACB 4-8B Elec. Flt	Load Center 2NJS-US4A Air Circuit Breaker ACB 4-8B Electrical Fault as Sensed by 520C-2NJSN34
·	d.	NJSUC39	US4B ACB 4-11B Elec. Flt	Load Center 2NJS-US4B Air Circuit Breaker ACB 4-11B Electrical Fault as Sensed by 520C-2NJSN36

22.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US4.

22.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

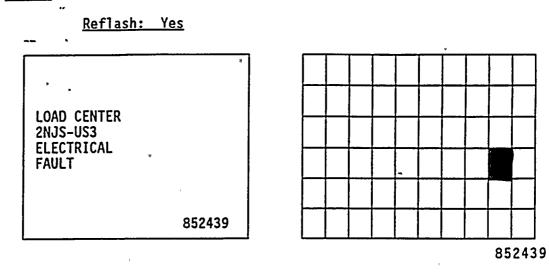
b. Dispatch operator to load center US4.

c. Investigate and determine reason for trip.

d. Return system to normal.

N2-OP-71 -96 September 1991

Load Center 2NJS-US3 Electrical Fault 21.0 <u>852439</u>



21.1	l <u>Computer Point</u>		<u>Computer Printout</u>	Source		
	a.	NJSUC23	US3A ACB 3-3B Elec. Flt	Load Center 2NJS-US3A Air Circuit Breaker ACB 3-3B Electrical Fault as Sensed by 520C-2NJSA03		
-	b.	NJSUC24	US3B ACB 3-14B Elec. Flt	Load Center 2NJS-US3B Air Circuit Breaker ACB 2-14B Electrical Fault as Sensed by 520C-2NJSB03		
	с.	NJSUC28	US3A & C ACB 3-7B Elec. Flt	Load Center 2NJS-US3A & US3C Air Circuit Breaker ACB 3-7B Electrical Fault as Sensed by 520C-2NJSN29		
i	d.	NJSUC30	US3B&C ACB 32-11B Elec. Flt	Load Center 2NJS-US3B & US3C Air Circuit Breaker ACB 3-11B Electrical Fault as Sensed by 520C-2NJSN31		

21.2 Automatic Response

Trip 600V supply or tie breaker, load center 2NJS-US3. a.

21.3 <u>Corrective Action</u>

Check computer to determine which breaker is in alarm. a.

Dispatch operator to load center US3. .b.

Investigate and determine reason for trip. c.

d. Return system to normal.

N2-OP-71 -95 September 1991

23.1 Computer Point	<u>Computer Printout</u>	<u>Source</u> (cont.)
g. NJSBC20	LOSS of US° 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

23.2 Automatic_Response

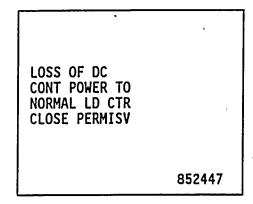
NONE

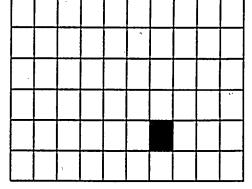
23.3 Corrective Action

- 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).

23.0 <u>852447</u> Load Center DC Control Power to Normal Load Center Close Permissive

Reflash: Yes





852447

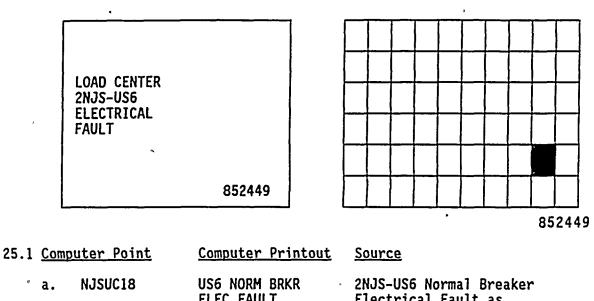
88 1

23.1	Comp	<u>uter Point</u>	Comp	<u>uter Printout</u>	Source
	a.	NJSBC13	LOSS CONT	of US1 DC PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US1 as sensed by 74-2NJSN21
	b.	NJSBC14	LOSS CONT	of US3 DC PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US3 as sensed by 74-2NJSN23
	c.	NJSBC15	LOSS CONT	of US2 DC PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US2 as sensed by 74-2NJSN22
	d.	NJSBC16	LOSS CONT	of US4 DC PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US4 as sensed by 74-2NJSN24
	e.	NJSBC18		of US7B BRKR STATUS	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US7 as sensed by 74-2NJSB07
	f.	NJSBC19	LOSS CONT	of US8 PWR	Loss of DC Control power, 13.8KV Brkr Intlk, to 2NJS-US8 as sensed by 74-2NJSN38

N2-OP-71^{*} -97* September 1991

25.0 <u>852449</u> Load Center 2NJS-US6 Electrical Fault

Reflash: Yes



			sensed by 520C-2NJSY13
b.	NJSUC20	US6 ALTN BRKR ELEC FAULT	2NJS-US6 Alternate Breaker Electrical Fault as sensed by 520C-2NJSY14

25.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US6.

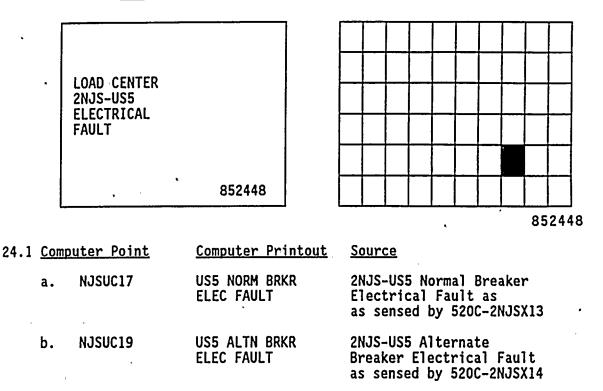
25.3 Corrective Action

- a. Check computer and panel 852 to determine which breaker tripped.
- b. Dispatch operator to load center US65.
- c. Investigate and determine reason for trip.
- d. Return system to normal.

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24.0 <u>852448</u> Load Center 2NJS-US5 Electrical Fault

Reflash: Yes



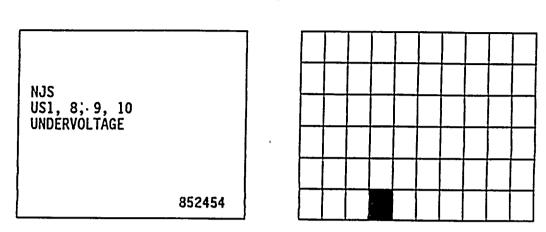
24.2 Automatic Response

- a. Trip 600V normal or alternate supply breaker to load center 2NJS-US5.
- 24.3 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.

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1712

27.0 <u>852454</u> Load Center 2NJS-US1, US8, US9, US10, Undervoltage <u>Reflash: Yes</u>



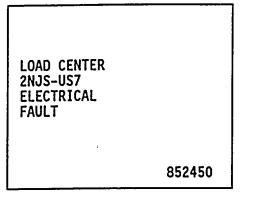
852454 `

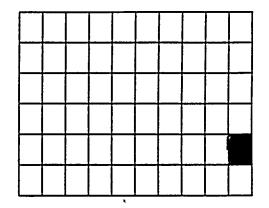
27.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	Source
	a.	NJSEC01	USIA Norm Sply Brkr Volt	2NJS-US1A Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX15
	b.	NJSEC02	US1B Norm Sply Brkr Volt	2NJS-US1B, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSY15
•	c.	NJSEC03	USIC Norm Sply . Brkr Volt	2NJS-USIC, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ15
3	ď.	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
3	f.	NJSEC19	Bus 2NJS-US8C Undv Prot	2NJS-US8C, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ20

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26.0 <u>852450</u> Load Center 2NJS-US7 Electrical Fault

<u>Reflash: Yes</u>





852450

26.1	Com	<u>puter Point</u>	<u>Computer Printout</u>	<u>Source</u>
	a.	NJSUC25	US7A ACB7-3B Elec fault	2NJS-US7A Brkr ACB7-3B · 1712. 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

26.2 <u>Automatic Response</u>

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US7.

26.3 <u>Corrective Action</u>

- a. Check computer to determine which breaker is in alarm.
- b. Dispatch operator to load center US7.

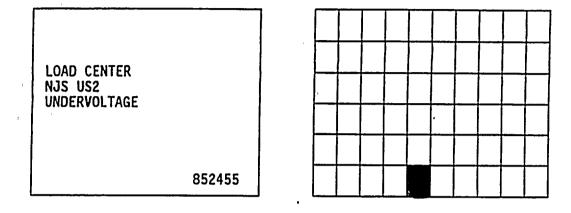
c. Investigate and determine reason for trip.

d. Return system to normal.

N2-OP-71 -101 September 1991

28.0 <u>852455</u> Load Center 2NJS-US2 Undervoltage

<u>Reflash: Yes</u>



852455

28.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	<u>Source</u>
	а.	NJSEC04	ÚSZA 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
	с.	NJSECO6	US2C NORM SPLY BRKR VOLT	2NJS-US2C Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSZ16

28.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 second time delay.

28.3 <u>Corrective Action</u>

- 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.

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27.1	<u>Com</u>	<u>outer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	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
	1.	NJSEC25	Bus 2NJS-US10C Undv Prot	2NJS-US1OC, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ22

27.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05 sec. time delay.

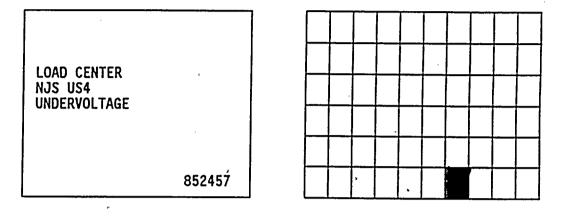
27.3 <u>Corrective Action</u>

- a. Check computer to determine which section is de-energized.
- b. Investigate and determine reason for trip.
- c. Return system to normal.

N2-OP-71 -103 September 1991

"0.0 <u>852457</u> Load Center 2NJS-US4 Undervoltage

<u>Reflash: Yes</u>



852457

30.1	<u>Com</u>	<u>outer Point</u>	<u>Computer Printout</u>	Source
·	′a.	NJSEC10	US4A NORM SPLY BRKR VOLT	2NJS-US4A Norm 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

30.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

30.3 <u>Corrective Action</u>

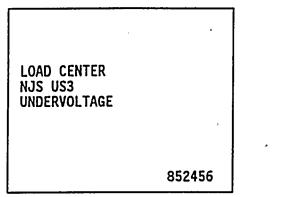
- a. Check computer to determine which section is de-energized.
- b. Investigate and determine reason for undervoltage.
- c. Identify the 86 device, reset and return system to normal.

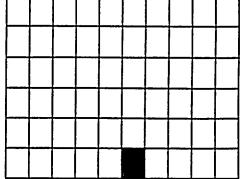
N2-OP-71 -106 September 1991

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29.0 <u>852456</u> Load Center 2NJS-US3 Undervoltage

<u>Reflash: Yes</u>





852456

29.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>	
	a. NJSEC07	US3A NORM SPLY BRKR VOLT	2NJS-US3A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX17	
	b. NJSECO8	US3B NORM SPLY BRKR VOLT	2NJS-US3B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY17	
	c. NJSECO9	US3C NORM SPLY BRKR VOLT	2NJS-US3C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ17	

29.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

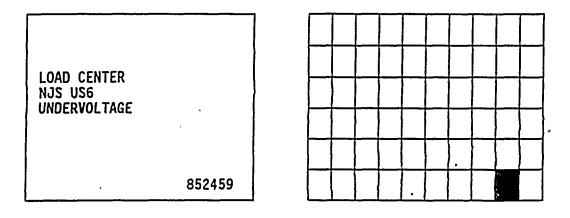
29.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -105 September 1991

32.0 <u>852459</u> . Orad Center 2NJS-US6 Undervoltage

<u>Reflash: No</u>



852459

32.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NJSEC14	US6 NORM SPLY BRKR VOLT	2NJS-US6 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSY19

32.2 <u>Automatic Response</u>

a. The motor feeders on 2NJS-US6 are tripped, after a .05-3 second time delay.

32.3 <u>Corrective Action</u>

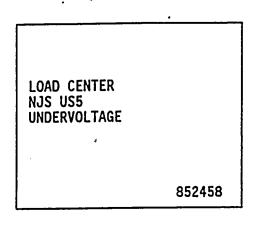
a. Check normal or Alt. feed to bus at panel 852.

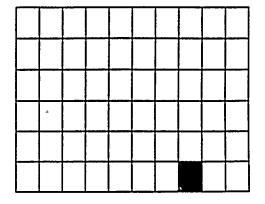
b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

31.0 <u>85: 158</u> Load Center 2NJS-US5 Undervoltage

<u>Reflash: No</u>





852458

31.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	, NJSEC13	US5 NORM SPLY BRKR VOLT	2NJS-US5 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSX19

31.2 <u>Automatic Response</u>

a. the motor feeders on 2NJS-US5 are tripped after a .05-3 sec. time delay.

31.3 <u>Corrective Action</u>

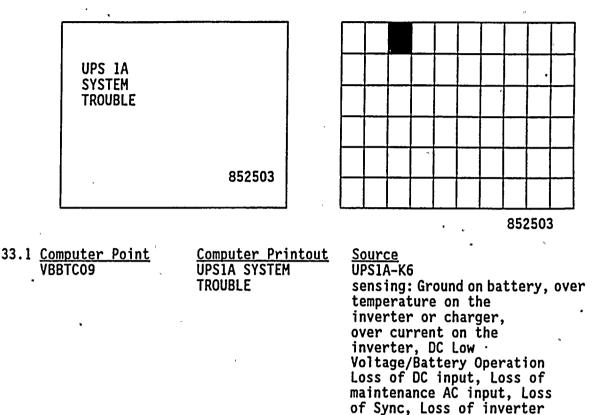
- a. Check normal or Alt. feed to bus at panel 852.
- b. Investigate and determine reason for undervoltage.
- c. Identify the 86 device, reset and return system to normal.

N2-OP-71 -107 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

33.0 <u>852503</u> Uninterruntal¹e Power Supply 2VBB-UPSIA System Trouble

<u>Reflash: No</u>



33.2 Automatic_Response

UPSIA will realign power supplies to provide power to vital bus.

33.3 Corrective Action

', ·

a. Dispatch an operator to the local 2VBB-UPS1A panel to record indications on the UPS front panel.

output.

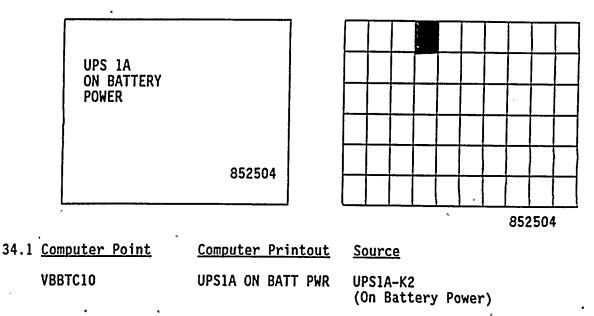
- b. Refer to Section H to align power supplies to the desired off normal configuration.
- c. Initiate maint. activities if the unit needs repair.

N2-OP-71 -109 September 1991

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PROCEDURES FOR CORRECTING ALARM CONDITIONS

34.0 <u>852504</u> Uninterruptable Powe: Supply UPS1A on Battery Power <u>Reflash: No</u>



34.2 Automatic Response

2VBB-UPS1A Auto Transfer to DC battery power.

- 34.3 Corrective Action
 - a. Dispatch an operator to 2VBB-UPSIA to record indications on the . UPS front panel.
 - b. Refer to Section H to align power supplies to the desired off normal configuration.

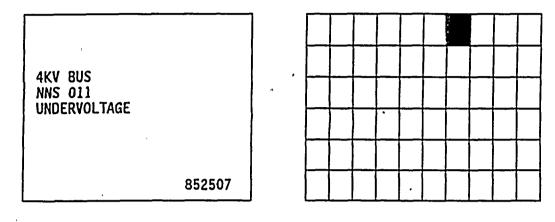
c. Initiate maint. activities if the unit needs repair.

N2-OP-71 -110 September 1991

Ι.

36.0 <u>852507</u> 4KV Bus NNSO11 Undervoltage

<u>Reflash: No</u>



852507

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36.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NNSECO1	4KV BUS NNSO11 UNDERVOLTAGE	2NNS-SWG011 Undervoltage as sensed by 27A & B 2NNSX09

36.2 <u>Automatic Response</u>

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.

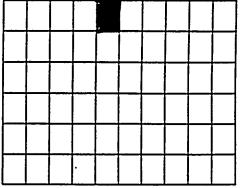
36.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Check auto start or standby pumps.
- c. Investigate and determine reason for undervoltage.
- d. Return system to normal.

N2-OP-71 -112 September 1991

35.0 <u>852505</u> XFMR XS3 Sply ACB 1-4 Auto Trip/Fil to Close <u>Reflash: No</u>

XFMER XS1 SPLY ACB 1-4 AUTO TRIP/ FAIL TO CLOSE 852505



852505

35.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>	
	, NNSUCO1	XS1 SPLY ACB1-4 AUTO TRIP	XFMR 2ATX-XS1 SUPPLY ACB 1-4 Auto trip or Fail to Close as sensed by 1 & 52 2NNSYO7 (SW ACB 1-4 Normal After Close & ACB 1-4 Open)	

35.2 <u>Automatic Response</u>

- a. Trip or fail to close breaker ACB-1-4.
- b. Loss of 4160V powerboards 2NNS-SWG011, 2NNS-SWG012, 2NNS-SWG014.

35.2 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Investigate and determine reason for alarm.
- c. Return system to normal.

N2-OP-71 -111 September 1991

1712

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.

-1.

- b. Trip and lockout ACB 11-1 and ACB 11-3 on 2NNS-SWG011; prevent the auto transfer of 2CNM-P1C on to NNS-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).

37.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -114 September 1991

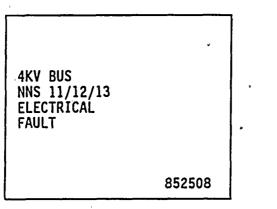
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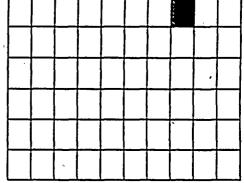
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37.0 <u>852508</u> 4KV Bus NNS 11/12/13 Electrical Fault

<u>Reflash: Yes</u>





852508

37.1	<u>Comp</u>	<u>uter Point</u>	<u>Computer Pri</u>	<u>ntout</u>	Source
	a.	NNSUC14	4KV BUS E12 RLY TRIP	LO	2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSZO1 on bus 11/12/13 phase time OC or grnd OC.
	b.	NNSUC15	4KV BUS E11 RLY TRIP		2NNS-SWGO11 Lock Out Relay Trip as sensed by 86-2NNSXO1 on bus 11 phase time OC or grnd OC.
	с.	NNSUC16	4KV BUS E13 RLY TRIP	LO	2NNS-SWG013 Lock Out Relay Trip as sensed by 86-2NNSY04
	d.	NNSUC17	4KV BUS E12 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 1 RLY TRIP		2NNS-SWG012 Lock Out Relay Trip as sensed by 86-2NNSYO1 (Backup protection when SWG012 is being fed from SWG011).

N2-OP-71 -113 September 1991

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38.2 <u>Automatic Response</u>

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.

38.3 <u>Corrective Action</u>

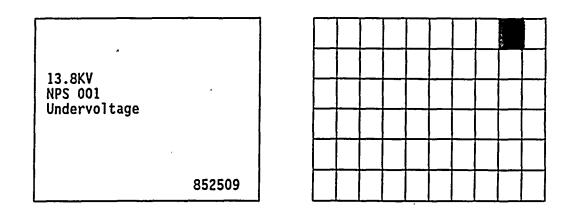
- a. Verify automatic response.
- b. Check auto start of standby equipment.
- c. Reduce power to less than 65%, per N2-OP-101D Section H.1.0.
- f. Investigate and determine the reason for the undervoltage.
- g. Return the plant to normal operation.

N2-OP-71 -116 September 1991

38.0 <u>852509</u>

<u>Reflash: No</u>

13.8KV Bus NPS001 Undervoltage



852509

38.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	NPSEC01	13.8KV BUS NPS1 UNDER VLT	NPS-SWG001 Undervoltage ' as sensed by 27A & B - 2NPSX09

38.2 <u>Automatic Response</u>

- 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) on 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).

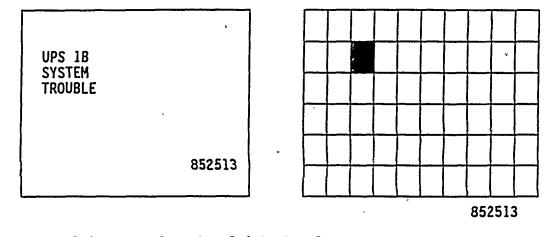
'N2-OP-71 -115 September 1991

17128

PROCEDURES FOR CORRECTING ALARM CONDITIONS

:.0.0 <u>852513</u> Uninterruptable Power Supply 2VBB-UPS1B System Trouble

<u>Reflash: No</u>



40.1 <u>Computer Point</u> VBBTC11

Ι.

Computer Printout UPS1B SYSTEM TROUBLE Source 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.

40.2 <u>Automatic_Response</u>

UPS1B will realign power supplies to provide power to vital bus.

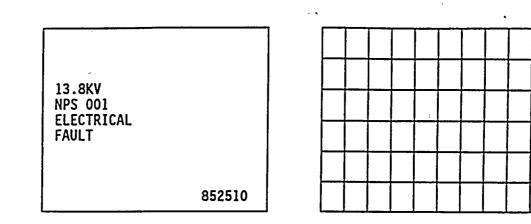
40.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -118 September 1991

39.0 <u>852510</u> 13.8KV Bus NPS001 Electrical Fault

<u>Reflash: No</u>



852510

39.1Computer PointComputer PrintoutSourceNPSUC0913.8KV BUS NPSNPS-SWG001 Lock Out01 LO RLY TRPRelay Trips on

Relay Trips on Transformers 2ATX-XS1 Time OC & Grnd OC;SWGOO1 Dir Grnd OC & Time OC; Transformers 2NJS-X1C, -X1D, -X1A, -X1B or -X1G as sensed by 86-2NPSXO1

39.2 <u>Automatic Response</u>

. :::

- 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 Toads on: 2NPS-SWG001, 2NNS-SWG011, 12, 14, 2NJS-US1A,C & -US2A, C & -US3A,C & -US4A,C & -US5 and -US7A & -US8A,C & US9A,C & US10A,C; Alt. Access Substation.

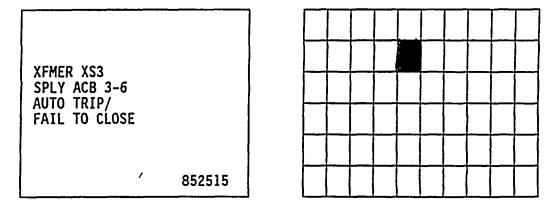
39.3 <u>Corrective</u> Action

- 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.
- d. Investigate and determine reason for trip.
- e. Return plant to normal operation.

N2-OP-71 -117* September 1991

42.0 <u>852515</u> λ MR XS3 SPLY ACB3-6 Auto Trip/Fail to Close

<u>Reflash: No</u>



852515

42.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	NNSUCO2	XS3 Supply ACB 3-6 AUTO TRIP	XFMR 2ATX-XS3 Supply ACB 3-6 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX06 (ACB 3-6 open & SW ACB 3-6 Normal After Close)

42.2 <u>Automatic Response</u>

- a. Trip or fail to close of ACB 3-6.
- b. Loss of power to busses NNS-SWG013 & 015.

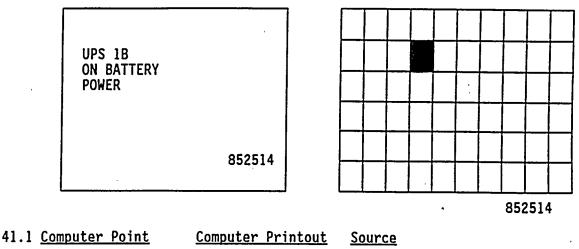
42.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Investigate and determine reason for alarm.
- c. Return system to normal.

N2-OP-71 -120 September 1991

41.0 <u>9252.14</u> Uninterruptable Power Supply UPS1B on Battery Power

<u>Reflash: No</u>



VBBTC12	UPS1B ON BATT PWR	UPS1B-K2
		(On Battery Power)

41.2 <u>Automatic_Response</u>

2VBB-UPS1B Auto Transfer to DC battery power.

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41.3 Corrective Action

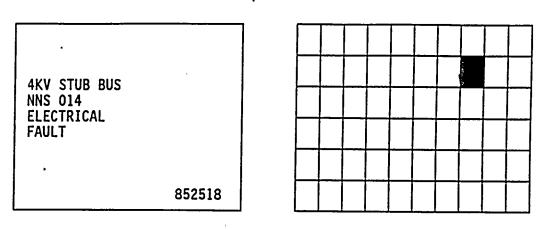
- a. Dispatch an operator to 2VBB-UPS1B to record indications on the UPS front panel.
- b. Refer to Section H to align power supplies to the desired off normal configuration.

c. Initiate maint. activities if the unit needs repair.

N2-OP-71 -119 September 1991

44.0 <u>852518</u> 4KV Stub Bus NNS 014 Electrical Fault

<u>Reflash: No</u>



852518

^۳ 44.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NNSUC19	4KV BUS E14 LO RLY TRIP	NNS-SWG014 Lockout Relay Tripped on High time or Ground Overcurrent as sensed by 86-2NNSX15

44.2 <u>Automatic Response</u>

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).

44.3 <u>Corrective Action</u>

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.

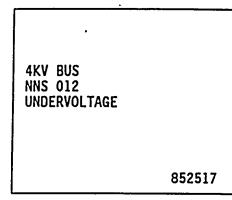
e. Return system to normal.

N2-0P-71 -122 September 1991

43.0 <u>852517</u>

4KV Bus NMS01° Undervoltage

<u>Reflash: No</u>



852517

43.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NNSEC03	4KV bus NNSO12 Undervolt	2NNS-SWG012 undervoltage [*] as sensed by 27A&B 2NNSX18

43.2 <u>Automatic_Response</u>

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-PIA'.

e. Fire pump 2FPW-P2 undervoltage.

43.3 <u>Corrective Action</u>

a. Verify automatic response.

b. Check auto start of standby pumps.

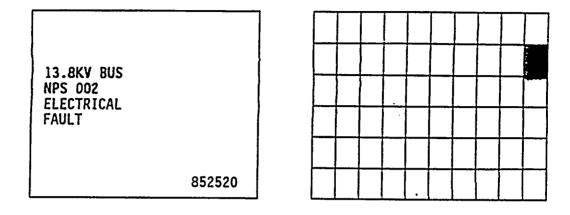
c. Investigate and determine reason for undervoltage.

d. Return system to normal.

N2-OP-71 -121 September 1991

46.0 <u>852520</u> 13.8KV Bus NPS002 Electrical Fault

Reflash: No



852520

46.1	<u>Computer Point</u>	<u>Computer Printout</u>	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.

46.2 <u>Automatic Response</u>

- 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.

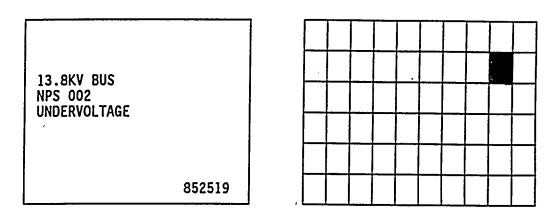
46.3 <u>Corrective Action</u>

- a. Verify automatic resonse.
- b. Dispatch operator to aux. boilers (if operating)
- c. Investigate and determine reason for trip.
- d. Return system to normal.

N2-OP-71 -124 September 1991

45.0 <u>852519</u> 13.8KV Bus NPS002 Undervoltage

Reflash: No



852519

45.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	, NPSEC13	13.8KV BUS NPS 2 UNDR VLT	2NPS-SWGOO2 sustained bus undervoltage as sensed by 27A&B-2NPSZ18

45.2 <u>Automatic Response</u>

- 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).

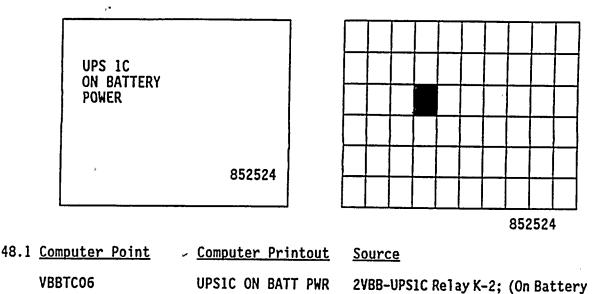
45.3 <u>Corrective Actions</u>

- 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).

N2-OP-71 -123 September 1991

48.0 <u>852524</u> Uninterruptable Power Supply 2VBB-UPS1C on Battery Power

<u>Reflash: No</u>



48.2 <u>Automatic_Response</u>

2VBBUPS1C Auto Transfer to DC battery power.

48.3 Corrective Action

a. Dispatch an operator to 2VBB-UPSIC to record indications on the UPS front panel.

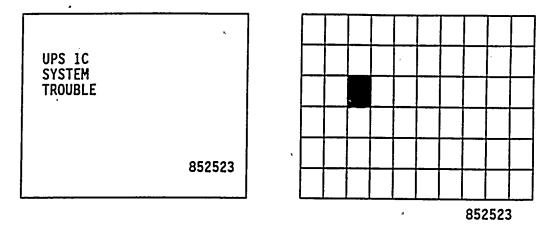
Power)

b. Refer to Section H to align power supplies to the desired off normal configuration.

c. Initiate maint. activities if the unit needs repair.

47.0 <u>852523</u> Uninterruptable Power Supply 2VBB-UPS1C System Troubl

<u>Reflash: No</u>



47.1 <u>Computer Point</u>

Computer Printout Source

VBBTC05

I.

UPS1C SYSTEM TROUBLE 2VBB-UPSIC 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. 171

47.2 <u>Automatic Response</u>

UPSIC will realign power supplies to provide power to vital bus.

47.3 <u>Corrective Action</u>

- 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.

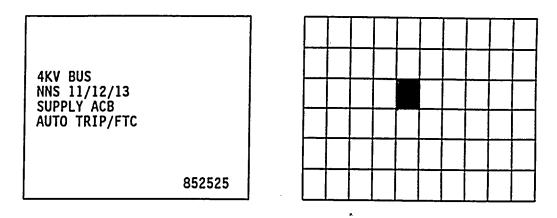
N2-OP-71 -125 September 1991

49.3 <u>Corrective Action</u>

- 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.

49.0 <u>852525</u> 4KV Bus NNS 11/12/13 Supply ACB Auto Trip/FTC

<u>Reflash: Yes</u>



852525

49.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	Source
·	a.	NNSUCO3	4KV BUS 011 ACB 11-3 AT	NNS-SWGOll ACB 11-3 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX20
	b.	NNSUCO4	4KV BUS 13 ACB 13-6 AT	NNS-SWG013 ACB 13-6 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSY20
	c.	NNSUCO5	4KV BUS 12 ACB 13-10 AT	NNS-SWGO12 ACB 13-10 Auto Trip or Fail to Close as sensed by 1 & 52 2 NNSYO8
	d.	NNSUCO6	SWGO12 ACB 11-1 At	NNS-SWG012 ACB 11-1 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX07.

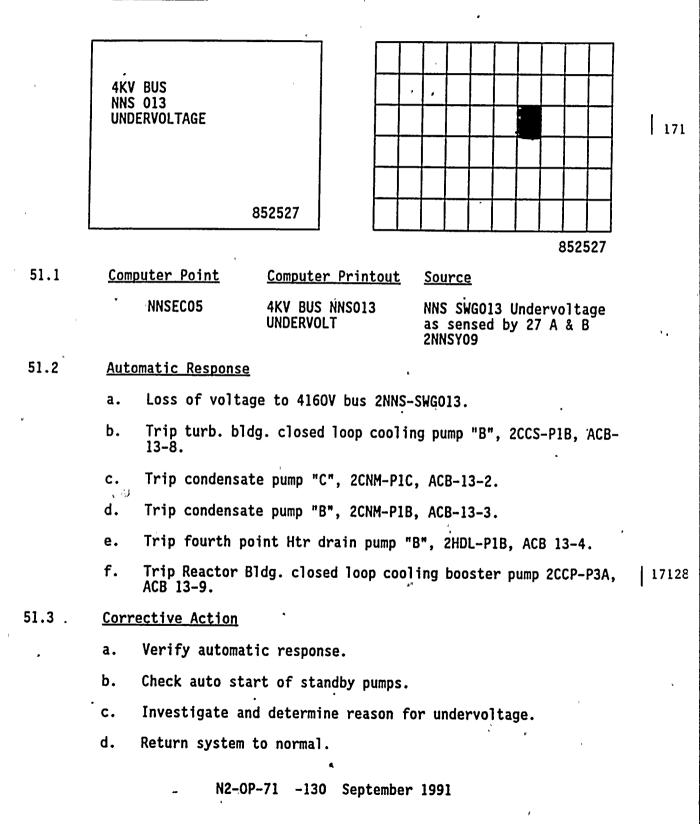
49.2 <u>Automatic Response</u>

- a. Auto trip of supply breakers to 4160V powerboards 011, 012, 013.
- b. Auto trip of the motor feeders on the respective bus.

N2-OP-71 -127 September 1991

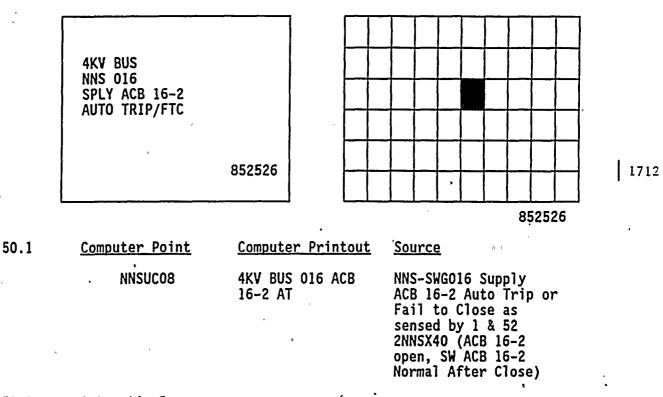
51.0 <u>852527</u> 4KV Bus NNS013 Undervoltage

<u>Reflash: No</u>



50.0 <u>852526</u> 4KV Bus NNS016 SPLY ACB 16-2 Auto Trip/FTC

Reflash: No



50.2 <u>Automatic Response</u>

a. Trip or fail to close-breaker 16-2.

50.3 <u>Corrective Action</u>

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).

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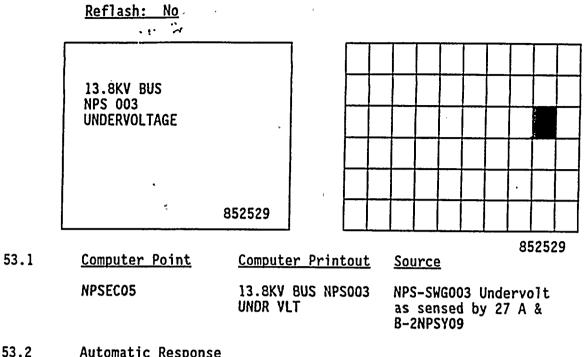
c. Investigate and determine reason for trip.

d. Return system to normal.

N2-OP-71 -129 September 1991

I. PROCEDURE_FOR_CORRECTING_ALARM CONDITIONS (cont.)

53.0 852529 13.8KV Bus NPS003 Undervoltage



Automatic_Response

- Trip normal supply breaker ACB 3-14. a.
- Trip condensate booster pumps "B" & "C" (ACB 3-5, 3-11) prevent b. auto closure.
- Trip reactor feed pumps "B" & "C" (ACB 3-7, 3-12). c.
- 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.
- Permit residual transfer to reserve breaker ACB3-1 or ACB3-16. g.
- Loss of loads on: 2NPS-SWG003; 2NNS-SWG013, 15; 2NJS-US1B & h. US-2B & US-3B & US-4B & US6 & US7B & US8B & US9B & US10B.

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53.3 Corrective Action

- a. Verify automatic response.
- Check auto start of standby equipment. b.
- Reduce power to less than 65% per N2-OP-101D Section H.1.0. c.
- d. Investigate and determine reason for undervoltage.
- Return plant to normal operation. e.

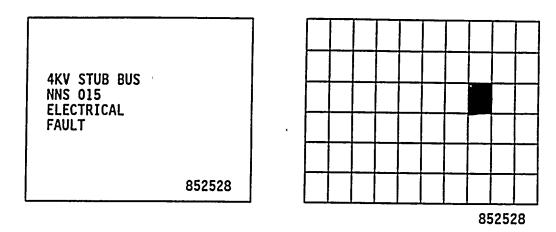
N2-OP-71 -132 September 1991

52.0

<u>852528</u>

4KV Stub Bus NNS015 Electrical Fault

Reflash: No



52.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> NNSUC20 4KV BUS 015 LO NNS-SW RLY TRIP Relay 1

NNS-SWG015 Lockout Relay tripped on phase or ground overcurrent as sensed by 86-2NNSY15

52.2 <u>Automatic Response</u>

- 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.

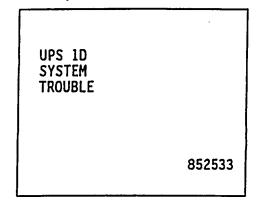
52.3 <u>Corrective Action</u>

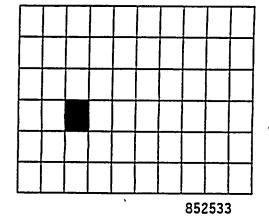
- a. Verify automatic response.
- b. Check auto start of standby pumps.
- c. Investigate and determine reason for trip.
- d. If necessary, supply bus 015 from emergency bus ENS*SWG103.
- e. Return system to normal.

N2-OP-71 -131 September 1991

55.0 <u>852533</u> Uninterruptable Power Pupply 2VBB-UPS1D System Trouble

Reflash: No





55.1 <u>Computer Point</u> VBBTC07

I.

<u>Computer Printout</u> UPSID SYSTEM TROUBLE

Source

2VBB-UPSID 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.

55.2 Automatic Response

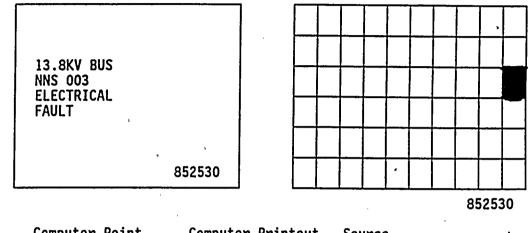
UPS1D will realign power supplies to provide power to vital bus. .

- 55.3 <u>Corrective Action</u>
 - 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.

N2-OP-71 -134 September 1991

54.0 <u>852530</u> 13.8KV Br ... NPS.,03 Electrical Fault

Reflash: No



54.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NNSUC10	13.8KV BUS 03 LO RLY TRP	NPS-SWG003 Lockout Relay Trip as sensed by 86- 2NPSY01.

54.2 <u>Automatic Response</u>

- 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-US18 & US2B & US3B & US4B & US6 & US7B & US8B & US9B & US10B.

54.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Check auto start of standby equipment.
- 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.

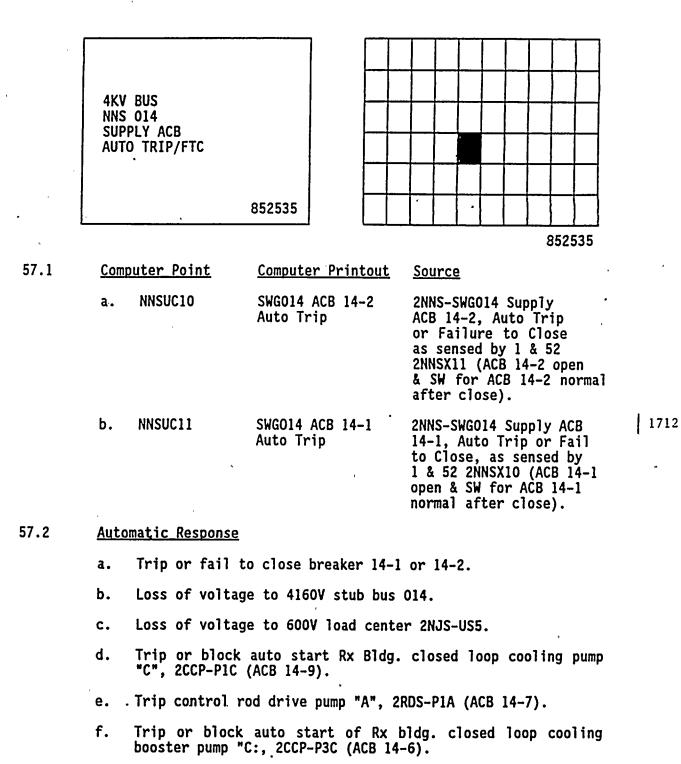
N2-OP-71 -133 September 1991

57.0

4KV Bus NNS014 Supply ACB Auto Trip/FTC

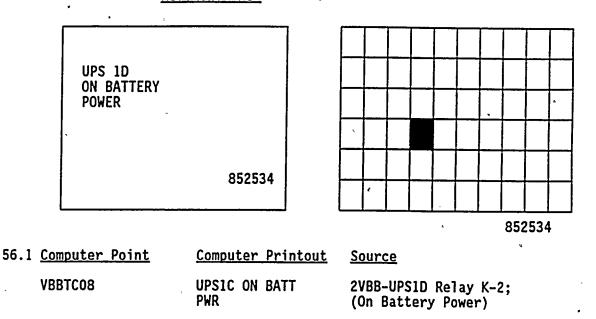
<u>Reflash: Yes</u>

852535



N2-OP-71 -136 September 1991

56.0 <u>852534</u> Uninterruptable Power Supply 2VBB-"SID on Battery Power <u>Reflash: No</u>



1712

56.2 Automatic Response

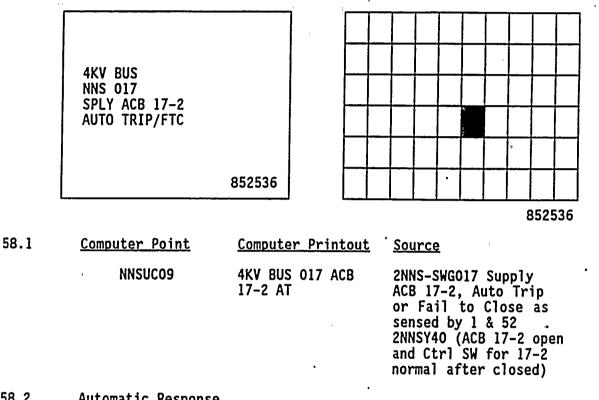
2VBBUPSIC Auto Transfer to DC battery power.

- 56.3 <u>Corrective Action</u>
 - a. Dispatch an operator to 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.

58.0 852536 4KV Bus NNS017 SPLY ACB 17-2 Auto Trip/FTC

Reflash: No



171

58.2 Automatic Response

Trip or fail to close - breaker 17-2. a.

58.3 **Corrective** Action

- Verify automatic response. a.
- Verify auto start and diesel generator supplying emergency ь. bus 103. (If breaker 17-2 is supplying bus 102, check bus 102 energized by it's diesel generator).
- Investigate and determine reason for trip. c.
- d. Return system to normal.

N2-OP-71 -138 September 1991

57.3 <u>Corrective Action</u>

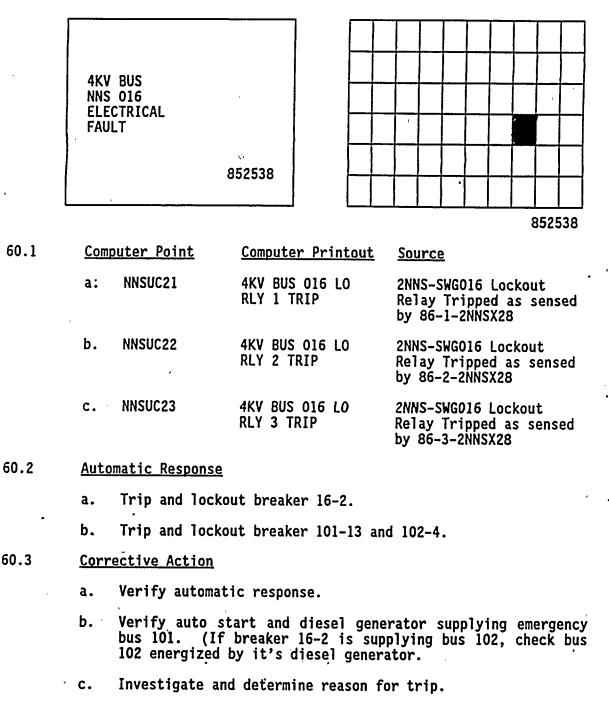
- a. Verify automatic response.
- b. Check auto start of standby pumps.
- c. Investigate and determine reason for trip.
- d. If necessary, supply bus 014 from emergency bus.
- e. Return system to normal.

· N2-OP-71 -137 September 1991

60.0 <u>852538</u> 4KV Bus NNS016 Electrical Fault

<u>Reflash: Yes</u>

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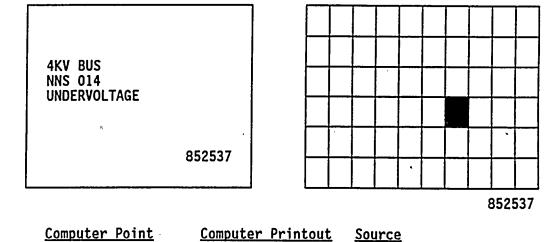


d. Return system to normal.

N2-OP-71 -140 September 1991

59.0 <u>852537</u> 4KV Bus NNS014 Undervoltage

Reflash: No



59.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	NNSEC07	4KV BUS NNSO14 UNDERVOLT	NNS-SWG014 Norm Sply Brkr Undervolt, as sensed by 27 A & B

59.2 <u>Automatic_Response</u>

- 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).

2NNSX29

- 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).

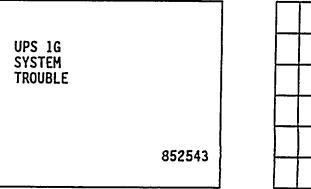
59.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Check auto start of standby pumps.
- c. Investigate and determine reason for trip.
- d. Return system to normal.

N2-OP-71 -139 September 1991

6..0 <u>852543</u> Uninterruptable Power Supply 2VBB-UPSIG System Trouble

Reflash: No



62.1 <u>Computer Point</u> VBBTC01

I.

<u>Computer Printout</u> UPSIG SYSTEM TROUBLE

852543

Source UPSIG-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.

62.2 <u>Automatic Response</u>

UPSIG will realign power supplies to provide power to vital bus.

62.3 Corrective Action

- a. Dispatch an operator to the local 2VBB-UPSIG 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.

N2-OP-71 -142 September 1991

61.0 <u>852540</u> 13.8KV Bus NPSOO1 Air Circuit Breaker 1-1/1-3/1-16/Auto Trip/Failure to Close

			_				=					
NPS 0 1-1/1	13.8KV BUS NPS 001 ACB 1-1/1-3/1-16 AUTO TRIP/FTC -		-									
AUTU												
	<u></u>		*		<u> </u>	4		L	·	 {	352!	54
<u>Compu</u>	<u>ter Point</u>	Compute	<u>er Print</u>	cout	<u>Sou</u>	rce	2					
a.	NPSUC01	SWGOO1 Auto te	ACB 1-3 RIP	3	NPS Bre or sen	ake Fai	r, lur	1-3 •e t	3 Au to (ito Clos	Tri se a	i p a s
b.	NPSUCO2	SWG001 Auto tr	ACB 1-1 RIP	.6	NPS Bre or sen	ake Fai	r, lur	1-1 'e t	6 A	uto los	Tr Tr	1 IS
с.	NPSUC07	SWG001 Auto tr	ACB 1-1 RIP		NPS Brea	ake	r,	1-1	Au	to	Tri	p

Reflash: Yes

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.

61.3 <u>Corrective Action</u>

61.1

61.2

a. Verify automatic response.

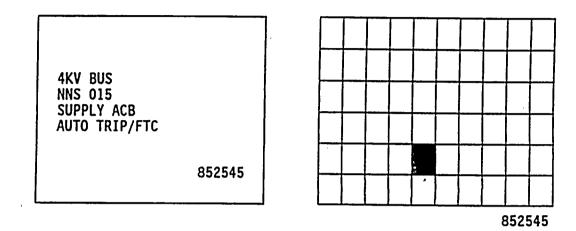
b. Investigate and determine reason for trip.

c. Return system to normal operation.

N2-OP-71 -141 September 1991

64.0 <u>852545</u> 4KV Purs Sols Supply ACB Auto Trip/FTC

Reflash: Yes



64.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	Source
	a.	NNSUC12	SWG015 ACB 15-3 AUTO TRIP	NNS-SWGO15 ACB 15-3 Auto Trip or fail to close as sensed by 1 & 52 2NNSY11
	b.	NNSUC13	SWG015 ACB 15-8 AUTO TRIP	NNS-SWG015 ACB 15-8 Auto Trip or fail to close as sensed by 1 & 52 2NNSY21

64.2 <u>Automatic Response</u>

a. Trip and lock out breakers 15-3 or 15-8.

b. Loss of voltage to 4160V stub bus 015.

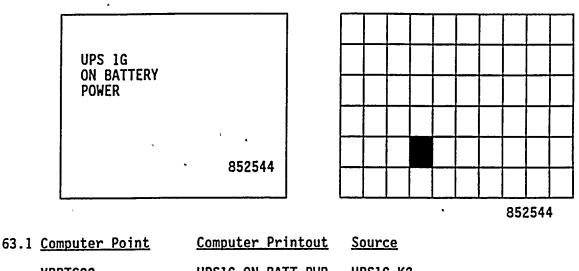
c. Loss of voltage to 600V load center 2NJS-US6.

- 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.

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63.0 <u>852544</u> Uninterruptable Power Supply UPS1G on Battery Power

<u>Reflash: No</u>



- VBBTCO2 UPSIG ON BATT PWR UPSIG-K2 (On Battery Power)
- 63.2 Automatic Response

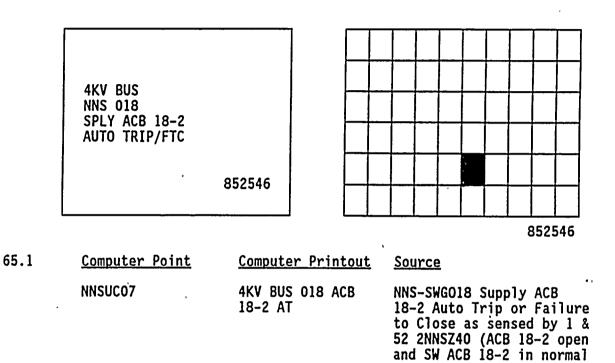
2VBB-UPS1G Auto Transfer to DC battery power.

- 63.3 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.

65.0 <u>852546</u> 4KV Bus NNS018 SPLY ACB ': 2^{*}.uto Trip/FTC

<u>Reflash: No</u>



65.2 <u>Automatic Response</u>

a. Trip or fail to close - Breaker 18-2.

65.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. If aux. boiler transformer is supplying emergency bus 2ENS*SWG101 or *SWG103, check auto start of emergency diesel gen.

after close)

- c. Investigate and determine reason for trip.
- d. Return system to normal.

N2-OP-71 -146 September 1991

64.3 <u>Corrective Action</u>

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- a. Verif; 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.

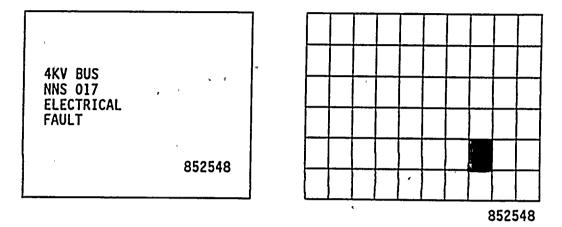
N2-OP-71 -145 September 1991

67.0

4KV Bus NNS017 Electrical Fault

<u>Reflash: Yes</u>

852548



67.1	<u>Comp</u>	<u>uter Point</u>	<u>Computer Printout</u>	Source	
	a:	NNSUC24	4KV BUS E17 LO RLY 1 TRIP	NNS-SWG017 Lockout Relay Tripped as sensed by 86-1 2NNSY28	
1	ţb.	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	

67.2 <u>Automatic Response</u>

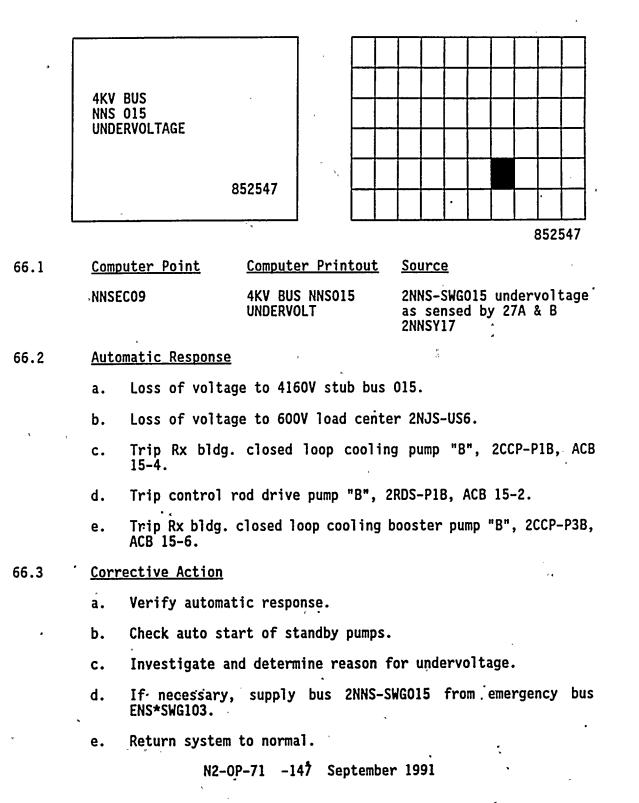
a. Trip and lockout breaker 17-2.

- b. Trip and lockout breaker 103-4 and 102-5.
- 67.3 <u>Corrective Action</u>
 - a. Verify automatic response.
 - Verify auto start and diesel generator supplying emergency bus 2ENS*SWG103. (If breaker 17-2 is supplying bus 2ENS*SWG102, ensure that bus 102 is energized by it's diesel | 17128 generator.
 - c. Investigate and determine reason for trip.
 - d. Return system to normal.

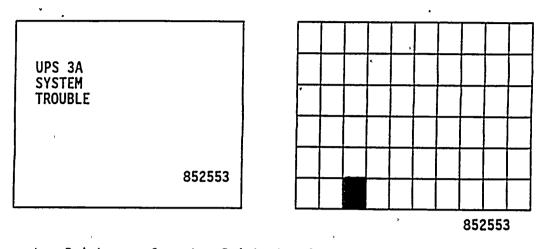
N2-OP-71 -148 September 1991

66.0 <u>852547</u> 4KV Bus NNS015 Unde Poltage

<u>Reflash: No</u>



69.0 <u>852553</u> Uninterruptable Power Supply 2VBB-UPS3A System Trouble <u>Reflash: No</u>



69.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
VBBEC13	UPS3A SYSTEM TROUBLE	UPS3A-K2

NOTE: UPS3A-K2 is energized by initiation of any local alarm (See Section 69.3).

69.2 Automatic Response

UPS3A wil realign power supplies to provide power to vital bus.

69.3 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.
- c. Initiate maint. activities if the unit needs repair.

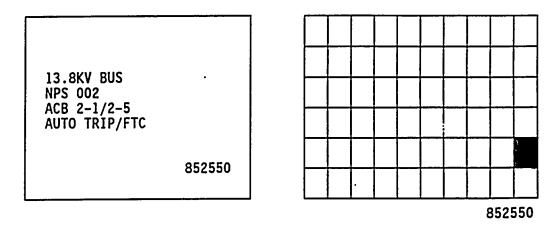
I.

17128

13.8KV Bus NPSOO2 Air Circuit Breaker, 2-1/2-5 Auto 852550 68.0 Trip/Failure to Close

Reflash: Yes

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68.1	<u>Computer Point</u>		<u>Computer Printout</u>	<u>Source</u> .		
	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-SWGOO2 Air Circuit Breaker 2-5 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ15		

68.2 Automatic Response

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Trip or fail to close normal or alternate supply breakers to 13.8KV bus 002. Check for the undervoltage annunciator 852519. a.

68.3 **Corrective Action**

- Verify automatic response. a.
- Investigate and determine reason for trip. b.
- Return system to normal. c.

N2-OP-71 -149 September 1991

<u>Alarm</u>	Description	Corrective Action
Rectifier AC Loss	Loss of normal AC to Unit	a) Verify CB-1 not tripped - if tripped, notify Elect/I&C
I	Ŀ	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

Local Alarm Description - Corrective Action (Cont'd)

69.3 Corrective Action (Cont'd)

d. Evaluate local alarm indication per description below:

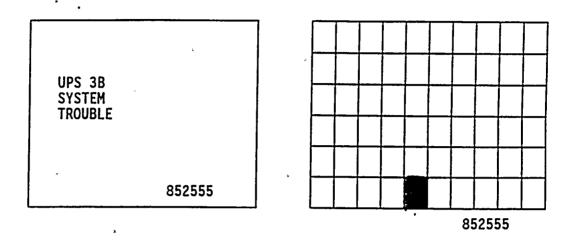
Local Alarm Description - Corrective Action

	scription	<u>Corrective</u> Action
Sync Loss [a]	Maintenance AC is out of	Notify maintenance
b)	<u>frequency tolerance</u> Maintenance AC is not present	Restore Alt. AC (if fuse is blown in maintenance supply regulator, notify maintenance)
	UPS inverter out of freq. tolerance	Verify Freq. meter - notify maintenance
Low Inverter Voltag	e 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	e 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

N2-OP-71 -151 September 1991

71.04 \$352555 Uninterruptable Power Supply 2VBB-UPS3B System Trouble

<u>Reflash: No</u>



71.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> VBBEC14 UPS3B SYSTEM UPS3B-K2 TROUBLE

<u>NOTE</u>: UPS3B-K2 initiated by any local alarm (See Section 69.3)

71.2 Automatic Response

UPS3B will realign power supplies to provide power to vital bus.

- 71.3 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.
 - c. Initiate maint. activities if the unit needs repair.
 - d. Evaluate local alarm indication per Section 69.3.

Ι.

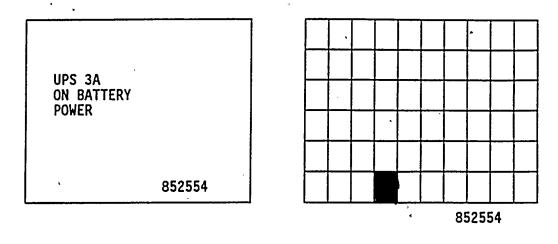
N2-OP-71 -154 September 1991

117 -

17128

70.0 <u>852554</u> Uninterruptable Power Supply UPS3A on Battery Power

<u>Reflash: No</u>



70.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u>

VBBBC11 UPS3A ON BATT PWR UPS3A-K3

<u>NOTE</u>: UPS3A-K3 initiated by local alarm "Battery drain/charge" (See Section 69.3)

70.2 Automatic Response

2VBB-UPS3A will operate on DC battery power.

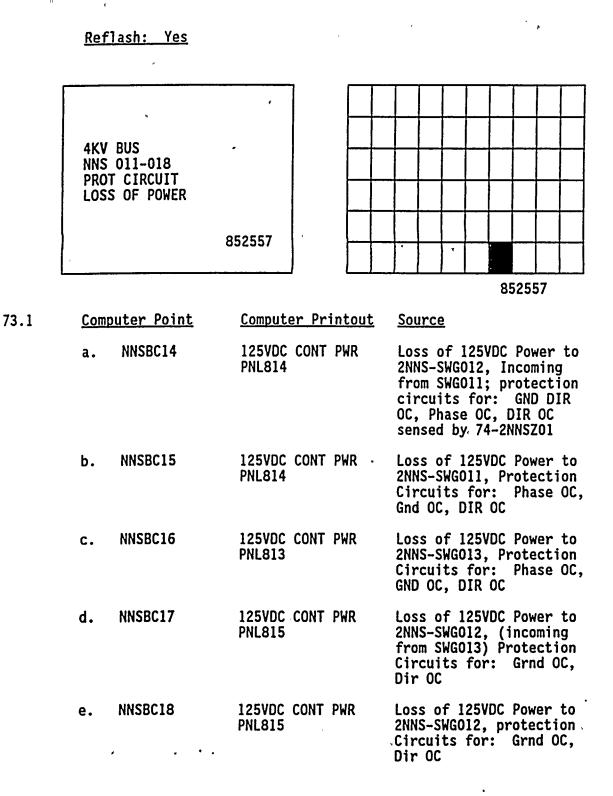
70.3 Corrective Action

- 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 [17128

Ι.

17:12:

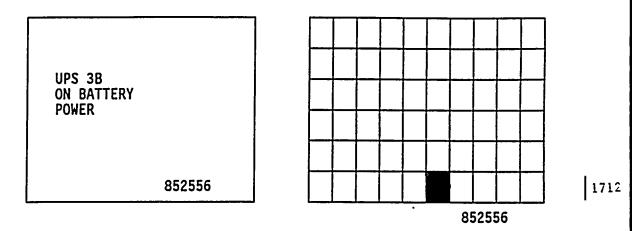
73.0 <u>852557</u> 4KV Bus NNSO11 through 018 Protection Circuit Loss of Power



N2-OP-71 -156 September 1991

72.0 <u>852556</u> Uninterruptable Power Supply UPS3B on Battery Power

<u>Reflash: No</u>



72.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> VBBBC12 UPS3B ON BATT PWR UPS3B-K3 <u>NOTE</u>: UPS3B-K3 is initiated by local alarm: "Battery drain/charge" (See Section 69.3).

72.2 Automatic Response

2VBB-UPS3B will operate on DC battery power.

72.3 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.
- c. Initiate maint. activities if the unit needs repair.
- d. Evaluate local alarm "Battery drain/charge" per Section 69.3.

1712

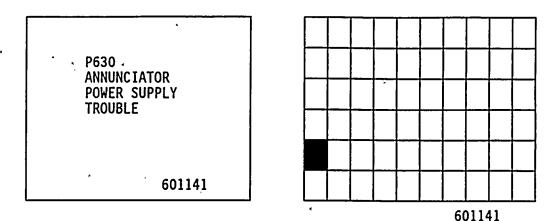
1712

N2-OP-71 -155 September 1991

I.

1.0 <u>601141</u> Panel 630 Annunciator Power Supply Trouble

<u>Reflash: Yes</u>



1.1 Computer Point Computer Printout <u>Source</u> IHABC13 NSS ANN PW GROUND Panel 630 internal power supply ground IHABC18 NSS ANN PWR SUPPLY Panel 630 circuit 2IHAA06 circuit FAILURE breaker A8CB2 or UPS1A 2VBS-PNLA101 circuit 3

1.2 <u>Automatic Response</u>

None

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- 1.3 <u>Corrective Action</u>
 - a. Check panel circuits and breaker shown as "source".

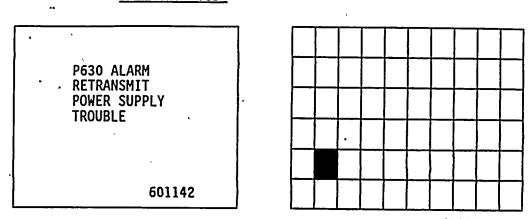
b. Notify I&C of the alarm.

c. Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators", if applicable.

I.

1.0 601142 Panel 630 Alarm Retransmit Power Supply Trouble

<u>Reflash: Yes</u>



601142

2.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	IHABC14	NSS ANN PWR SUPPLY FAIL	Panel 630 circuit 2IHANO6 circuit breaker A8CB3 or UPS1B 2VBS-PNLB101 circuit 4
	IHABC15	ALM REFL PS LOSS OF PWR	Panel 630 circuit 2IHANO5 loss of power

2.2 <u>Automatic Response</u>

None

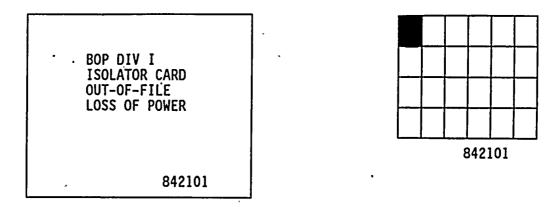
- 2.3 <u>Corrective Action</u>
 - a. Check circuits and breaker shown as "source".
 - b. Notify I&C of the alarm if unable to restore power to annunciator isolators, or retransmitter relays.

N2-OP-71 -68 September 1991

1.

3.0 <u>842101</u> Balance of Plant - Division I Isolation Card Out-of-File/Loss of Power

<u>Reflash: Yes</u>



3.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	CECBC29	P837 D1 BOP ISOL CD OOF	Panel 837 circuit 2CECAOl Fuse Fl
	CECBC35	P838 D1 BOP ISOL CD OOF	Panel 838 circuiť 2CECbOl Fuse Fl
	CECBC39	P874 D1 BOP ISOL CD OOF	Panel 874 circuit 2CECCOl Fuse Fl

3.2 <u>Automatic Response</u>

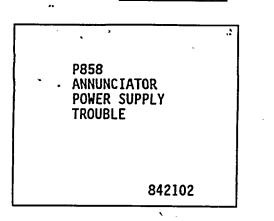
None

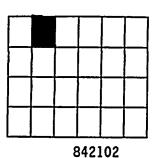
I.

- 3.3 <u>Corrective Action</u>
 - 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.

4.0 <u>842102</u> Panel 858 Annunciator Power Supply Trouble

<u>Reflash: Yes</u>





4.1 Computer Point <u>Computer Printout</u> Source IHABC04 BOP ANN PWR SUPPLY Vital Bus 2VBS-PNLA101 FAIL 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

4.2 <u>Automatic Response</u>

None

- 4.3(a) Corrective Action
 - IHABCO4 1. Check panel 858 circuit 2IHAAO2 circuit breaker Al3CB1.
 - 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.
- (c) Refer to N2-OP-91A, Section H.3.0 "Loss of all Annunciators, if applicable

N2-OP-71 -70 September 1991

I.

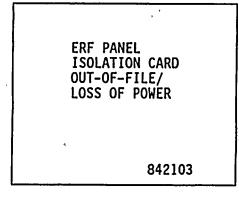
4.0 <u>842102</u> Panel 858 Annunciator Power Supply Trouble (Cont'd)

4

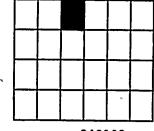
- 4.3(b) (Cont'd) 2. Chec! UPS1A panel 2VBS-PNLB101 circuit 37 and 2VBS-PNLA101 circuit 8.
 - 3. Notify I&C if unable to restore power to annunciator.

N2-OP-71 -71 September 1991

- 5.0 <u>842103</u> Emergency Response Facility Panel [†]solation Card Out-of-File/Loss of Power
 - <u>Reflash: Yes</u>



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842103

5.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	CECBC45	P899D1 ERF ISOL CD OOF	Panel 899 circuit 2CECAO3 Fuse Fl or 2UPS2A 2VBS*PNL101A circuit 3
	CECBC46	P899D2 ERF ISOL CD OOF	Panel 899 circuit 2CECB02 Fuse F1 or UPS 2B 2VBS*PNL301B circuit 20
	CECBC47	P899 ERF ISOL CD OOF	Panel 899 circuit 2CECB04 Fuse F1 or 2SCI-PNLA102 circuit 17

5.2 <u>Automatic Response</u>

None . ..

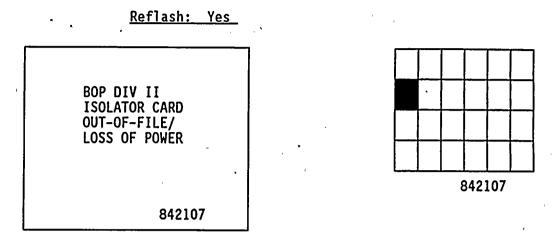
- 5.3 <u>Corrective Action</u>
 - a. Check fuses and breakers in panels listed as "source".

b. Notify I&C if unable to restore power to isolator circuits.

N2-OP-71 -72 September 1991

I.

6.0 <u>842107</u> Balance of Plant Divisior II Isolator Card Out-of-File/Loss of Power



6.1	<u>Computer_Point</u>	<u>Computer Printout</u>	Source
۲	CECBC30	P874 D2 BOP ISOL CD OOF	Panel 874 Isol cards ZG-A, B, C, D
	CECBC36	P837 D2 BOP ISOL CD OOF	Panel 837 Isol cards ZAJ-A, B, C, D
	CECBC40	P838 D2 BOP ISOL CD OOF	Panel 838 Isol cards ZAH-A, B, C, D or panel 838 circuit 2CECBOl Fuse Fl
	IHABCO2	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

6.2 <u>Automatic Response</u>

None

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6.3 <u>Corrective Action</u>

a. Check panel cards and fuse as shown as "source".

b. Notify I&C if unable to restore power to isolator circuits.

N2-OP-71 -73 September 1991

I.

Panel 858 Alarm Retransmit Power Supply Trouble 7.0 842108 Reflash: Yes P858 ALARM RETRANSMIT **POWER SUPPLY** TROUBLE 842108 842108 7.1 Computer Point Computer Printout Source IHABC11 BOP ANN PWR SUPPLY 74-21HAN02 Panel 858 FAIL circuit 2IHANO2 circuit breaker A13CB3 or UPSIA 2VBS-PNLB101 ckt 37 IHABC12 ALM REFL PS LOSS 74B-2IHAN03 Panel 858 power supply to alarm retransmit relay circuit 2IHAN03 Automatic Response 7.2 None

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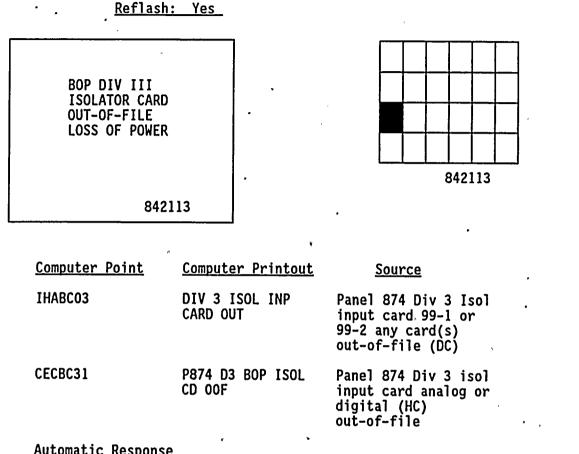
7.3 <u>Corrective Action</u>

a. Check breakers in panels listed as "source".

b. Notify I&C if unable to restore power to retransmission circuits.

Ι.

8.0 842113 Balance of Plant Division II Isolator Card Out-of-File/Loss of Power



8.2 Automatic Response

None

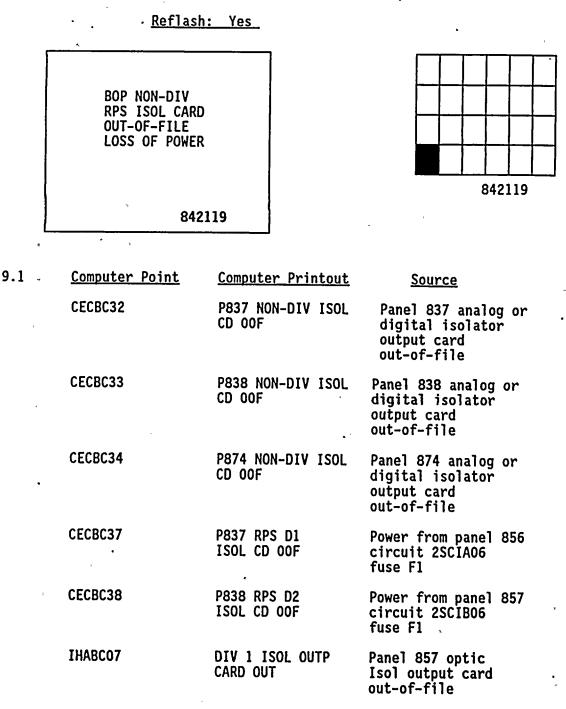
- 8.3 **Corrective Action**
 - Notify I&C that panel 874 Div 3 isolator input card(s) is (are) outa. of-file.
 - Check panel 2CES-IPNL414 circuit 18. b.
 - c. Check panel 874 circuit 2IHACO1 Fuse F1.

N2-OP-71 -75 September 1991

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8.1

9.0 <u>842119</u> Balance of Plant Non-Divisional/Reactor Protection System Isolation Card Out-of-File/Loss of Power



N2-OP-71 -76 September 1991

I.

9.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u> (Cont'd)
•	IHABCO8	DIV 2 ISOL OUTP CARD OUT	Panel 838 optic Isol output card out-of-file
	ІНАВСО9	DIV 3 ISOL OUTP CARD OUT	Panel`874 optic` Isol output card out-of-file

9.2 <u>Automatic Response</u>

None

9.3 <u>Corrective Action</u>

a. Check panel cards and fuses listed as "source".

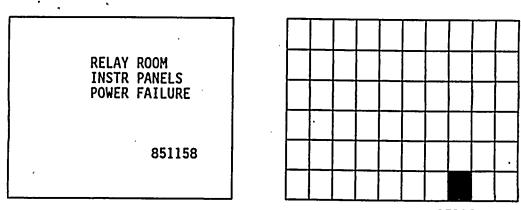
b. Notify I&C of the alarm.

N2-OP-71 -77 September 1991

Relay Room Instrument Panels Power Failure 10.0 <u>851158</u>

Reflash: Yes

•



851158

10.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
CECBC01	P825 PWR SUPPLY	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

N2-OP-71 -78 September 1991

I.

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10.0 <u>851158</u> Relay Room Instrument Panels Power Failure (Cont'd)

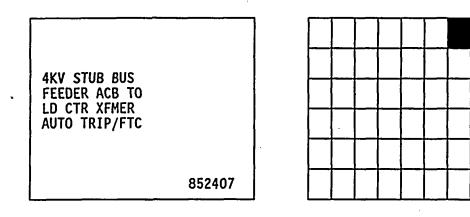
10.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	CECBC16	P886 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
	CECBC17	P887 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
	CECBC19	P888 PWR SUPPLY FAIL	Panel power supply relays K2 & K3
	CECBC21	P890 PWR SUPPLY FAIL DIV I	Panel power supply 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

- 10.2 <u>Automatic Response</u> None
- 10.3 <u>Corrective Action</u>

a. Notify I&C of the alarm.

N2-OP-71 -79 September 1991

- 11.0 <u>852407</u> ¹KV Stub Bus Feeder Air Circuit Breaker to Load Center Transformer Auto Trip Failure to Close
 - <u>Reflash: Yes</u>



852407

11.1	Comp	<u>uter Point</u> .	<u>Computer Printout</u>	Source ·
	a.	NJSUC13	X1E ACB 14-4 AT/FTC	2NJS-X1E ACB 14-4 Auto Trip/Failure to Close as sensed by 1 & 52 2NJ\$X21
3	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 Tŕip/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

- 11.2 Automatic Response
 - a. Trip 4160 stub bus feeders to 600V load centers US5 or US6.
- 11.3 <u>Corrective Action</u>
 - a. Verify auto station response.
 - b. Investigate and determine reason for trip.
 - c. When the cause for the trip is corrected, re-energize the system per N2-OP-71 Section E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Section H.2.0 as appropriate.

N2-OP-71 -80 September 1991

- I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (cont.)
 - 12.0 <u>252408</u> 4KV Stub Bus Feeder to Load Center Transformer Electrical Fault
 - Reflash: Yes **4KV STUB BUS** FEEDER TO LD CTR XFMER ELEC FAULT 852408 852408 12.1 Computer Point Computer Printout Source a. NJSUC09 LOCK OUT RLY Lock Out Relay 86-2NJSX21 86-X21 TRIP On stub bus 2NNS-SWG014 feeder ACB 14-4 to US-5 trips and locks out 600V Breaker IS-5-8B on high: INST, Time or GND overcurrent b. NJSUC10 LOCK OUT RLY Lock Out Relay 86-2NJSX31 on stub bus 2NNS-SWG014 86-X31 TRIP feeder ACB 14-8 to US-5 trips and locks out 600V Breaker US-5-3B on high: INST, Time or GND overcurrent NJSUC11 LOCK OUT RLY c. Lock Out Relay 86-2NJSY21 86-Y21 TRIP 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 overcurrent d. NJSUC12 LOCK, OUT RLY Lock Out Relay 86-2NJSY31 86-Y31 TRIP 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 overcurrent

N2-OP-71 -81 September 1991

12.2 <u>Automatic Response</u>

- a. Trip stub bus feeder 5-8B '96-2NJS-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.

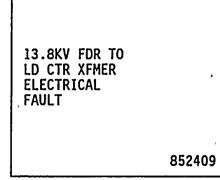
12.3 <u>Corrective Action</u>

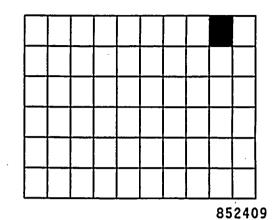
- a. Verify automatic response.
- b. Check computer and panel 852 to determine which breaker tripped.
- c. Investigate and determine reason for trip.
- d. When the cause for the trip is corrected, re-energize the system per N2-OP-71 Section E.7.0 (E.10.0), E.17.0 (E.18.0) or N2-OP-72 Section H.2.0 as appropriate.

N2-OP-71 -82 September 1991

[•]13.8KV Feede∽ to Load Center Transformer Electrical Fault 13.0 852409

Reflash: Yes





trips on transformer 2NJS-X3C, -X3D high: phase Inst. or Timer over

current; ground inst. or time OC.

13.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. NJSUCO1	LOCK OUT RLY 86-Y01 TRIP	Lock out relay 86-2NJSYO1 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. NJSUCO2	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. NJSUCO5	LOCK OUT RLY 86-X07 TRIP	Lock out Relay 86-2NJSX07 on 2NPS-SWG003 feeder ACB 3-3 to 2NJS-US1, -US2,

N2-OP-71 -83 September 1991

d. NJSUC06

LOCK OUT RLY 86-X10 TRIP Lock out Relay 86-2NJSX10 on 2NPS-SWG003 feeder ACB 3-13 to 2NJS-US3, -US4, US-7, trips on transformer 2NJS-X3A, -X3B or X3G high: phase Inst. or Time over current; ground inst. or time OC.

13.2 <u>Automatic Response</u>

- 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.

13.3 Corrective Action

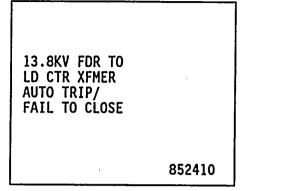
a. Verify automatic response.

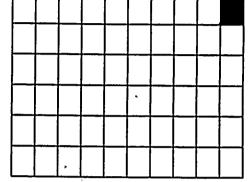
- b. Check computer and panel, 2CES-PNL852 to determine which breaker tripped.
- c. Investigate and determine reason for trip.
- d. Return system to normal.

N2-OP-71 -84 September 1991

14.0 <u>852410</u> 13.8KV Feeder to Load Center Transformer Auto Trip/Failure to Close

· <u>Reflash: Yes</u>





852410

14.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. NJSUCO3	NPSOO1 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. NJSUCO4	NPSOO1 ACB 1-14 AT/F-T-C	2SWG-NPSOO1 Air Circuit Breaker 1-14 Auto Trip/ Failure to Close as sensed by 1 & 52 2NJSYO4
c. NJSUCO7	NPSOO3 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. NJSUCO8	NPSOO1 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

14.2 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.

N2-OP-71 -85 September 1991

14.3 <u>Corrective Action</u>

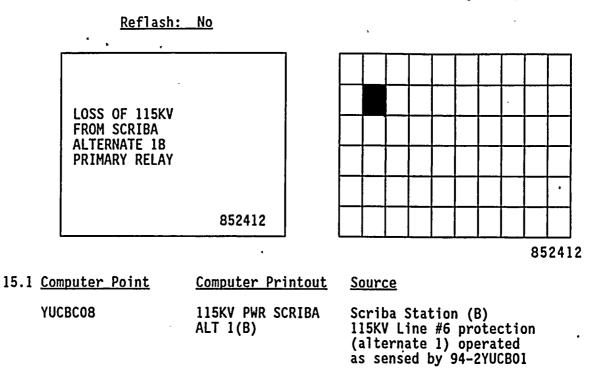
۰.

a. Investigate and determine reason for trip or failure to close.

b. Return system to normal.

N2-OP-71 -86 September 1991

15.0 <u>852412</u> Loss of 115KV From Scriba Alternate 1B Primary Relay



15.2 <u>Automatic Response</u>

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

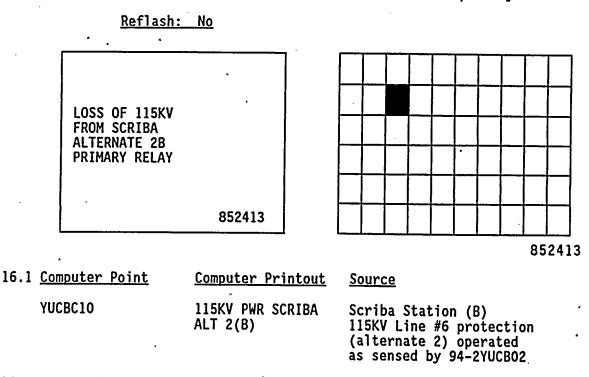
15.3 <u>Corrective Action</u>

a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

N2-OP-71 -87, September 1991

16.0 <u>852413</u> Loss of 115KV From Scriba Alternate 2B Backup Relay



16.2 Automatic Response

NONE (unless 2YUL-MDS2, MDS20, MDS10 are closed then alarm window 852441 would also be lit.

16.3 <u>Corrective Action</u>

a. Determine the cause of the protection circuit actuation.

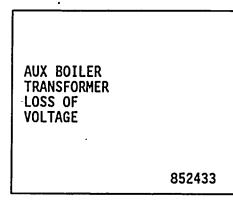
b. Restore to normal.

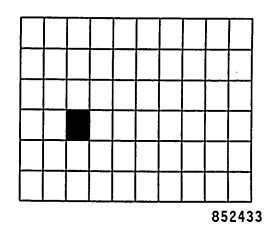
L P DAN

17.0 <u>852433</u> Auxiliary Boiler Transformer Loss of Voltage

07-749.9) Non David age Richard

<u>Reflash: No</u>





17.1 <u>Computer Point</u>

NPSEC12

Computer Printout

AUX BLR XFMR

LOSS OF VOLT

<u>Source</u>

(cont.)

Auxiliary Boiler Transformer 2ABS-X1 Loss of Voltage as sensed by 59-2NPSZ17 (between 2ABS-X1 and 13.8KV Bus 2NPS-SWG002)

17.2 Automatic Response

NONE (unless 13.8KV Bus 2NPS-SWG002 Supply ACB 2-5 is closed, then annunciator 852519 would also be lit.

17.3 <u>Corrective Action</u>

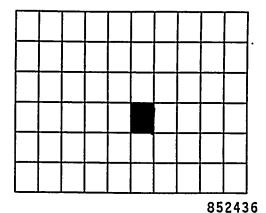
a. Determine the cause of the protection circuit actuation.

b. Restore to normal.

N2-OP-71 -89 September 1991

18.0 <u>852436</u> Neutral Switch 001 for Alternate Feed to BUS 2NPS-SWG002 close

<u>Reflash:</u>	<u>No</u>
· · ·	
NEUT SW 001 FOR ALTN FEED TO 13.8 KV BUS NPS 002 CLOSE	•
•	852436



18.1 <u>Computer Point</u>

Computer Printout Source

NPSZC01

Neut SWOO1 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

18.2 <u>Automatic Response</u>

NONE

18.3 Corrective Action

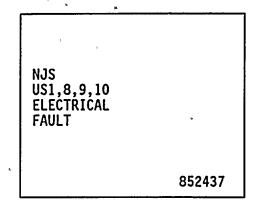
a. Verify that 2NPS-SWG002 is the only 13.8KV bus to be connected to 2RTX-XSRIA.

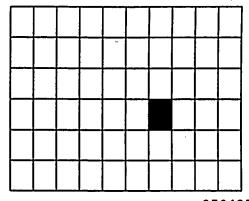
N2-OP-71 -90* September 1991 -

NJS US1, 8, 9, 10, Electrical Fault 19.0 <u>852437</u>

<u>Reflash: Yes</u>

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852437

19.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
a. NJSUC21	US1A ACB 1-3B Elec. Fault	2NJS-US1A Air Circuit Breaker 1-3B Electrical Fault as sensed by 520C-2NJSA01
b. NJSUC22	USIB 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
<i>.</i>	·	۰.

N2-OP-71 -91 September 1991.

19.1 <u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	Source (cont.)
f.	NJSUCK	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
` 1.	NJSUC51	US9B & US9C Sply Bkr ACB 9-9B	2NJS-US9A & US9C Air Circuit Breaker ACB 9-9B Electrical Fault as sensed by 520C-2NJSN44
m.	NJSUC52		2NJS-US10A & US10C Air Circuit Breaker ACB 10-6B Electrical Fault as sensed by 520C-2NJSN45
n.		US10A Sply Brkr .ACB 10-3B	2NJS-US10A Air Circuit Breaker ACB 10-3B Electrical Fault as sensed by 520C-2NJSA10
	*	NO 00 71 00 Comb	

N2-OP-71 -92 September 1991

19.1	19.1 <u>Computer Point</u>		<u>Computer Printout</u>	<u>Source</u> (cont.)	
	0	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	

19.2 Automatic Response

a. Trip 600V supply <u>or</u> tie breaker on 2NJSUS1, US8, US9, or US10 (whichever breaker fault occurred on).

19.3 Corrective Action

- a. Check computer to determine which breaker is in alarm.
- b. Dispatch operator to load center US1, US8, US9, US10.

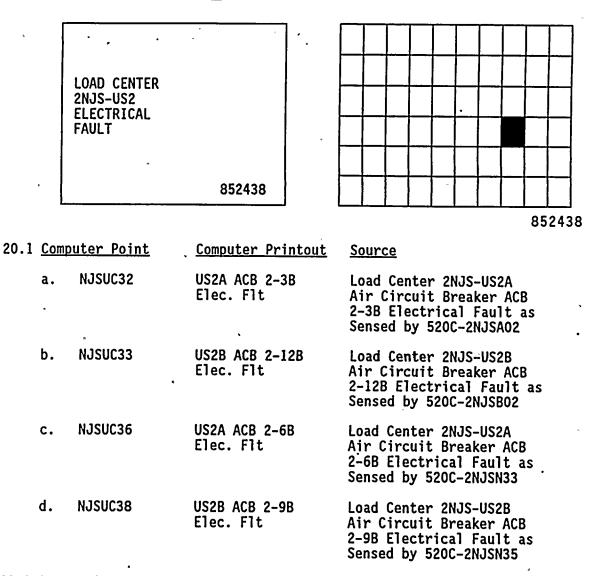
c. Investigate and determine reason for trip.

d. Return system to normal.

N2-OP-71 -93 September 1991

20.0 <u>852438</u> - Load Center 2NJS-US2 Electrical Fault

Reflash: Yes



20.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US2.

· 20.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

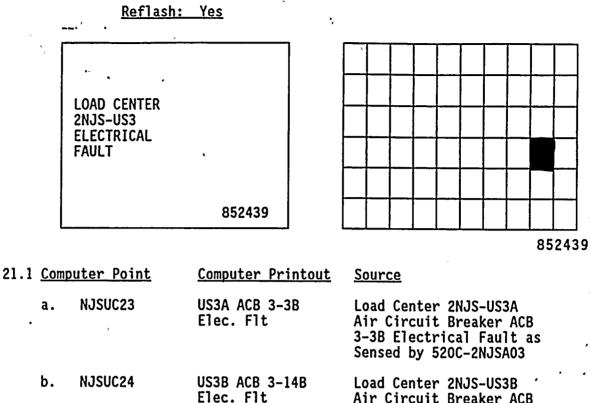
b. Dispatch operator to load center US2.

c. Investigate and determine reason for trip.

d. Return system to normal.

N2-OP-71 -94 September 1991

21.0 852439 Load Center 2NJS-US3 Electrical Fault



			2-14B Electrical Fault as Sensed by 520C-2NJSB03
c.	NJSUC28	US3A & C ACB 3-7B Elec. Flt	Load Center 2NJS-US3A & US3C Air Circuit Breaker ACB 3-7B Electrical Fault as Sensed by 520C-2NJSN29
d.	NJSUC30	US3B&C ACB 32-11B	load Center 2NJS-US3B &

ACB 3-11B Electrical Fault as Sensed by 520C-2NJSN31	d.	NJSUC30	US3B&C ACB 32-11B Elec. Flt	Fault as Sensed by
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21.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US3.

21.3 <u>Corrective Action</u>

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.

N2-OP-71 -95 September 1991

22.0 <u>852440</u> Load Center 2NJS-US4 Electrical Fault

. <u>Reflash: Yes</u>

LOAD CENTER 2NJS-US4	,		 	 			ł
ELECTRICAL FAULT							
	852440						ľ

852440

22.1 Computer Point Computer Printout Source Load Center 2NJS-US4A NJSUC34 US4A ACB 4-3B a. Elec. Flt Air Circuit Breaker ACB 4-3B Electrical Fault as Sensed by 520C-2NJSA04 NJSUC35 US4B ACB 4-15B Load Center 2NJS-US4B b. Air Circuit Breaker ACB Elec. Flt 2-15B Electrical Fault as Sensed by 520C-2NJSB04 US4A ACB 4-8B Load Center 2NJS-US4A NJSUC37 с. Air Circuit Breaker Elec. Flt ACB 4-8B Electrical Fault as Sensed by 520C-2NJSN34 d. NJSUC39 **US4B ACB 4-11B** Load Center 2NJS-US4B Air Circuit Breaker Elec. Flt ACB 4-11B Electrical Fault as Sensed by

520C-2NJSN36

22.2 Automatic Response

a. Trip 600V supply or tie breaker, load center 2NJS-US4.

22.3 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.

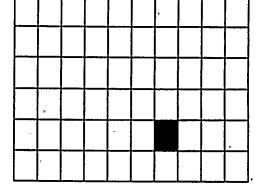
N2-OP-71 -96 September 1991

23.0 <u>852447</u> Load Center DC Control Power to Normal Load Center Close Permissive

LOSS OF DC CONT POWER TO NORMAL LD CTR CLOSE PERMISV 852447

Reflash: Yes

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852447

23.1 <u>Computer Point</u>	<u>Computer Printout</u>	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

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23.1 <u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u> (cont.)		
g. NJSBC20	LOSS of US? 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		

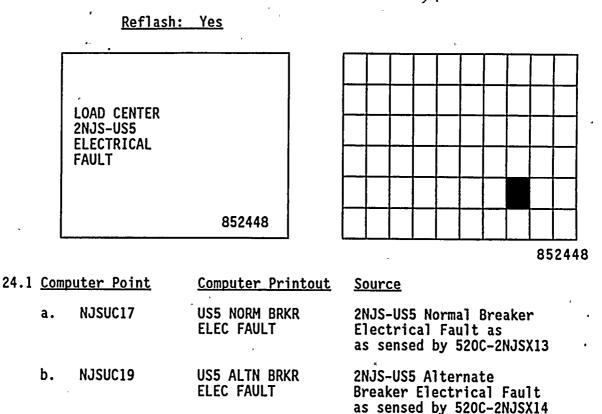
23.2 Automatic Response

NONE

23.3 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).

24.0 <u>852448</u> Load Center 2NJS-US5 Electrical Fault



24.2 <u>Automatic Response</u>

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US5.

24.3 Corrective Action

a. Check computer to determine which breaker is in alarm.

b. Dispatch operator to load center US5.

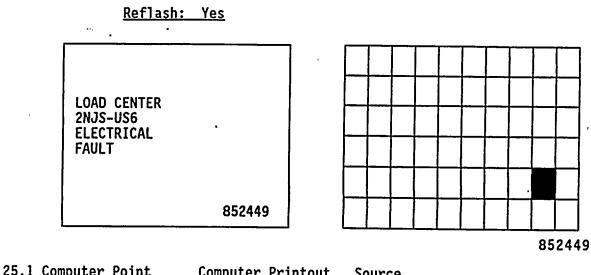
c. Investigate and determine reason for trip.

d. Return system to normal.

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25.0 <u>852449</u> Load Center 2NJS-US6 Electrical Fault



27

 Comp	<u>uter point</u>	computer Printout	Source		
a.	NJSUC18	US6 NORM BRKR ELEC FAULT	2NJS-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		

25.2 Automatic Response

a. Trip 600V normal or alternate supply breaker to load center 2NJS-US6.

25.3 Corrective Action

a. Check computer and panel 852 to determine which breaker tripped.

b. Dispatch operator to load center US65.

c. Investigate and determine reason for trip.

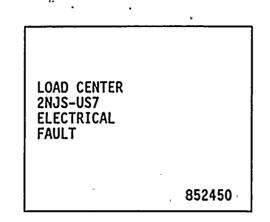
d. Return system to normal.

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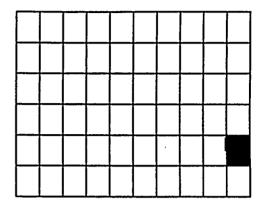
• 5

26.0 <u>852450</u> Load Center 2NJS-US7 Electrical Fault

<u>Reflash: Yes</u>



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852450

26.1	<u>Com</u> r	<u>outer Point</u>	<u>Computer Printout</u>	<u>Source</u>		
	a.	NJSUC25	US7A ACB7-3B Elec Fault	2NJS-US7A Brkr ACB7-3B · 17128 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		

26.2 <u>Automatic_Response</u>

a. Trip 600V normal or alternate supply breaker to load center-2NJS-US7.

26.3 <u>Corrective Action</u>

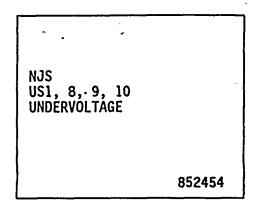
- a. Check computer to determine which breaker is in alarm.
- b. Dispatch operator to load center US7.
- c. Investigate and determine reason for trip.
- d. Return system to normal.

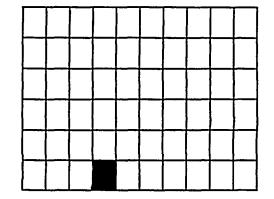
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27.0 <u>852454</u> Load Center 2NJS-US1, US8, US9, US10, Undervoltage

Reflash: Yes





852454 '

27.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	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
	с.	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
	е.	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

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27.1	<u>Com</u>	<u>outer Point</u>	<u>Computer Printout</u>	Source
	g.	NJSEC20	Bus 2NJS-US9A Undv Prot	2NJS-US9A, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSX38
ĸ	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
	1.	NJSEC25	Bus 2NJS-US10C Undv Prot	2NJS-US1OC, Normal Sply Brkr Phase Undervolt, as sensed by 27A & B 2NJSZ22

27.2 <u>Automatic Response</u>

4

a. The motor feeders on the respective sub bus are tripped after a .05 sec. time delay.

27.3 <u>Corrective Action</u>

a. Check computer to determine which section is de-energized.

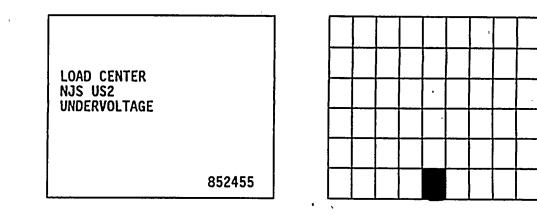
b. Investigate and determine reason for trip.

c. Return system to normal.

N2-OP-71 -103 September 1991

28.0 <u>852455</u> Load Center 2NJS-US2 Undervoltage

<u>Reflash: Yes</u>



852455

28.1	Com	<u>puter Point</u>	<u>Computer Printout</u>	<u>Source</u>
	а'.	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
	с.	NJSEC06	US2C NORM SPLY BRKR VOLT	2NJS-US2C Norm Sply Brkr phase under volt, as sensed by 27A & B 2NJSZ16

28.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 second time delay.

28.3 <u>Corrective Action</u>

- 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.

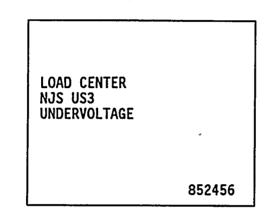
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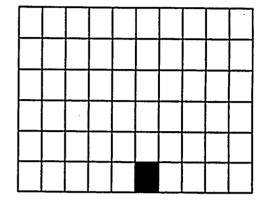
29.0

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<u>852456</u> Load Center 2NJS-US3 Undervoltage

<u>Reflash: Yes</u>





852456

29.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	a. NJSECO7	US3A NORM SPLY BRKR VOLT	2NJS-US3A Normal Sply Brkr Phase under volt as sensed by 27A&B 2NJSX17
2	b. NJSEC08	US3B NORM SPLY Brkr Volt	2NJS-US3B Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSY17
	c. NJSECO9	US3C NORM SPLY BRKR VOLT	2NJS-US3C Norm Sply Brkr Phase under volt as sensed by 27A&B 2NJSZ17

29.2 <u>Automatic Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

29.3 <u>Corrective Action</u>

a. Check computer to determine which section is de-energized.

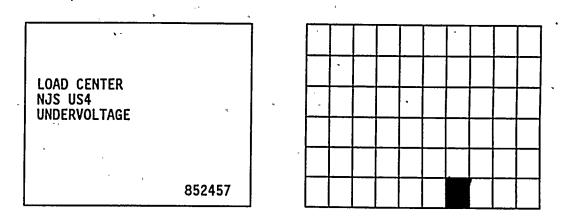
b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

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"0.0 <u>852457</u> Load Center 2NJS-US4 Undervoltage

<u>Reflash: Yes</u>



852457

30.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	<u>Source</u>	
	a.	NJSEC10	US4A NORM SPLY BRKR VOLT	2NJS-US4A Norm 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	

30.2 <u>Automatic_Response</u>

a. The motor feeders on the respective sub bus are tripped after a .05-3 sec time delay.

30.3 <u>Corrective Action</u>

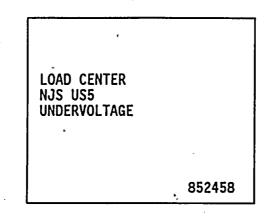
- a. Check computer to determine which section is de-energized.
- b. Investigate and determine reason for undervoltage.

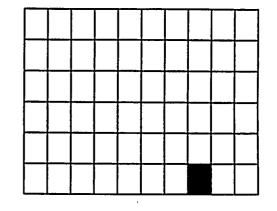
c. Identify the 86 device, reset and return system to normal.

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31.0 <u>85:358</u> Load Center 2NJS-US5 Undervoltage

<u>Reflash: No</u>





852458

31.1	<u>Computer Point</u>	<u>Computer_Printout</u>	Source
	NJSEC13	US5 NORM SPLY BRKR VOLT	2NJS-US5 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSX19

31.2 <u>Automatic Response</u>

a. the motor feeders on 2NJS-US5 are tripped after a .05-3 sec. time delay.

31.3 <u>Corrective Action</u>

a. Check normal or Alt. feed to bus at panel 852.

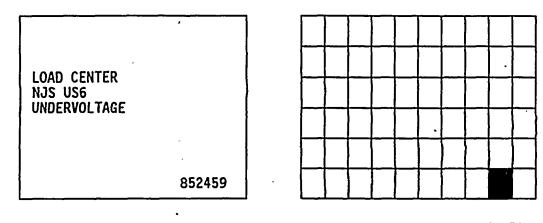
b. Investigate and determine reason for undervoltage.

c. Identify the 86 device, reset and return system to normal.

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32.0 <u>852459</u> . Oad Center 2NJS-US6 Undervoltage

<u>Reflash: No</u>



852459

32.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>	•
	NJSEC14	US6 NORM SPLY BRKR VOLT	2NJS-US6 Norm Sply Brkr Phase Undervolt as sensed by 27A&B 2NJSY19	•

32.2 <u>Automatic Response</u>

a. The motor feeders on 2NJS-US6 are tripped, after a .05-3 second time delay.

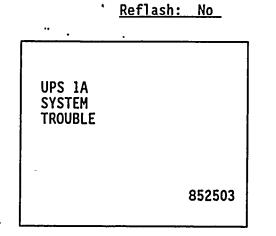
32.3 <u>Corrective Action</u>

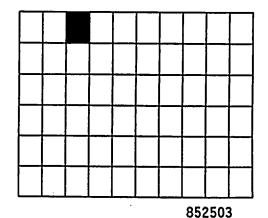
- a. Check normal or Alt. feed to bus at panel 852.
- b. Investigate and determine reason for undervoltage.
- c. Identify the 86 device, reset and return system to normal.

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PROCEDURES FOR CORRECTING ALARM CONDITIONS

33.0 <u>852503</u> Uninterruptable Power Supply 2VBB-UPS1A System Trouble





33.1 <u>Computer Point</u> VBBTC09

<u>Computer Printout</u> UPSIA SYSTEM TROUBLE Source UPSIA-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.

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33.2 Automatic Response

UPS1A will realign power supplies to provide power to vital bus.

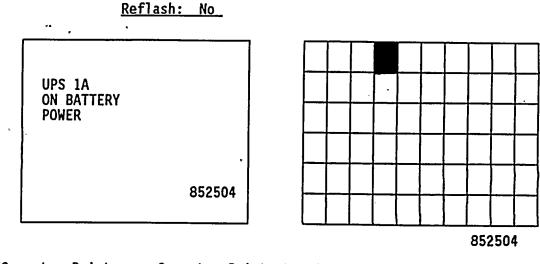
- 33.3 Corrective Action
 - a. Dispatch an operator to the local 2VBB-UPS1A panel to record indications on the UPS front panel.
 - b. Refer to Section H to align power supplies to the desired off normal configuration.
 - c. Initiate maint. activities if the unit needs repair.

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PROCEDURES FOR CORRECTING ALARM CONDITIONS

34.0 <u>852504</u> Uninterruptable Powe: Supply UPS1A on Battery Power



34.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> VBBTC10 UPS1A ON BATT PWR UPS1A-K2 (On Battery Power)

34.2 <u>Automatic Response</u>

2VBB-UPS1A Auto Transfer to DC battery power.

- 34.3 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.

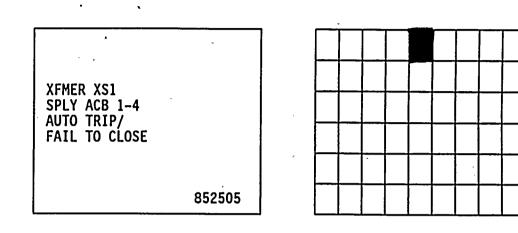
c. Initiate maint. activities if the unit needs repair.

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35.0 <u>852505</u> XFMR XS3 Sply ACB 1-4 Auto Trip/Foil to Close

<u>Reflash: No</u>



852505

35.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>	L
	NNSUCO1	XS1 SPLY ACB1-4 AUTO TRIP	XFMR 2ATX-XS1 SUPPLY ACB 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)	- 17: \$

35.2 <u>Automatic Response</u>

a. Trip or fail to close breaker ACB-1-4.

b. Loss of 4160V powerboards 2NNS-SWG011, 2NNS-SWG012, 2NNS-SWG014.

35.2 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Investigate and determine reason for alarm.
- c. Return system to normal.

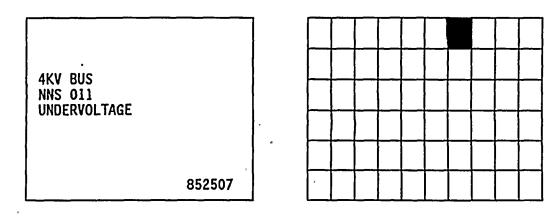
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36.0 <u>852507</u> 4KV Bus NNS011 Undervoltage

<u>Reflash: No</u>



852507

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36.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	NNSEC01	4KV BUS NNSO11 UNDERVOLTAGE	2NNS-SWG011 Undervoltage as sensed by 27A & B 2NNSX09

36.2 <u>Automatic Response</u>

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.

36.3 <u>Corrective Action</u>

- a. Verify automatic response.
- b. Check auto start or standby pumps.
- c. Investigate and determine reason for undervoltage.
- d. Return system to normal.

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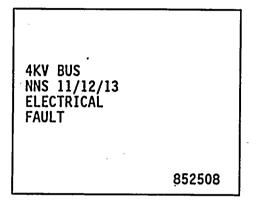
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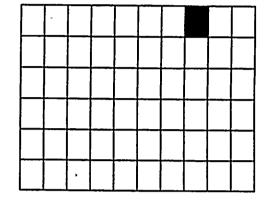
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37.0 <u>852508</u> 4KV Bus NNS 11/12/13 Electrical Fault

<u>Reflash: Yes</u>





852508

37.1	<u>Com</u> r	<u>outer Point</u>	<u>Computer Printout</u>	<u>Source</u>
,	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-SWGO11 Lock Out Relay Trip as sensed by 86-2NNSXO1 on bus 11 phase time OC or grnd OC.
	с.	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 86-2NNSYO1 (Backup protection when SWG012 is being fed from SWG011).

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37.2 <u>Automatic_Response</u>

- 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 NNS-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).

37.3 <u>Corrective Action</u>

- 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.

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38.1

13.8KV Bus NPS001 Undervoltage 38.0 852509

<u>Reflash: No</u> 13.8KV NPS 001 **Undervoltage** 852509 852509 Computer Point Computer Printout Source NPSEC01 13.8KV BUS NPS1 NPS-SWG001 Undervoltage UNDER VLT as sensed by 27A & B -2NPSX09 38.2 Automatic Response Trip the normal supply breaker ACB 1-3 (2STX-XNS1) to 2NPSa. SWG001. b. Trip condensate booster pump 'A', ACB 1-7, on 2NPS-SWG001. Trip condensate booster pump 'C', ACB 1-12 or prevent auto c. start. d. Trip reactor feed pump 'A', ACB 1-8, on 2NPS-SWG001. Trip reactor feed pump 'C', ACB 1-13, or prevent auto start. e. f. Trip reactor recirc pump 'A', ACB 1-6 on 2NPS-SWG001. Trip Circulating Water Pumps 'A', 'C', E, (ACB 1-9, 1-10, g. 1-11) on 2NPS-SWG001. h. Trip the Supply breaker to 4160V bus 2NNS-SWG011, ACB 1-3 on 2NPS-SWG001. Permits residual transfer to reserve ۰i. breaker ACB 1-1 (2RTX-XSR1A) or ACB 1-16 (2RTX-XSR1B).

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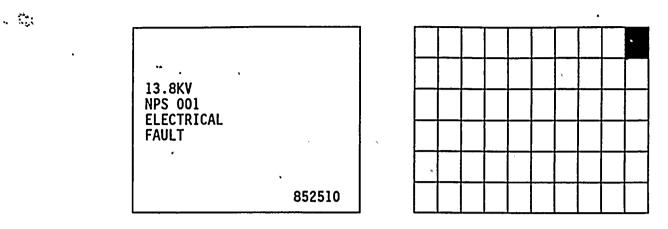
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38.2 <u>Automatic Response</u>

- 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.
- 38.3 <u>Corrective Action</u>
 - 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.
 - f. Investigate and determine the reason for the undervoltage.
 - g. Return the plant to normal operation.

39.0 <u>852510</u> 13.8KV Bus NPS001 Electrical Fault

<u>Reflash: No</u>



852510

39.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	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

39.2 <u>Automatic Response</u>

- 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 and -US7A & -US8A,C & US9A,C & US10A,C; Alt. Access Substation.

39.3 <u>Corrective Action</u>

- 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.
- d. Investigate and determine reason for trip.
- e. Return plant to normal operation.

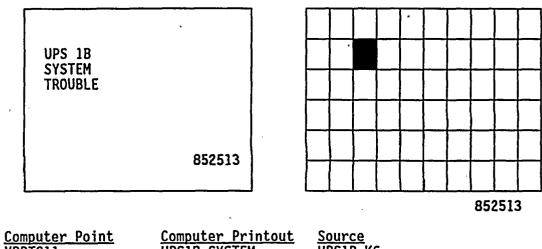
N2-OP-71 -117 September 1991

Ι.

PROCEDURES FOR CORRECTING ALARM CONDITIONS

.0.0 Uninterruptable Power Supply 2VBB-UPS1B System Trouble 852513

Reflash: No_



40.1 Computer Point 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.

40.2 <u>Automatic_Response</u>

UPS1B will realign power supplies to provide power to vital bus.

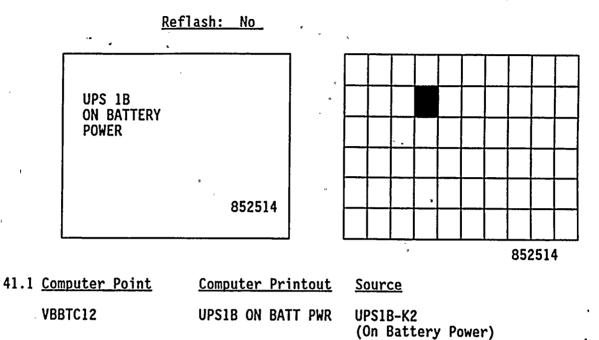
40.3 Corrective Action

- Dispatch an operator to the local 2VBB-UPS1B panel to record a. indications on the UPS front panel.
- Refer to Section H to align power supplies to the desired off normal b. configuration.
- Initiate maint. activities if the unit needs repair. c.

N2-OP-71 -118 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

41.0 <u>252.14</u> Uninterruptable Power Supply UPS1B. on Battery Power



41.2 <u>Automatic Response</u>

2VBB-UPS1B Auto Transfer to DC battery power.

• .

41.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -119 September 1991

I.

42.0 <u>852515</u> λ ^{-MR} XS3 SPLY ACB3-6 Auto Trip/Fail to Close

<u>Reflash: No</u> XFMER XS3 SPLY ACB 3-6 AUTO TRIP/ FAIL TO CLOSE 852515

			·	

852515

42.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>	,
	NNSUCO2	XS3 Supply ACB 3-6 AUTO TRIP	XFMR 2ATX-XS3 Supply ACB 3-6 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX06 (ACB 3-6 open & SW ACB 3-6 Normal After Close)	•

42.2 <u>Automatic Response</u>

a. Trip or fail to close of ACB 3-6.

b. Loss of power to busses NNS-SWG013 & 015.

42.3 <u>Corrective Action</u>

a. Verify automatic response.

b. Investigate and determine reason for alarm.

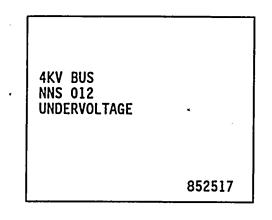
c. Return system to normal.

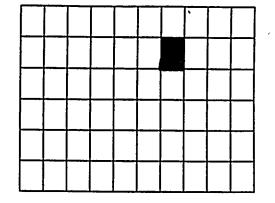
N2-OP-71 -120 September 1991

43.0

852517 4KV Bus NNS01° Undervoltage

Reflash: No





852517

43.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
, x	· NNSEC03	4KV bus NNSO12 Undervolt	2NNS-SWG012 undervoltage [*] as sensed by 27A&B 2NNSX18

43.2 <u>Automatic_Response</u>

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.

- 43.3 <u>Corrective Action</u>
 - a. Verify automatic response.
 - b. Check auto start of standby pumps.
 - c. Investigate and determine reason for undervoltage.

d. Return system to normal.

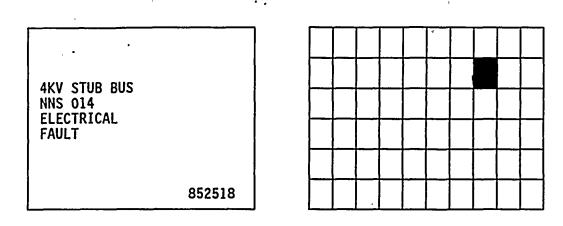
N2-OP-71 -121 September 1991

44.0

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<u>852518</u> 4KV Stub Bus NNS 014 Electrical Fault

<u>Reflash: No</u>



852518

44.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NNSUC19	4KV BUS E14 LO RLY TRIP	NNS-SWG014 Lockout Relay Tripped on High time or Ground Overcurrent as sensed by 86-2NNSX15

44.2 <u>Automatic Response</u>

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).

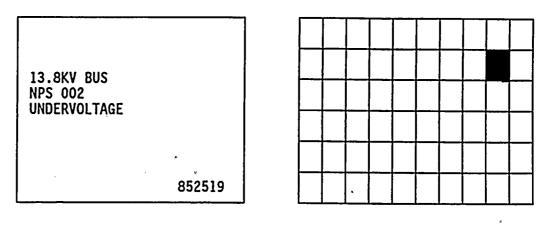
44.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -122 September 1991

45.0 <u>852519</u> 13.8KV Bus NPS002 Undervoltage

<u>Reflash: No</u>



852519

45.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source
	NPSEC13	13.8KV BUS NPS 2 UNDR VLT	2NPS-SWG002 sustained bus undervoltage as sensed by 27A&B-2NPSZ18

45.2 <u>Automatic Response</u>

- 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).

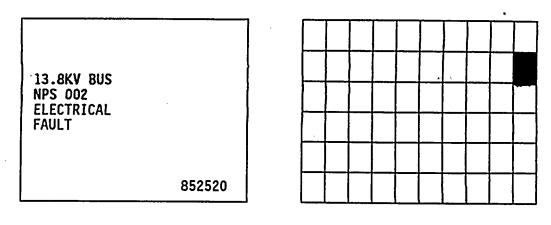
45.3 <u>Corrective Actions</u>

- 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).

N2-OP-71 -123 September 1991

46.0 <u>852520</u> 13.8KV Bus NPS002 Electrical Fault

<u>Reflash: No</u>



852520

46.1	<u>Computer Point</u>	<u>Computer Printout</u>	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.

46.2 <u>Automatic Response</u>

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.

46.3 <u>Corrective Action</u>

a. Verify automatic resonse.

b. Dispatch operator to aux. boilers (if operating)

c. Investigate and determine reason for trip.

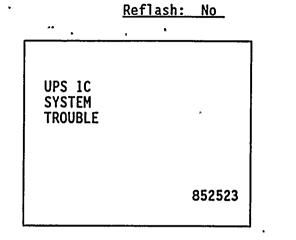
d. Return system to normal.

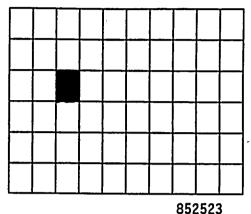
N2-OP-71 -124 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

47.0

<u>852523</u> Uninterruptable Power Supply 2VBB-UPS1C System Trouble





171

47.1 Computer Point

Computer Printout Source

VBBTC05

UPS1C SYSTEM TROUBLE

2VBB-UPSIC 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.

47.2 Automatic Response

UPSIC will realign power supplies to provide power to vital bus.

47.3 <u>Corrective Action</u>

- a. Dispatch an operator to the local 2VBB-UPSIC 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.

N2-OP-71 -125 September 1991

Ι.

PROCEDURES FOR CORRECTING_ALARM_CONDITIONS

48.0 <u>852524</u> Uninterruptable Power Supply 2VBB-UPS1C on Battery Power

 Reflash:
 No

 UPS 1C
 IC

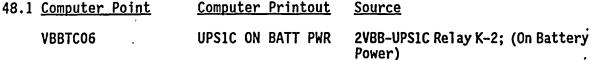
 ON BATTERY
 IC

 POWER
 IC

 852524
 IC

 852524
 IC

 852524
 IC



48.2 <u>Automatic Response</u>

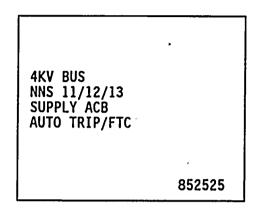
2VBBUPS1C Auto Transfer to DC battery power.

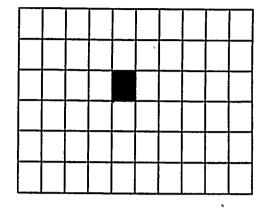
- 48.3 <u>Corrective Action</u>
 - a. Dispatch an operator to 2VBB-UPSIC to record indications on the UPS front panel.
 - b. Refer to Section H to align power supplies to the desired off normal configuration.
 - c. Initiate maint. activities if the unit needs repair.

I.

49.0 <u>852525</u> 4KV Bus NNS 11/12/13 Supply ACB Auto Trip/FTC

Reflash: Yes





852525

49.1	<u>Computer Point</u>		<u>Computer Printout</u>	Source
	a.	NNSUCO3	4KV BUS 011 ACB 11-3 AT	NNS-SWG011 ACB 11-3 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX20
	b.	NNSUCO4	4KV BUS 13 ACB 13-6 AT	NNS-SWG013 ACB 13-6 Auto Trip or Fail to Close as sensed by 1 & 52 · 2NNSY20
	c.	NNSUCO5	4KV BUS 12 ACB 13-10 AT	NNS-SWG012 ACB 13-10 Auto Trip or Fail to Close as sensed by 1 & 52 2 NNSY08
	d.	NNSUCO6	SWG012 ACB 11-1 At	NNS-SWG012 ACB 11-1 Auto Trip or Fail to Close as sensed by 1 & 52 2NNSX07.

49.2 <u>Automatic Response</u>

a. Auto trip of supply breakers to 4160V powerboards 011, 012, 013.

b. Auto trip of the motor feeders on the respective bus.

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49.3 <u>Corrective Action</u>

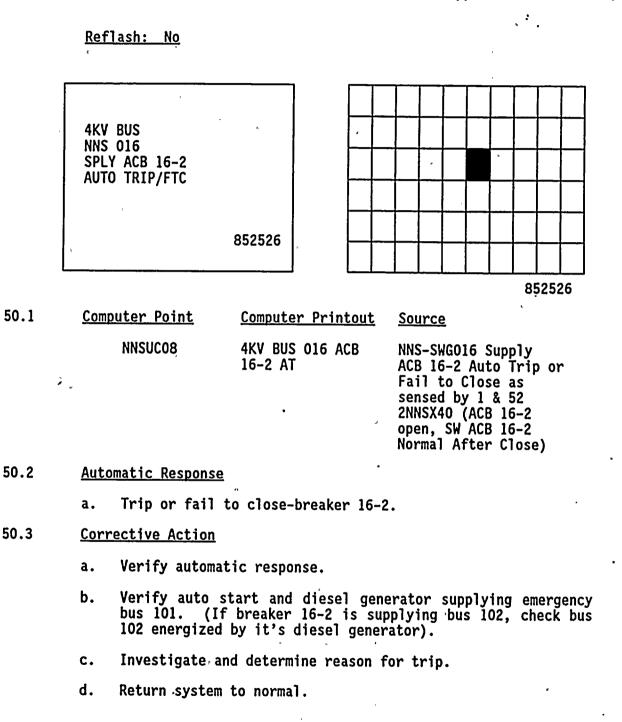
a. Verify automatic response.

b. Check computer point to determine which breaker tripped.

c. Investigate and determine reason for trip.

d. Return system to normal.

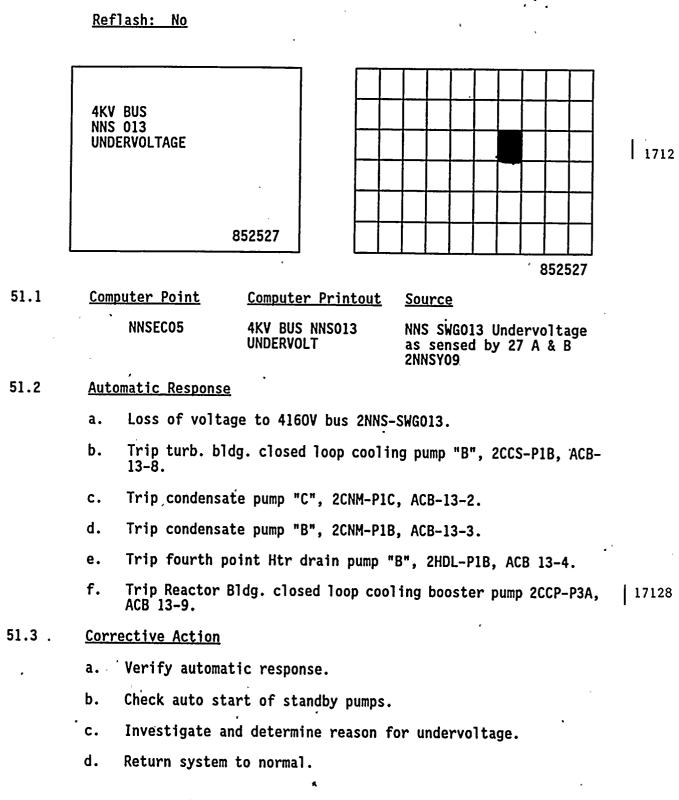
50.0 852526 4KV Bus NNS016 SPLY ACB 16-2 Auto Trip/FTC



N2-OP-71 -129 September 1991

1712

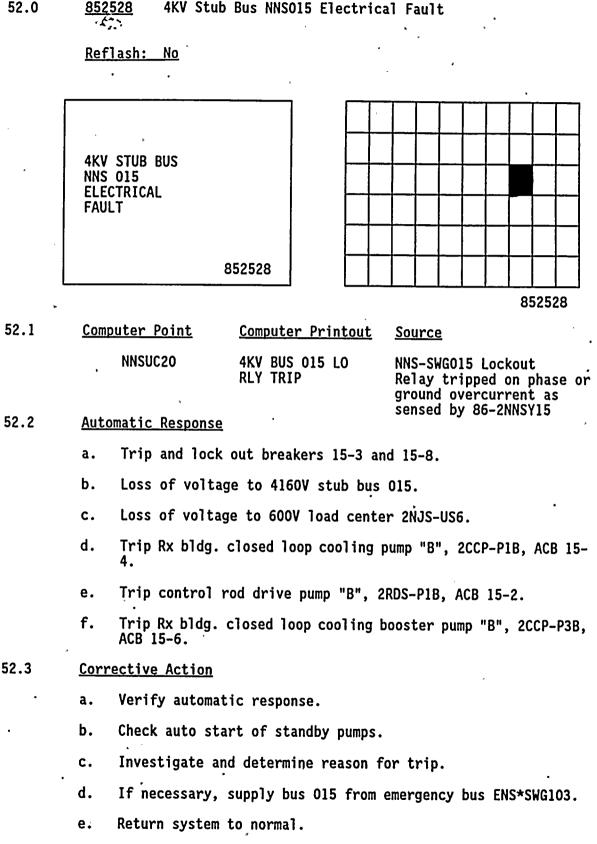
51.0 <u>852527</u> 4KV Bus NNS013 Undervoltage



N2-0P-71 -130 September 1991

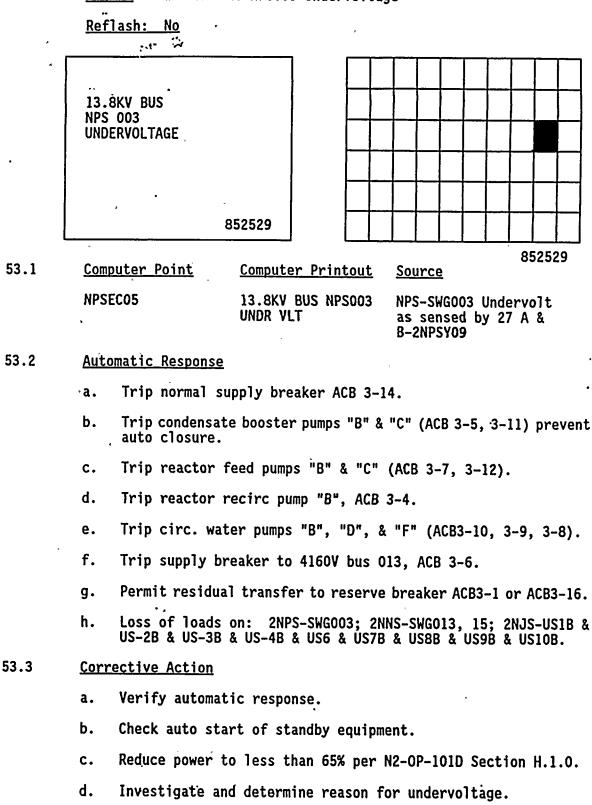
52.0

4KV Stub Bus NNS015 Electrical Fault



N2-0P-71 -131 September 1991

53.0 <u>852529</u> 13.8KV Bus NPS003 Undervoltage

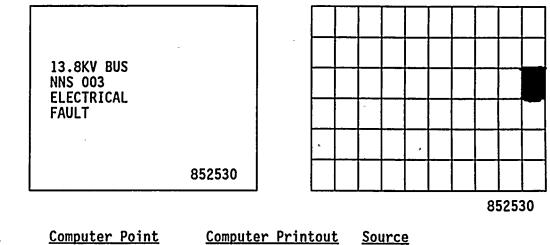


e. Return plant to normal operation.

N2-OP-71 -132 September 1991

54.0 <u>852530</u> 13.8KV Br MPS.03 Electrical Fault

<u>Reflash: No</u>



54.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source	
	NNSUC10	13.8KV BUS 03 LO RLY TRP	NPS-SWG003 Lockout Relay Trip as sensed by 86- 2NPSY01.	

54.2 <u>Automatic Response</u>

- 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.

54.3 <u>Corrective Action</u>

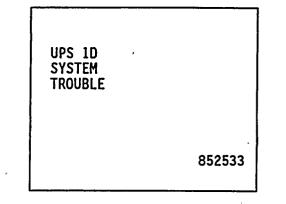
- a. Verify automatic response.
- b. Check auto start of standby equipment.
- c. Reduce power to less 65% per N2-OP-101D Section H.1.0.
- d. Investigate and determine reason for trip.
- e. Return system to normal operation.

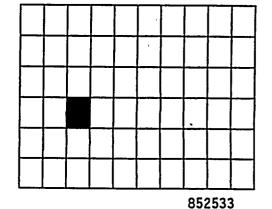
N2-OP-71 -133 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

55.0 <u>852533</u> Uninterruptable Power Supply 2VBB-UPS1D System Trouble

<u>Reflash: No</u>





55.1 <u>Computer Point</u> VBBTC07 <u>Computer Printout</u> UPS1D SYSTEM TROUBLE Source

2VBB-UPSID 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.

55.2 <u>Automatic Response</u>

UPS1D will realign power supplies to provide power to vital bus. .

55.3 <u>Corrective Action</u>

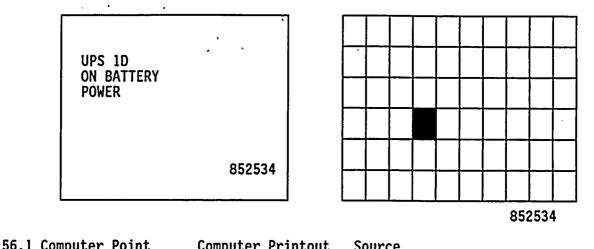
- a. Dispatch an operator to the local 2VBB-UPS1D panel to record indications on the UPS front panel.
- b. Refer to Section H to align power supplies to the desired off normal configuration.
- c. Initiate maint. activities if the unit needs repair.

Ι.

N2-OP-71 -134 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

56.0 <u>852534</u> Uninterruptable Power Supply 2VBB-"PS1D on Battery Power Reflash: No



0.1	computer Fornt	computer printout	Source
	VBBTC08		2VBB-UPS1D Relay K-2; (On Battery Power)

56.2 <u>Automatic Response</u>

2VBBUPS1C Auto Transfer to DC battery power.

56.3 <u>Corrective_Action</u>

- a. Dispatch an operator to 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.

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17128

57.0 <u>852535</u> 4KV Bus NNS014 Supply ACB Auto Trip/FTC

Reflash: Yes 4KV BUS NNS 014 SUPPLY ACB AUTO TRIP/FTC 852535 852535 Computer Point Computer Printout Source NNSUC10 SWG014 ACB 14-2 a. 2NNS-SWG014 Supply Auto Trip ACB 14-2, Auto Trip or Failure to Close as sensed by 1 & 52 2NNSX11 (ACB 14-2 open & SW for ACB 14-2 normal after close). b. NNSUC11 SWG014 ACB 14-1 2NNS-SWG014 Supply ACB Auto Trip 14-1, Auto Trip or Fail to Close, as sensed by 1 & 52 2NNSX10 (ACB 14-1 open & SW for ACB 14-1 normal after close).

57.2 <u>Automatic Response</u>

57.1

- 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-PlC (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).

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1712.

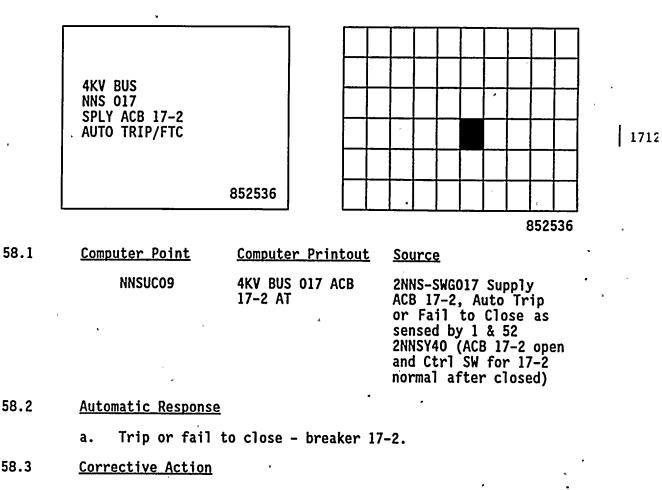
57.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -137 September 1991

58.0 <u>852536</u> 4KV Bus NNS017 SPLY ACB 17-2 Auto Trip/FTC

<u>Reflash: No</u>



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.

N2-OP-71 -138 September 1991

59.0 <u>852537</u> 4KV Bus NNS014 Undervoltage

Reflash: No

4KV BUS NNS 014 UNDERVOLTAGE 852537 852537 59.1 Computer Point Computer Printout Source NNSEC07 4KV BUS NNS014 NNS-SWG014 Norm Sply UNDERVOLT Brkr Undervolt, as sensed by 27 A & B 2NNSX29

59.2 Automatic_Response

Loss of voltage to 4160V stub bus NNS014. a.

b. Loss of voltage to 600V load center 2NJS-US5.

- Trip or block auto start of Rx bldg. closed loop cooling pump с. "C:, 2CCP-P1C (ACB 14-9).
- Trip control rod drive pump "A", 2RDS-P1A (ACB 14-7). d.
- Trip or block auto start of Rx bldg. closed loop cooling e. booster pump "C", 2CCP-P3C (ACB 14-6).

59.3 Corrective Action

- Verify automatic response. a.
- b. Check auto start of standby pumps.
- Investigate and determine reason for trip. c.
- d. Return system to normal.

N2-OP-71 -139 September 1991

60.0 <u>852538</u> 4KV Bus NNS016 Electrical Fault

Reflash: Yes

4KV BUS NNS 016 ELECTRICAL FAULT 852538 852538 Computer Printout 60.1 Computer Point Source NNSUC21 4KV BUS 016 LO 2NNS-SWG016 Lockout a. Relay Tripped as sensed by 86-1-2NNSX28 **RLY 1 TRIP** 4KV BUS 016 LO 2NNS-SWG016 Lockout b. NNSUC22 **RLY 2 TRIP** Relay Tripped as sensed by 86-2-2NNSX28 NNSUC23 4KV BUS 016 LO 2NNS-SWG016, Lockout с. Relay Tripped as sensed **RLY 3 TRIP** by 86-3-2NNSX28 60.2 Automatic Response Trip and lockout breaker 16-2. a.

b. Trip and lockout breaker 101-13 and 102-4.

60.3 <u>Corrective Action</u>

- 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.

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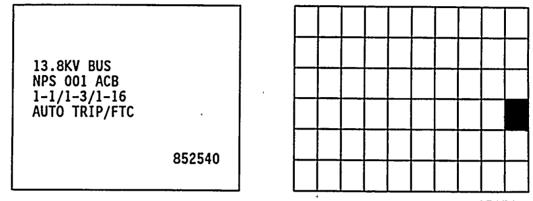
5

61.0

<u>م`</u> -

852540 13.8KV Bus NPS001 Air Circuit Breaker 1-1/1-3/1-16/Auto Trip/Failure to Close

Reflash: Yes



852540

61.1	<u>Com</u>	<u>puter Point</u>	<u>Computer Printout</u>	<u>Source</u> .	
,	a.	NPSUC01	SWGOO1 ACB 1-3 AUTO TRIP	NPS-SWGOO1 Air Circuit Breaker, 1-3 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSXO4	
	b.	NPSUC02	SWGOO1 ACB 1-16 AUTO TRIP	NPS-SWGOO1 Air Circuit Breaker, 1–16 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX06	
	c.	NPSUC07	SWGOO1 ACB 1-1 AUTO TRIP	NPS-SWGOO1 Air Circuit Breaker, 1-1 Auto Trip or Failure to Close as sensed by 1 & 52 2NPSX05	

- 61.2 <u>Automatic Response</u>
 - 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.
- 61.3 <u>Corrective Action</u>

a. Verify automatic response.

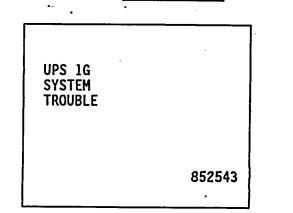
- b. Investigate and determine reason for trip.
- c. Return system to normal operation.

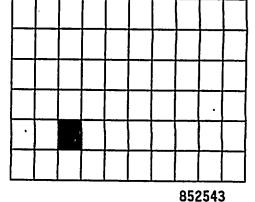
N2-OP-71 -141 September 1991

PROCEDURES FOR CORRECTING ALARM CONDITIONS

Reflash: No

6_.0 <u>852543</u> Uninterruptable Power Supply 2VBB-UPS1G System Trouble





62.1 <u>Computer Point</u> VBBTC01 <u>Computer Printout</u> UPSIG SYSTEM TROUBLE

Source UPSIG-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.

62.2 Automatic Response

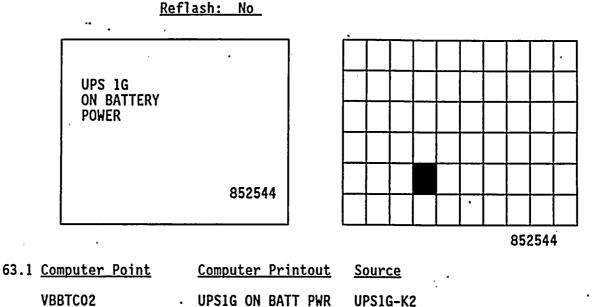
UPSIG will realign power supplies to provide power to vital bus.

- 62.3 Corrective Action
 - a. Dispatch an operator to the local 2VBB-UPSIG 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.

N2-OP-71 -142 September 1991

Ι.

63.0 <u>852544</u> Uninterruptable Power Supply UPS1G on Battery Power



63.2 Automatic Response

Ι.

2VBB-UPSIG Auto Transfer to DC battery power.

63.3 <u>Corrective Action</u>

a. Dispatch an operator to 2VBB-UPS1G to record indications on the UPS front panel.

(On Battery Power)

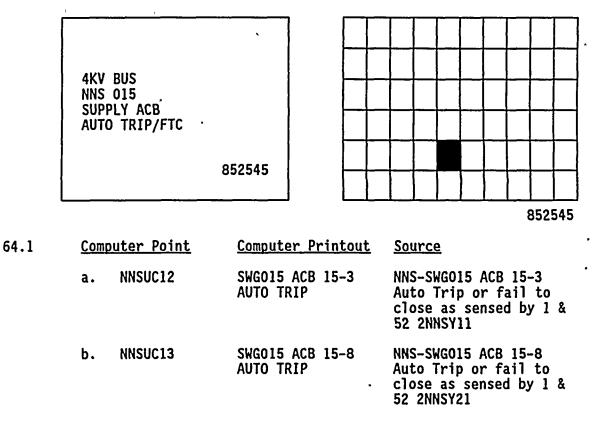
- b. Refer to Section H to align power supplies to the desired off normal configuration.
- c. Initiate maint. activities if the unit needs repair.

N2-OP-71 -143 September 1991

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (cont.)

64.0 <u>852545</u> 4KV Pris "ISO15 Supply ACB Auto Trip/FTC

<u>Reflash: Yes</u>



64.2 <u>Automatic Response</u>

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.

. N2-OP-71 -144 September 1991

64.3 <u>Corrective Action</u>

a. Verif 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.

N2-OP-71 -145 September 1991

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (cont.)

65.0 <u>852546</u> 4KV Bus NNS018 SPLY ACB 77.2^{*} auto Trip/FTC

	<u>Reflash: No</u>
	· · · · · · · · · · · · · · · · · · ·
	4KV BUS
٤	NNS 018 SPLY ACB 18-2 AUTO TRIP/FTC
	852546
, 1	852546
65.1	<u>Computer Point Computer Printout Source</u>
	NNSUCO7 4KV BUS 018 ACB 18-2 AT 52 2NNSZ40 (ACB 18-2 open and SW ACB 18-2 in normal after close)
65.2	<u>Automatic Response</u>
	a. Trip or fail to close - Breaker 18-2.
65.3	<u>Corrective Action</u>
	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.

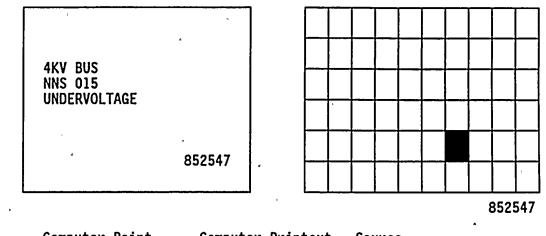
N2-OP-71 -146 September 1991

2

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (cont.)

66.0 <u>852547</u> 4KV Bus NNS015 Unde Woltage

<u>Reflash: No</u>



66.1	<u>Computer_Point</u>	<u>Computer Printout</u>	Source
	NNSEC09	4KV BUS NNSO15 Undervolt	2NNS-SWG015 undervoltage as sensed by 27A & B 2NNSY17

66.2 <u>Automatic Response</u>

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.

66.3 <u>Corrective Action</u>

- 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.

N2-OP-71 -147 September 1991

(cont.) I. PROCEDURE FOR CORRECTING ALARM CONDITIONS

4KV Bus NNS017 Electrical Fault · 👘 67.0 <u>852548</u>

	<u>Reflash</u>	n: Yes											r
1	<u> </u>]	[[-	-1			- <u>-</u>					
	4KV BUS NNS 017 ELECTRI FAULT	1											
		8	52548					-					
									8	3525	i48	*	
67.1	<u>Compute</u>	e <u>r Point</u>	<u>Computer</u>	<u>Printout</u>	<u>S</u> (ource	<u>9</u>						
	a: NN	ISUC24	4KV BUS E RLY 1 TRI		R	elay	Tri	7 Loc oped NNSY2	as :	-	ed	7	
	b. NN	ISUC25	4KV BUS E RLY 2 TRI		R	elay	Trip	7 Loc oped NNSY2	as s		ed		
	c. NN	ISUC26	4KV BUS E RLY 3 TRI		Re	elay	Trip	7 Loc oped NNSY2	as		ed		-
67.2	<u>Automat</u>	ic Response											
	a. Tr	ip and locko	ut breaker	17-2.									
	b. Tr	ip and locko	ut breaker	103-4 an	1. Id	02-5	•						
67.3 _.	<u>Correct</u>	ive_Action											
	a. Ve	rify automat	ic response	9.				1					
•	b. Ve bu 2E ge	rify auto st s 2ENS*SWG1 NS*SWG102, e nerator.	art and d 03. (If nsure that	iesel ger breaker bus 102	nera r 1 is e	tor 7-2 energ	supp is gized	lyin sup 1 by	g er plyi it':	nerg ing s di	jency bus esel	171	[28

Investigate and determine reason for trip. c.

d. Return system to normal.

N2-OP-71 -148 September 1991

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (cont.)

68.0

<u>852550</u> 13.8KV Bus NPSOO2 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 Computer Point Computer Printout Source 68.1 SWG002 ACB 2-1 NPS-SWG002 Air Circuit NPSUC06 a. - 1 AUTO TRIP Breaker 2-1 Auto Trip/ Failure to Close sensed by 1 & 52-2NPSZ13 b. NPSUC05 SWG002 ACB 2-5 NPS-SWG002 Air Circuit Breaker 2-5 Auto Trip/ Failure to Close AUTO TRIP sensed by 1 & 52-2NPSZ15

68.2 <u>Automatic Response</u>

a. Trip or fail to close normal or alternate supply breakers to 13.8KV bus 002. Check for the undervoltage annunciator 852519.

68.3 <u>Corrective Action</u>

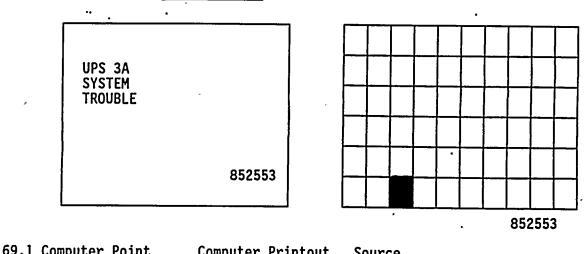
a. Verify automatic response.

b. Investigate and determine reason for trip.

c. Return system to normal.

N2-OP-71 -149 September 1991

69.0 <u>852553</u> Uninterruptable Power Supply 2VBB-UPS3A System Trouble <u>Reflash: No</u>



9.1	computer point	<u>computer Printout</u>	<u>Source</u>
	VBBEC13	UPS3A SYSTEM TROUBLE	UPS3A-K2

NOTE: UPS3A-K2 is energized by initiation of any local alarm (See Section 69.3).

69.2 <u>Automatic Response</u>

UPS3A wil realign power supplies to provide power to vital bus.

69.3 <u>Corrective Action</u>

•

- 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.
- c. Initiate maint. activities if the unit needs repair.

I.

17128

69.3 Corrective Action (Cont'd)

d. Evaluate local alarm indication per description below:

Local Alarm Description - Corrective Action

<u>Alarm</u>	Description	<u>Corrective Action</u>
Sync Loss	a) Maintenance AC is out of <u>frequency tolerance</u>	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 Volt	age 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
Ínverter 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 <u>Elec./I&C</u>
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/Cha	rge 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

N2-OP-71 -151 September 1991

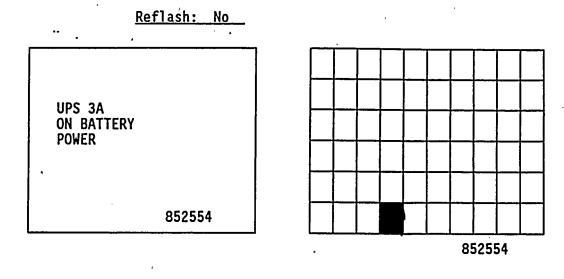
Loca	<u>1 A</u>	larm	<u>Descri</u>	ption	- (<u>Corrective</u>	Action	(Cont'd)

<u>Alarm</u>	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

. N2-OP-71 -152 September 1991

70.0

<u>852554</u> Uninterruptable Power Supply UPS3A on Battery Power



70.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u>

VBBBC11 UPS3A ON BATT PWR UPS3A-K3

<u>NOTE</u>: UPS3A-K3 initiated by local alarm "Battery drain/charge" (See Section 69.3)

17128

70.2 Automatic Response

2VBB-UPS3A will operate on DC battery power.

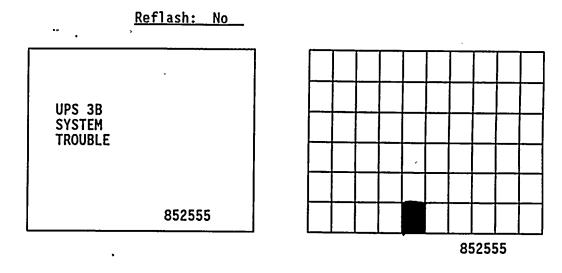
70.3 Corrective Action

- 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 [17128

N2-OP-71 -153 September 1991

Ι.

71.6여 호<u>352555</u> Uninterruptable Power Supply 2VBB-UPS3B System Trouble



71.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> VBBEC14 UPS3B SYSTEM UPS3B-K2 TROUBLE

<u>NOTE</u>: UPS3B-K2 initiated by any local alarm (See Section 69.3)

117 2

17128

71.2 Automatic_Response

UPS3B will realign power supplies to provide power to vital bus.

71.3 Corrective Action

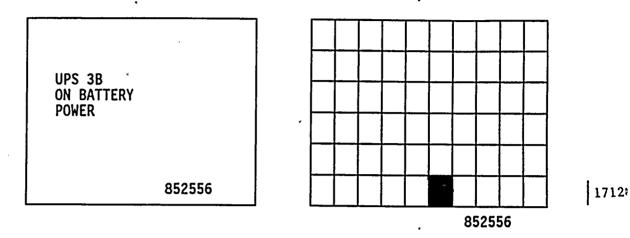
- a. Dispatch an operator to the local 2VBB-UPS3B panel to record indications on the UPS front panel.
- b. Refer to Section H to align power supplies to the desired off normal configuration, if required.
- c. Initiate maint. activities if the unit needs repair.
- d. Evaluate local alarm indication per Section 69.3.

N2-OP-71 -154 September 1991

I.

72.0 <u>852556</u> Uninterruptable Power Supply UPS3B on Battery Power

<u>Reflash: No</u>



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72.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u>

VBBBC12 UPS3B ON BATT PWR UPS3B-K3

NOTE: UPS3B-K3 is initiated by local alarm: "Battery drain/charge" (See Section 69.3).

72.2 Automatic Response

2VBB-UPS3B will operate on DC battery power.

72.3 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.
- c. Initiate maint. activities if the unit needs repair.
- d. Evaluate local alarm "Battery drain/charge" per Section 69.3.

17128

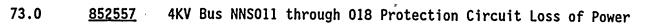
17128

N2-OP-71 -155 September 1991

Ι.

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (cont.)

73.1



<u>Reflash: Ye</u>	<u>.</u>	-					. * ,		
4KV BUS NNS 011-018 PROT CIRCUIT LOSS OF POWE									
	852557								
						8!	5255	 57	
<u>Computer Poi</u>	<u>nt Comput</u>	<u>er Printou</u>	<u>it So</u>	urce					
a. NNSBC14	125VDC PNL814	CONT PWR	2N fr ci OC	ss of NS-SW om SW rcuit: , Pha: nsed l	G012 G011 s_fo se_0	, Ir ; pi r: C, [rote GND OIR	ning ecti) DI 0C	on
b. NNSBC15	125VDC PNL814	CONT PWR	2N Ci	ss of NS-SW(rcuit: d OC,	G011 s foi	, Pr r:	ote	cti	on
c. NNSBC16	125VDC PNL813	CONT PWR	2N Ci	ss of NS-SW(rcuit: D OC,	G013 s foi	, Pr r:	ote	cti	on
d. NNSBC17	125VDC PNL815	CONT PWR	2N fr Ci	ss of NS-SW(om SW(rcuits r OC	6012 6013	, (i) Pr	nco	min cti	g on
e. NNSBC18	125VDC PNL815	CONT PWR	2N .Ci	ss of NS-SWG rcuits r OC	6012,	, pr	ote	cti	on ,

N2-OP-71 -156 September 1991

PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.) Ι.

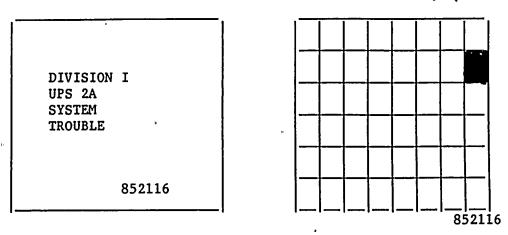
5.0

2

852116 Division I UPS 2A System Trouble

Reflash: No

01-749-9) Continued Daftz Related



5.1	<u>Computer Point</u>	Computer Printout	Source

UPS2A SYSTEM

TROUBLE

VBABC03

UPS2A/A9-K51

A9-K51 is initiated by any local alarm. This relay NOTE: will stay de-energized as long as any local alarm exists. This annunciator will not reflash if another local alarm comes in.

TCN-13

N2-OP-72 -35 May 1991

5.2 <u>Automatic Response</u>

a. UPS may realign to power the vital bus from either backup D.C., or maintenance supply dependent on the local alarm.

5.3 <u>Corrective Action</u>

- a. Check the UPS output voltage on Control Room panel 852 meter labelled "Vital bus 2VBS*UPS2A 125VAC Output," or computer point VBSVA100.
- b. Send an operator to record meter readings and status light indications at the UPS.
- NOTE: Consult Tech. Spec. 3.8.3.1 if the UPS is on maintenance power or if the local alarm response indicates that the UPS is inoperable and the plant is in Mode 1, 2 or 3.
- c. Notify electrical maintenance for repair or adjustments to the UPS.
- d. See Section H of this procedure for operation of the UPS with the loss of a source, or sources.

e. Take corrective action as required per following Table:

(NCTS) <u>Local Alarm Description - Corrective Action</u>

Alarm	۲ 	Description		Corrective Action
Synch Loss		ntenance AC frequency out of tolerance or	а.	Initiate a WR
-		ntenance AC is not sent	a.	Restore maint. AC (if fuse is blown in the maintenance AC supply regulator, initiate a WR)
-		or		
		inverter output quency is out of	a.	Verify on Frequency meter
۴		erance (60Hz±3Hz)	b.	If valid declare INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1
			c.	Initiate a WR

TCN-13

Alarm	Description		Corrective Action	1
Battery Drain/Charge	Current being drawn from batteries caused by:	x		
	1. Loss of normal AC to UPS or	a.	Restore normal AC	
	2. Voltage on DC switchgear higher than UPS internal DC voltage	a.	If the charger is on equalize, notify Electrical to check charger equalize voltage	
	, ,	Ъ.	If the charger is not on equalize, initiate a WR	
	NOTE: Refer to Tech	. Spęc	es. 3.8.2.1 or 3.8.2.2	
Rectifier AC Loss	Loss of normal AC to UPS	a.	If CB-51 has tripped, initiate a WR	
	r	b.	If CB-51 is closed, restore upstream normal AC supply	
Reverse Transfer	Static switch is in maintenance position	а.	Declare the UPS INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1	
N	, ,	b.	If other alarms are present, correct the other alarms prior to restoring the UPS to normal AC power	
	,	с.	If all other alarms clear, verify UPS AC output voltage present on AC voltmeter, then push "Forward" static switch pushbutton	
Fan Fail	One or more fans have stopped	a.	Visually check, if possible, to determine which fan is off	
		Ъ.	Initiate a WR	
	NOTE: This alarm may Fuse Alarm	be c	oncurrent with a Blown	

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N2-OP-72 -36a May 1991

CN-3

Low Inverter Voltage	UPS inverter out is 15% low (a.	Verif	y on AC voltmeter
VOILage			b.	if th	lid declare INOP and e plant is in Mode 1, 3 refer to Tech Spec. .1
Inverter Over Temp	Unit overheating	3	а.	Initia	ate a WR
Fuse Blown	Fuse within UPS	blown	a.	Initia	ate a WR to replace
	NOTE:	operability d	etermi 1 alar	nation ms (eg	INOP the UPS. The must be made based . "Low Battery",
Rectifier DC Grounded	UPS internal DC	Bus grounded	a.	Initia	ate a WR
Low DC Bus	UPS internal DC is low (DC Bus I		a.		ate a WR for r/adjustment
Overload	UPS inverter sup 100% rating of u (~165 Amps)		8.	Check i) ii)	output ammeter If unit loaded, clear non- essential loads If alarm false, initiate a WR
Low Battery	UPS-internal DC voltage is below volts (DC Bus Lc	/ 110	a. ⁻	voltm	<pre>S-51, the DC eter selector h in "Battery" If battery voltage indicates</pre>

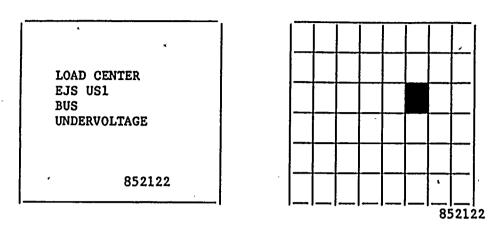
N2-OP-72 36b May 1991'

6.0

852122 Load Center EJS*US1 Bus Undervoltage

<u>Reflash:__No</u>

| TCN-12



6.1	Computer Point	Computer Printout	Source
	a. EJSECO1	LCUSI NORM SPLY BRKR UV	Undervoltage Relays 27A-2EJSA11 AND 27B-2EJSA11 Setpoint: 400V for 3 sec.

6.2 <u>Automatic Response</u>

- a. Trip Reactor Bldg Recirc. Fan A, 2HVR*VC413A. Breaker 1-4C.
- b. Trip Control Bldg Chiller Compressor, 2HVK*CHL1A. Breaker 1-4D.

6.3 <u>Corrective Action</u>

- a. Verify auto-start of redundant units per N2-OP-52 for HVR*UC413A/B, and N2-OP-53A for HVK*CHL1A/B.
- b. Check the voltage on the Div I 4160V bus, 2ENS*SWG101.
- c. Check the voltage on the Div I Load center, 2EJS*US1.
- NOTE: Loss of offsite power for 3 sec. will also bring in this annunciator.
- d. If the 4160 Div I bus is nominally 4160V, trip the load center incoming line breaker in service (bkr 1-3B, or 1-9B), and close the other feeder breaker (bkr 1-9B, or 1-3B).
- e. Notify elect. maint. of the event, and any tripped breakers.

N2-OP-72 -37 January 1991

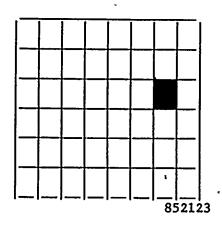
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

7.0

852123 4KV BUS101 DC Control Power Failure

<u>Reflash: Yes</u>

4KV BUS 101 DC CONT POWER FAILURE 852123



7.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> . ENSBC11 125VDC CONT PWR DI BUS A Loss of protective relaying power to trip 101-10,101-13, & 101-1 (offsite feeders, and Dies, Gen bkr) due to:

ENSBC12

125VDC CONT PWR DI BUS B 101-10,101-13, & 101-1 (offsite feeders, and Dies. Gen bkr) due to: phase overcurrent; Dies. Gen. gnd. overcurrent; bus gnd. overcurrent; incoming line XFMR neutral gnd. overcurrent. Emerg. SWGR DC bus A 74-2ENSX01 Loss of protective

relaying power to trip 101-10, 101-13, & 101-1 (offsite feeders, and. Dies. Gen. bkr) due to: phase overcurrent; Dies. Gen. gnd overcurrent; bus gnd overcurrent; incoming line XFMR neutral gnd overovercurrent. Emer. SWGR DC bus B 74-2ENSX02.

N2-OP-72 -38 January 1991

TCN-12

7.1 (Cont'd)

Computer Point	Computer Printout	Source
ENSBC15	125VDC CONT PWR DI BUS B	Loss of protective relaying power to trip 101-10, 101-13, & 101-N1 (offsite feeders, and Dies. Gen neut. bkr) due to: Stub bus (SWG0014) gnd overcurrent; load center XFMR EJS*X1A phase overcurrent; load center XFMR EJS*X1B phase overcurrent. emer. SWGR DC bus B 74-2ENSX03.
Automatic Posponso		,

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7.2 <u>Automatic Response</u>

NONE

7.3 <u>Corrective Action</u>

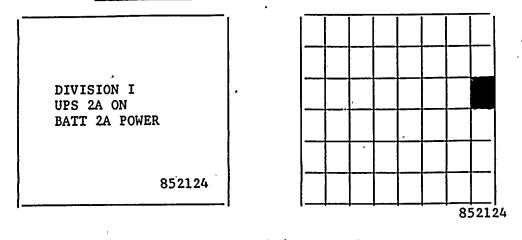
- a. Send an operator to the Div I swgr to check the D.C. bus fuses in cubicle 101-2.
- b. If both D.C. buses are alarming, check the D.C. switchgear 2BYS*SWG002A cubicle 2D.
- c. Notify elect. maint. of the event, the relay number, and any tripped breakers.

N2-OP-72 - 39 - May 1987

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

8.0 852124 Division I UPS 2A On Battery 2A Power

Reflash: No



8.1 <u>Computer Point</u> <u>Computer Printout</u> <u>Source</u> a. VBABCO3 DIV I UPS2A ON UPS2A/A9-K52 BATT PWR

> NOTE: UPS2A/A9-K52 is initiated by local alarm "Battery Drain/ Charge".

8.2 <u>Automatic Response</u>

NONE

8.3 <u>Corrective Action</u>

a. Notify the SSS.

b. IF required by Tech Specs 3.8.2.1 or 3.8.2.2, place the IC second battery charger in service per OP-74 Sect H.4.

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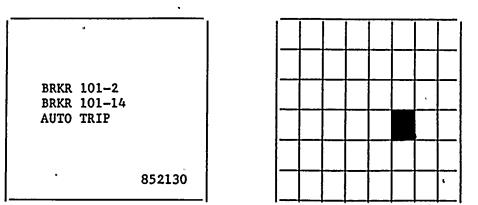
- c. Check the UPS output voltage on cont. rm. panel 852 "Vital Bus 2VBS*UPS2A 125VAC Output," or computer point VBSVA100.
- d. Dispatch operator to UPS2A (in the Div I swgr room) to record parameters on front panel of UPS.
- e. Check corrective action for annunciator 852116, local alarm "Battery Drain/Charge".
- f. Check for tripped feeder, panel 2EJS*PNL100A bkr #7.
- g. Check UPS front panel breaker #CB-51 is closed.
- h. Check the 125VDC switchgear for proper voltage and current. There should be no battery current if the charger is operating within its load range.
- i. Refer to Section H of this procedure to align the UPS for Off Normal operation.
- j. If necessary contact Electrical Maintenance to align, or repair UPS.

N2-0P-72 -40 May 1991

I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (Cont.)

Reflash: Yes

TCN-12



852130

9.1	<u>Computer Point</u>	Computer Printout	Source ·
•	a. EJSUCO5	XFMR1A BRKR 101-14 AUTO TRP	52-2EJSX03 4160V bkr to load center 2EJS*US1
	b. EJSUCO6	XFMR1B BRKR 101-2 ` Auto TRP	52-2EJSX04 4160V bkr to load center 2EJS*US1

9.2 <u>Automatic Response</u>

None

9.3 <u>Corrective Action</u>

a. At control room panel 852, close the alternate feeder breaker to load center 2EJS*US1.

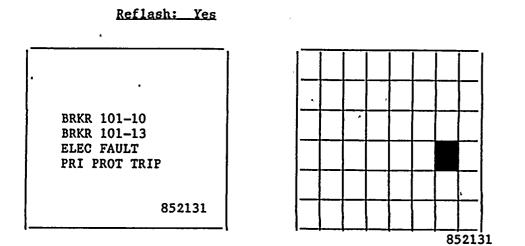
This is: load center breaker 1-9B if breaker 101-14 tripped, or load center breaker 1-3B if breaker 101-2 tripped.

- b. Notify elect. maint. of the event, and any breakers tripped.
- c. Refer to tech. specs. if unable to maintain feed to the load center.

N2-OP-72 -41 January 1991

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

10.0 <u>852131</u> Breaker 101-10 or 101-13 Electrical Fault or Primary Protection Trip



10.1	Computer Point	Computer Printout	Source
•	a. ENSUCO9	EM SWGR ACB 101-13 Lo RLY	50/51-2ENSA01 Emer. bus feeder overcurrent
	b. ENSUC10	EM SWGR ACB 101-10 Lo RLY	50/51-2ENSA02 Emer. bus feeder overcurrent

10.2 <u>Automatic Response</u>

ENSUCO9 Trips and locks out ACB101-13 (Normal bus feeder), locks out ACB101-10 (alternate bus feeder) and locks out auto closing of ACB 101-1 (Diesel Gen. Bkr.).

ENSUC10 Trips and locks out ACB101-10 (alternate bus feeder), locks out ACB101-13 (Normal bus feeder) and locks out auto closing of ACB 101-1 (Diesel Gen. Bkr.).

Both Category II service water separates from Category I.

N2-OP-72 -42 January 1991

TCN-1

10.3 <u>Corrective Action</u>

a. Restart the switchgear per Section E1.0.

b. Notify elect. maint. of the trip and any breakers remaining 3 tripped.

3

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- c. See N2-OP-71 Section H15.0, or H16.0 to place the switchgear 3 on alternate feed.
- 'd. Refer to tech. specs. for possible LCO due to loss of Div I power.

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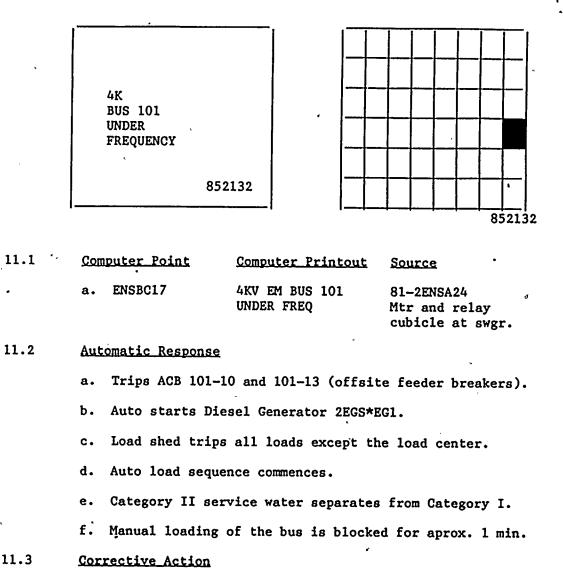
I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

11.0

852132 4KV BUS 101 Underfrequency

Reflash: No

TCN-1 <



a. Verify auto station response.

- b. Refer to N2-OP-71 Section H15.0 or H16.0 to place the bus on alternate offsite feed.
- c. Notify elect. maint. of the trip.

d. Refer to tech. specs. for possible LCO.

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12.1

852138 Breaker 101-2 or 101-14 Lockout Relay Trip

| TCN-1 ;

<u></u> {.	-	
BRKR 101-2 BRKR 101-14 LOCKOUT RELAY TRIP	r -	
	852138	852138
Computer Point	Computer Printo	ut Source ·
a. EJSUCO1	EM LC XFMR1A LOCKOUT RLY	50G-2EJSA03 or 50/51-2EJSA02 Gnd or phase overcurrent on the 4160V side of load center transfor
b. EJSUCO2	EM LC XFMR1B LOCKOUT RLY	50G-2EJSA06 or 50/51-2EJSA05 Gnd or phase overcurrent on the 4160V side of load center transfor
c. EJSUC13	EMLC XFMR1A FDR FAULT-BU	51-2EJSA01 backup overcurrent on the 4160V side of load center transformer
d. ÉJSUC14	EMLC XFMR1B FDR FAULT-BU	51-2EJSA04 backup overcurrent on the 4160V side of load center transformer

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12.2 Automatic Response

- EJSUCO1 Trips & Locks Out US1-3B and ACB101-14. Isolates the load center transformer.
- EJSUCO2 Trips & Locks Out US1-9B and ACB101-2. Isolates the load center 3 transformer.

EJSUC13 Trips & Locks Out ACB 101-13 and 101-10 and prevents auto closing of ACB101-1. Diesel Gen. auto starts and the Div I 4160V bus remains de-energized. Loss of voltage load sheds the bus. Category II service water separates from Category I.

EJSUC14 Trips & Locks Out ACB-101-13 and 101-10 and prevents auto closing of ACB 101-1. Diesel Gen. auto starts and the Div I 4160V bus remains de-energized. Loss of voltage load sheds the bus. Category II service water separates from Category I.

12.3 Corrective Action

EJSUCO1 EJSUCO2

> a. Verify the trips by checking computer points: EJSUC05 for 3 101-14 and EJSUC09 for US1-3B OR

EJSUC06 for 101-2 and EJSUC10 for US1-9B

- b. Close the alternate load center incoming line breaker, at control room panel 852. USI-3B, or USI-9B.
- c. Notify elect. maint. of the trip, and any breakers remaining tripped.
- NOTE: Refer to tech. specs. if unable to maintain feed to the load center.
- <u>NOTE</u>: The load center powers MOV's associated with pumps which may remain running on the 4160V bus.

EJSUC13 EJSUC14

- aa. Trip the 4160V breakers feeding the load center. Breaker 101-14, and 101-2.
- bb. At control room panel 852, place the diesel generator breaker 101-1 control switch in pull-to-lock.
- cc. At Div I switchgear, reset lockout relays: 86-2-2EGPX02 (101-1); 86C-ZENSX01 (101-N2); 86C-2ENSX02 (101-N2).

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12.3 (Cont'd)

- dd. Close the offsite feeder breaker to the Div I 4160V bus, breaker 101-10, or 101-13.
- ee. Close the alternate 4160V breaker to the load center, breaker 101-14, or 101-2.
- ff. Close the 600V incoming line breaker to the load center, breaker US1-3B, or US1-9B.
- gg. At control room panel 852, remove the Div I diesel generator breaker (101-1) control switch from pull-to-lock.
- hh. Close in selected loads on the Div I 4160V bus.
- ii. Place the diesel generator in stand-by per N2-OP-100A.
- jj. Notify Electrical Maintenance of the trip, and any breakers remaining tripped.

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I. <u>PROCEDURE FOR CORRECTING ALARM CONDITIONS</u> (Cont.)

BRKR 101-10 BRKR 101-13 BACKUP PROT TRIP

13.0

852139 Breaker 101-10 or 101-13 Backup Protection Trip

Reflash: Yes

852139

852139

13.1	<u>Computer Point</u>	<u>Computer Printout</u>	Source .
•	a. ENSUC17	EM SWGR ACB 101- 13 LO RLY	67N1-2ENSA05 Diesel Gen. gnd directional overcurrent
	b. ENSUC18	EM SWGR ACB 101- 10 lo rly	67N3-2ENSA05 Diesel Gen. gnd directional overcurrent

13.2 <u>Automatic Response</u>

ENSUC17 Trips and locks out ACB101-13 ENSUC18 Trips and locks out ACB101-10 a. Load shed trips all loads except loadcenter.

b. Div I diesel gen. auto starts.

c. Auto load sequence commences.

d. Category II service water separates from Category I.

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1 TCN-1 2

Corrective Action

a. Verify the trip by checking computer point ENSUCO8 for 101-10, or ENSUCO5 for 101-13.

3

- b. Trip breakers 101-1 and 101-N1.
- c. Reset lockout relays 86C-2ENSX01, and 86C-2ENSX02, at switchgear 101-N2.
- d. Close the offsite feeder breaker, 101-10, or 101-13.
- e. Notify elect. maint. of the trip.
- f. Refer to tech. specs. if unable to maintain feed to the Div I bus.

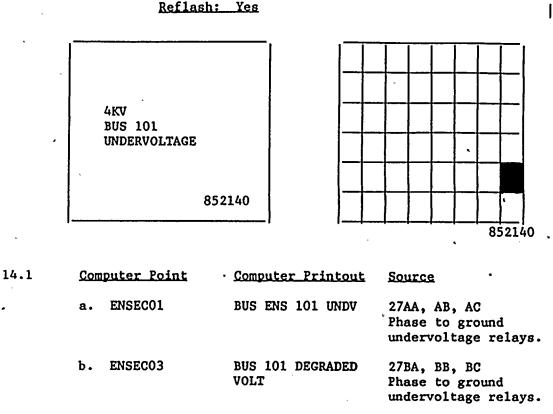
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13.3

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852140

4KV Bus 101 Undervoltage



14.2 Automatic Response

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For one device on either computer point, NONE. a.

- For two devices on either computer point, loss of offsite ь. power.
 - 1. Offsite supply breaker ACB101-10 or 101-13 is tripped.
 - Emergency diesel generator EGS*EG1 starts. 2.
 - Manual loading is blocked for approx. 1 min. 3.
 - 4. Load shed trips all loads except the load center.

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I.

- 5. Auto load sequence commences.
- 6. Category II service water separates from Category I.

14.3 Corrective Action

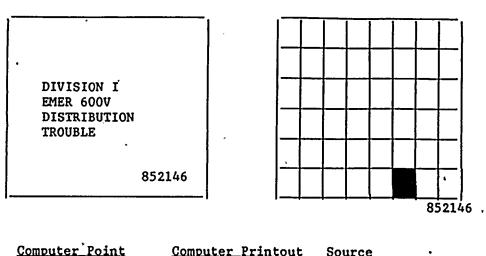
- a. Refer to N2-OP-71 Section H15.0, or H16.0 to place the bus on alternate offsite power.
- b. Notify elect. maint. of the trip.
- NOTE: Refer to tech. specs. for conditions associated with loss of offsite power.

I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

15.1

852146 Division I emergency 600V distribution trouble

Reflash: Yes



1	<u>Computer Point</u>	Computer Printout	Source ·
	EJSBC19	LC US1 SPLY BRKR 1–3C	Breaker Overcurrent
	EJSBC20	LC US1 SPLY BRKR 1-4B	Breaker Overcurrent
	EJSBC21	LC US1 SPLY BRKR 1-5D	Breaker Overcurrent
	EJSBC22	LC US1 SPLY BRKR 1–7D	Breaker Overcurrent
	EJSBC23	LC US1 SPLY BRKR 1–8C	Breaker Overcurrent
	EJSBC24	LC US1 SPLY BRKR 1-9C	Breaker Overcurrent
	EJSBC31	LC US1 SPLY BRKR 1-6D	Breaker Overcurrent
	EJSBC32	LC US1 SPLY BRKR 1-7C	Breaker Overcurrent

15.2 <u>Automatic Response</u>

Trip and lockout the switchgear breaker

TCN-12

15.3 <u>Corrective Action</u>

- a. Verify the automatic response. At MCC's observe the voltmeter, for power distribution panels, check the load center breaker.
- b. At MCC's trip the breaker shown in the "LOAD" column (incoming line breaker).
- c. Remove the interlock key, and energize the MCC from the alternate feed breaker.
- d. For power distribution panels:

1. Trip the panel main breaker.

- 2. Reset and close the load center breaker.
- 3. If the load center breaker stays closed, trip the panel branch breakers, and close the panel main breaker.
- 4. If the main breaker, and load center breaker remain closed, close in branch breakers.
- e. Notify electrical maint. of the event, and any breakers tripped and/or unable to reclose.
- f. Refer to tech. specs. for possible LCO's due to loss of power to an emergency load.

Computer Point	Load	Location	Alternate Feed
EJSBC19	2EHS*MCC102 Bus A Cub 1A	Aux Bay North EL 240	Tie breaker 13A
EJSBC20	2EHS*MCC101 Cub 1A	Screenwell Bldg	Breaker 10A
EJSBC21	2EHS*MCC103 Bus A Cub 1A	Cntl Bldg West	Tie breaker 16A
EJSBC22	2EHS*MCC103	St-by Swgr Rm Cntl Bldg West	Tie breaker 16A
EJSBC23	Bus C'Cub 27A 2EHS*MCC102	St-by Swgr Rm Aux Bay North	Tie breaker 13A
EJSBC24	Bus C Cub 22A 2EHS*MCC101	EL 240 Screenwell Bldg	Breaker 1A
EJSBC31	Cub 10A 2EJS*PNL100A	Cntl Bldg West	No alternate feed
EJSBC32	2LAC*PNL100A	St-by Swgr Rm Cntl Bldg West St-by Swgr Rm	No alternate feed

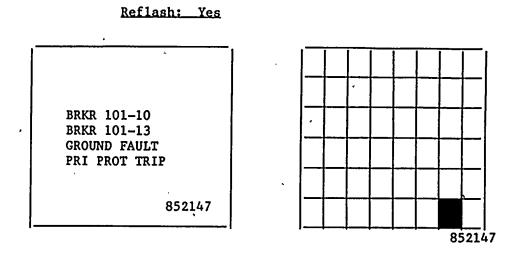
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I. PROCEDURE FOR CORRECTING ALARM CONDITIONS (Cont.)

16.0

4

852147 Breaker 101-10 or Breaker 101-13 Ground Fault Primary Protection Trip



,16.1	Computer Por	int <u>C</u>	omputer Print	tout	Source
	a. ENSUC13		M SWGR ACB 10 D RLY	01-13	Switchgear 2NNS- SWG016 (16-2) Neutral directional overcurrent (67N2- 2ENSA09) (load side) OR Switchgear 2ENS*SWG101 (101-13 Lineside) gnd overcurrent (50G-2ENSA32)
	b. ENSUC14		4 SWG ACB 101 D RLY	L-10 ,	Switchgear 2NNS- SWG018 (18-2 loadside) Neutral directional overcurrent (67N4- 2ENSA10) OR Switchgear 2ENS*SWG101 Feeder (101-10 lineside) gnd overcurrent (50G- 2ENSA33)

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| TCN-1;

16.2 <u>Automatic Response</u>

ENSUC13Trips and locks out ACB 101-13, and locks out ACB 101-10ENSUC14Trips and locks out ACB 101-10, and locks out ACB 101-13

- a. Diesel generator 2EGS*EG1 Auto Starts.
- b. Load shed trips all loads except the load center.

c. Diesel generator breaker (101-1) closes.

- d. Load sequencing commences.
- e. Manual loading of the bus is blocked for approx. 1 minute.
- f. Category II service water separates from Category I.

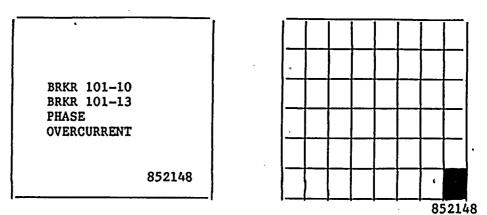
16.3 <u>Corrective Action</u>

- <u>NOTE</u>: Refer to tech. specs. for operating conditions associated with loss of offsite power.
- a. Notify elect. maint. of the trip.
- b. Refer to N2-OP-71 Section H15.0, or 16.0 to place the bus on alternate offsite feed.
- c. Reset the lockout relays: 86B-2ENSX01 (at switchgear 101-13), and 86B-2ENSX02 (at switchgear 101-10).

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17.0 <u>852148</u> Breaker 101-10 or 101-13 Phase Overcurrent

Reflash: Yes



17.1 Computer Point Computer Printout Source ENSIC01 RTX-XSR1A OC ACB 67-1-2ENSA25 a. 101-13 Directional overcurrent interlock to stub bus b. ENSICO4 XFMR ABS-X1 OC ACB 67-2-2ENSA26 101-10 Directional overcurrent interlock to stub bus

17.2 <u>Automatic Response</u>

ENSIC01Any one device trips ACB 101-13ENSIC04Any one device trips ACB 101-10

a. Load shed trips all loads except the load center.

b. Div I diesel generator auto starts.

c. Diesel generator breaker 101-1 closes on the bus.

d. Manual loading on the bus is blocked for approx. 1 minute.

e. Auto load sequence commences.

f. Category II service water separates from Category I.

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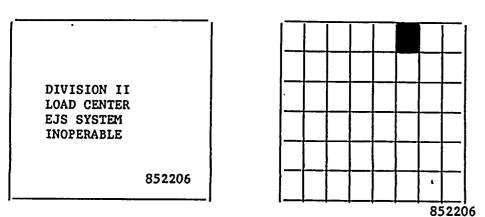
17.3 Corrective Action

- a. Verify the automatic response.
- b. Sync the offsite breaker to the bus.
- c. Open the diesel generator breaker, 101-1.
- d. Notify elect. maint. of the trip, and of the device that caused the trip.
- e. See N2-OP-100A to return the diesel generator to stand-by after offsite power is restored.
- NOTE: See N2-OP-71 Section H15.0 or H16.0 to place the bus on alternate offsite feed.
- <u>NOTE</u>: Refer to tech. specs. if unable to maintain offsite feed to the bus.
- <u>NOTE</u>: Refer to Section H2.0 before closing the stub bus breaker.

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Division II Load Center EJS System Inoperable 18.0 852206

Reflash: No



Computer Point Computer Printout Source EJSBC16 DIV 2 LD CTR EJS 1)EMER US3 a. SYS NORM FEED ACB 3-3B AND 2)EMER US3 ALT FEED ACB 3-9B 3)EMER SWGR OR XFMR FDR ACB 103-1 AND 4)EMER SWGR XFMR FDR ACB 103-13 OR 5)EMER US3 MAN OUT OF SER

Corrective Action

a. Refer to the following INOP windows for response.

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18.2

18.1

18.2 (Cont'd)

<u>Window</u>		Source	Automatic Action
1.	EMER US3 NORM FEED ACB3-3B	(74-2EJSY05) a)Loss of DC Control Power	ANNUN. for any event in both inop windows
2.	EMER US3 ALT Feed ACB 3-9B	 b)Control Room Fire disconnect c)Control Room switch PTL d)Breaker racked out (74-2EJSY06) 	

Corrective Action

- For loss of 125VDC control power check fuses in cubicle a. 3-3A, and breaker 4C in 2BYS*SWG002B, D.C. switchgear.
- b. For control room fire, return switch 2CESB20 to normal in control room fire disconnect panel 2CES*PNL416.
- c. For control room panel 852 control switches in pull-to-lock. remove one, or both switches from pull-to-lock.
- d. For breakers not in operate Position, rack in breaker 3-3B and/or 3-9B.

Window

Source

Automatic Action

3.	EMER SWGR	(74–2EJSY03)	Annun. for any event
	XFMR FDR	a)Loss of DC	in both inop windows
	ACB 103-1	Control Power	-
4.	EMER SWGR	b)Control Room	
	XFMR FDR	Fire Disconnečt	
	ACB 103-13	c)Control Room	
		Control switch PI	CL .
		d)Breaker racked ou	ıt
		(74–2ejsy04)	

Corrective Action

- a. For loss of 125VDC control power, check fuses in cubicle 103-13, and breaker 2D in 2BYS*SWG002B, D.C. switchgear.
- b. For Control Room fire, return switches 2CESB15 and 2CESB16 to normal in Control Room Fire Disconnect Panel 2CES*PNL416.
- c. For breakers not in operate position, rack in breaker 103-1 and/or 103-13.
- d. For Control Room Panel 852 control switches in pull-to-lock, remove one switch, or both switches from pull-to-lock.

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18.2 (Cont'd)

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Win	idow [*]	Source	Automatic Action
5.	EMER US3 Man Out Of Ser	EMER US3 Man out of Ser pushbutton	None

Corrective Action

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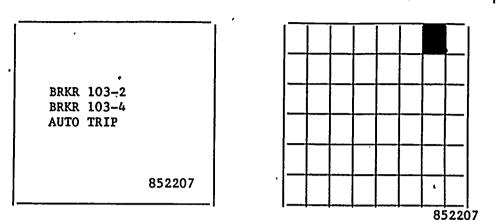
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a. Restore the pushbutton to normal.

19.0 <u>852207</u> Breaker 103-2 or 103-4 Auto Trip

<u>Reflash: Yes</u>

19.1



Computer Point Computer Printout Source ENSUC06 2ABS-XS1 ACB a. 52-2ENSY11 103-2 TRIP TRIP SIGNALS ORIGINATE FROM: ENSBC04 FDR-XFMR ACB 103-2 52-2ENSY11 ENSBC18 4KV EM BUS 103 SEE 852232 UNDER FREQ ENSBC33 LOSS OF BUS 103 62X-2ENSY05 VOLTAGE ENSBC34 DEGRADED BUS*103 62Y-2ENSY06 UNDV ENSBC35 LD SHED SIGNAL 27X3-2ENSY04 BUS 103 ENSEC02 BUS ENS*103 UNDV SEE 852240 ENSEC04 **BUS 103 DEGRADED** • SEE 852240 VOLT ENSICO2 2ABS-X1 PH OC SEE 852248 ACB 103-2 ENSUC12 EM SWGR ACB 103-2 SEE 852231 LO RLY ENSUC16 EM SWGR ACB 103-2 SEE 852247 LO RLY ENSUC20 EM SWGR ACB 103-2 SEE 852239 LO RLY NNSUC28 4KV BUS E18 LO RLY SEE 852558 2 TRIP

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| TCN-1 2

19.1 (Cont'd)

Computer Point		<u>int</u>	Computer Printout	Source
b.	ENSUCO7		2RTX-XSR1B ACB 103-4 TRIP	52-2ENSY10
		TRIP SI	GNALS ORIGINATE FROM	
	ENSBC06		FDR XFMR ACB 103-4	52-2ENSY10
	ENSBC18		4KV EM BUS 103 Under Freq	SEE 852232
	ENSBC33		LOSS OF BUS 103 Voltage	62X-2ENSY05
	ENSBC34		DEGRADED BUS*103 UNDV	62Y-2ENSY06
	ENSBC35		LD SHED SIGNAL BUS 103	27X3-2ENSY04
	ENSEC02		BUS ENS*103 UNDV	SEE 852240
	ENSEC04	Å	BUS 103 DEGRADED Volt	SEE 852240
	ENSICO3		RTX-XSRIB PH OC ACB 103-4	SEE 852248
	ENSUC11	•	EM SWGR ACB 103-4 Lo Rly	SEE 852231
	ENSUC15		EM SWGR ACB 103-4 Lo Rly	SEE 852247
	ENSUC19		EM SWGR ACB 103-4 Lo Rly	SEE 852239
	NNSUC25		4KV BUS E17 LO RLY2 TRIP	SEE 852548

- 19.2 <u>Automatic Response</u>
 - a. Diesel Generator start.
 - b. Load shed all but load center breakers.
 - c. Auto load sequence commences.
 - d. Manual loading blocked for approx. 1 min.
 - e. Category II service water separates from Category I.

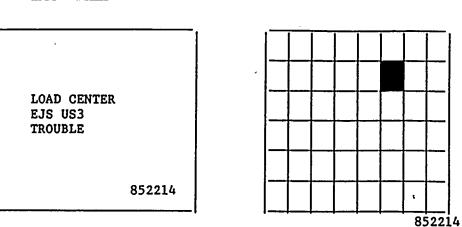
19.3 <u>Corrective Action</u>

- a. See N2-OP-71 Section H17 and H18 to transfer feeders to the emergency bus.
- b. Place the emergency bus on offsite power.
- c. Notify elect. maint. of the event.
- d. See N2-OP-100A to return the diesel generator to stand-by after offsite power is restored.
- NOTE: If computer point ENSBC40 alarms (DIV 2 LOCA SIGNAL), before the bus is restored to offsite power, trip breaker 103-14. N2-OP-72 -62 May 1988

20.0 852214 Load Center EJS*US3 Trouble

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Reflash: Yes



Computer_Point Computer Printout Source UV PROT US3 74-2EJSY08 LOSS DC PWR 2EJS US3 NORM 52-2EJSY05 BRKR EL FLT Bkr overcurrent

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c.	EJSUC12	2EJS US3 ALTN	52–2EJSY06
		BRKR EL FLT	Bkr overcurrent

20.2 Automatic Response

20.1

EJSBC18	None		
EJSUC11	Trips	breaker	ACB3-3B
EJSUC12	Trips	breaker	ACB3-9B

EJSBC18

b. EJSUC11

a.

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20.3 Corrective Action

RJSBC18 For loss of control power, check fuses in load center cubicle 3-3A, and breaker 4C at 2BYS*SWG002B, DC switchgear.

EJSUC11 For breaker overcurrent trip, check annunciator 852246 for a EJSUC12 branch breaker trip, and close in the other load center feeder breaker.

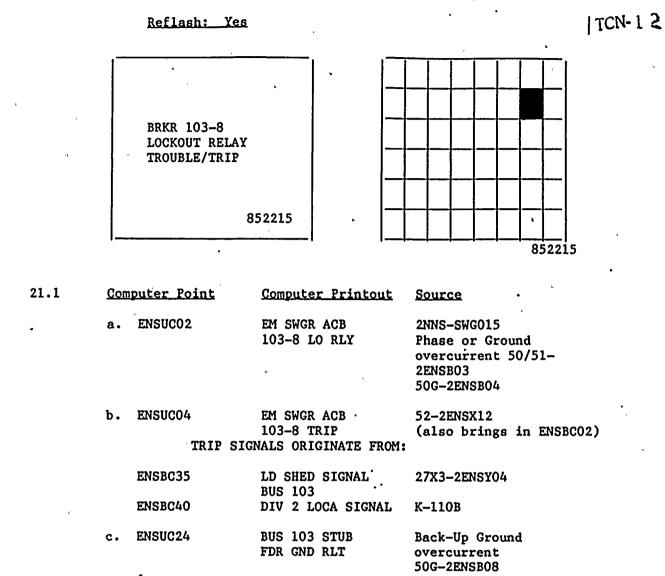
- a. If both feeder breakers trip, send an operator to the east stand-by switchgear room.
 - 1. Open all branch breakers on US3.
 - 2. Reset both feeder breakers.
 - 3. Close feeder breaker 3-3B.
 - 4. Close breaker 3-9B, if breaker 3-3B fails to close.
 - 5. Close in branch breakers.
- a. Notify elect. maint. of the event, and any branch breakers which are tripped, or fail-to-close.

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21.0 852215

215 Breaker 103-8 Lockout Relay Trouble or Trip

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N2-OP-72 -65 January 1991

21.2 Automatic Response

ENSUCO2 None ENSUCO4 None ENSUC24 a.

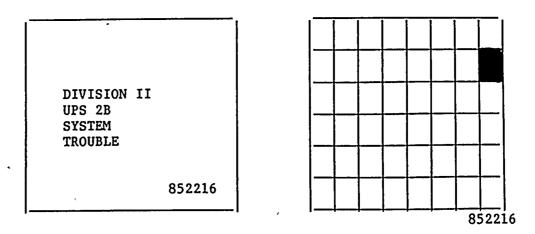
- None a. Trips 103-4 and 103-2, both offsite feeder breakers, see 852239.
- b. Trips 103-N1, Diesel Gen. Neutral breaker, see 852227.
- c. Category II service water separates from Category I.
- d. Load shed trips all loads except load center.
- e. Auto start Diesel generator.
- f. Auto load sequence commences.
- g. Manual loading of the bus is blocked for approx. 1 minute.

21.3 <u>Corrective Action</u>

- a. Verify the stub bus breaker trip. Check computer point ENSBC02.
- b. See Section H2.0 to re-energize the stub bus after loss of offsite power.
- c. Reset lockouts on tripped breakers.
- d. Notify elect. maint. of the event and any breakers which remain tripped.
- e. See N2-OP-100A to return the diesel gen. to stand-by after offsite power is restored.

22.0 <u>852216</u> Division II UPS 2B System Trouble

<u>Reflash: No</u>



22.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>r Printout</u> <u>Source</u>			
	a. VBABCO4	UPS2B SYSTEM TROUBLE	UPS2B/A9-K51			
	1					

NOTE: A9-K51 is initiated by any local UPS2B alarm. This relay will stay de-energized as long as any local alarm exists. This annunciator will not reflash if another local alarm comes in.

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Automatic Response 22.2

a. UPS may realign to power the vital bus from either backup D.C., or maintenance supply dependent on the local alarm.

Corrective Action 22.3

(NCTS)

- Check the UPS output voltage on Control Room panel 852 meter a. labelled "Vital bus 2VBS*UPS2B 125VAC Output," or computer point VBSVA101.
- b. Send an operator to record meter readings and status light indications at the UPS.
- Consult Tech. Spec. 3.8.3.1 if the UPS is on maintenance NOTE: power or if the local alarm response indicates that the UPS is inoperable and the plant is in Mode 1, 2 or 3.
- c. Notify electrical maintenance for repair or adjustments to the UPS.

TCN-13

- d. See Section H of this procedure for operation of the UPS with the loss of a source, or sources.
- e. Take corrective action as required per following Table:

Local Alarm Description - Corrective Action

Alarm	Description	Corrective Action
Synch Loss	. Maintenance AC frequency is out of tolerance or	a. Initiate a WR
	2. Maintenance AC is not present	a. Restore maint. AC (if fuse is blown in the maintenance AC supply regulator, initiate a WR)
	3. UPS inverter output frequency is out of	a. Verify on Frequency meter
	tolerance (60Hz±3Hz)	b. If valid declare INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1
		c. Initiate a WR

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Alarm	Description		Corrective Action
Battery Drain/Charge	Current being drawn from batteries caused by:		
	1. Loss of normal AC to UPS or	a.	Restore normal AC
	2. Voltage on DC switchgear higher than UPS internal DC voltage	a.	If the charger is on equalize, notify Electrical to check charger equalize voltage
		Ъ.	If the charger is not on equalize, initiate a WR
· · ·	NOTE: Refer to Tech	Spec	es. 3.8.2.1 or 3.8.2.2
Rectifier AC Loss	Loss of normal AC to UPS	a.	If CB-51 has tripped, initiate a WR
		b .	If CB-51 is closed, restore upstream normal AC supply
Reverse Iransfer	Static switch is in maintenance position	а.	Declare the UPS INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1
•		b.	If other alarms are present, correct the other alarms prior to restoring the UPS to normal AC power
	• •	с.	If all other alarms clear, verify UPS AC output voltage present on AC voltmeter, then push "Forward" static switch pushbutton
Fan Fail	One or more fans have stopped	а.	Visually check, if possible, to determine which fan is off
	• •	Ъ.	Initiate a WR
	NOTE: This alarm may Fuse Alarm	be c	oncurrent with a Blown

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N2-OP-72 -68a May 1991

Alarm	Descrip	tion		Correc	tive Action
Low Inverter Voltage	UPS inverter ou is 15% low (a.	Verif	y on AC voltmeter
	۳۱ ۲		b .	if th	lid declare INOP and e plant is in Mode 1, 3 refer to Tech Spec. .1
Inverter Over Temp	Unit overheating	3	a.	Initi	ate a WR
Fuse Blown	Fuse within UPS	blown	a.	Initi	ate a WR to replace
	<u>NOTE</u> :	operability d	eterm: Lala:	ination rms (eg	INOP the UPS. The must be made based . "Low Battery",
Rectifier DC Grounded	UPS internal DC	Bus grounded	a.	Initia	ate a WR
Low DC Bus	UPS internal DC is low (DC Bus I		a.		ate a WR for r/adjustment
Overload	UPS inverter sup 100% rating of u (~165 Amps)	plying over nit	a	Check i) ii)	output ammeter If unit loaded, clear non- essential loads If alarm false, initiate a WR
Low Battery	UPS-internal DC voltage is below volts (DC Bus Lo	110	а.	voltme switch i) ii)	S-51, the DC eter selector h in "Battery" If battery voltage indicates ∠110 VDC declare the UPS INOP and if the plant is in Mode 1, 2 or 3 refer to Tech. Spec. 3.8.3.1 If battery voltage indicates >110 VDC, notify Electrical Maintenance
	NOTE:	With DC Bus be	low 1	05 VDC,	CB-52 will trip

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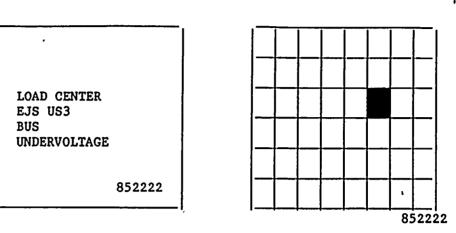
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23.0 852222 Load Center EJS*US3 Bus Undervoltage

Reflash: No

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23.1 Computer Point Computer Printout Source ١ EJSEC02 LD CTR US3 BUS a. Undervoltage relays UNDERVOLT 27A-2EJSB11 and 27B-2EJSB11 Setpoint: 400V for 3 Sec.

23.2 Automatic_Response

> Trip Reactor Bldg. Recirc. Fan B, 2HVR*UC413B. Breaker 3-4C. a.

- Trip Control Bldg. Chiller Compressor, 2HVK*CHL1B. Breaker b. 3-4D.
- 23.3 Corrective Action
 - Verify auto-start of redundant units per N2-OP-52 for a. HVR*UC413A/B, and N2-OP-53A for HVK*CHL1A/B.
 - b. Check the voltage on the DIV II 4160V bus 2ENS*SWG103.
 - Check the voltage on the DIV II load center, 2EJS*US3. c.
- NOTE: Loss of offsite power for 3 sec. will also bring in this annunciator.
 - d. If the 4160 DIV II bus in nominally 4160V, trip the load center incoming line breaker inservice (bkr 3-3B, or 3-9B), and close the other feeder breaker (bkr 3-9B, or 3-3B).
 - e. Notify elect. maint. of the event, and any tripped breakers.

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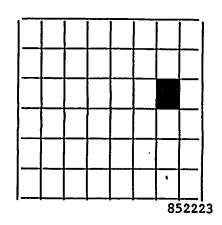
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24.0 <u>852223</u>

4KV Bus 103 DC Control Power Failure

<u>Reflash: Yes</u>

4KV BUS 103 DC CONT POWER FAILURE 852223



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I.

24.1	Computer Point	Computer Printout	Source
	a. ENSBC13	125 VDC CONT PWR DII BUS A	Loss of protective relaying power to trip 103-2, 103-4, & 103-14 (offsite feeders, and Dies. Gen. bkr) due to: phase overcurrent; Dies. Gen. gnd overcurrent; bus gnd overcurrent; incoming line XFMR neutral gnd overcurrent. emer. swgr DC bus A 74-2ENSY01
	ENSBC14	125VDC CONT PWR D II BUS B	Loss of protective relaying power to trip 103-2, 103-4, & 103-14 (offsite feeders, and Dies. Gen bkr) due to: phase overcurrent; Dies. Gen. gnd overcurrent; bus gnd overcurrent; incoming line XFMR neutral gnd overcurrent. emer. swgr DC bus B 74-2ENSY02.

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