

07.211-91

NINE MILE POINT NUCLEAR STATION UNIT 2

OPERATING PROCEDURE

PROCEDURE NO. N2-OP-73A

NORMAL D.C. DISTRIBUTION

DATE AND INITIALS

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Operations Superintendent NMPNS Unit 2 R. G. Smith	<i>R.G. Smith</i>	<i>9/12/88</i>		
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FOR INFORMATION ONLY

Summary of Pages

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NIAGARA MOHAWK POWER CORPORATION

THIS PROCEDURE NOT TO BE
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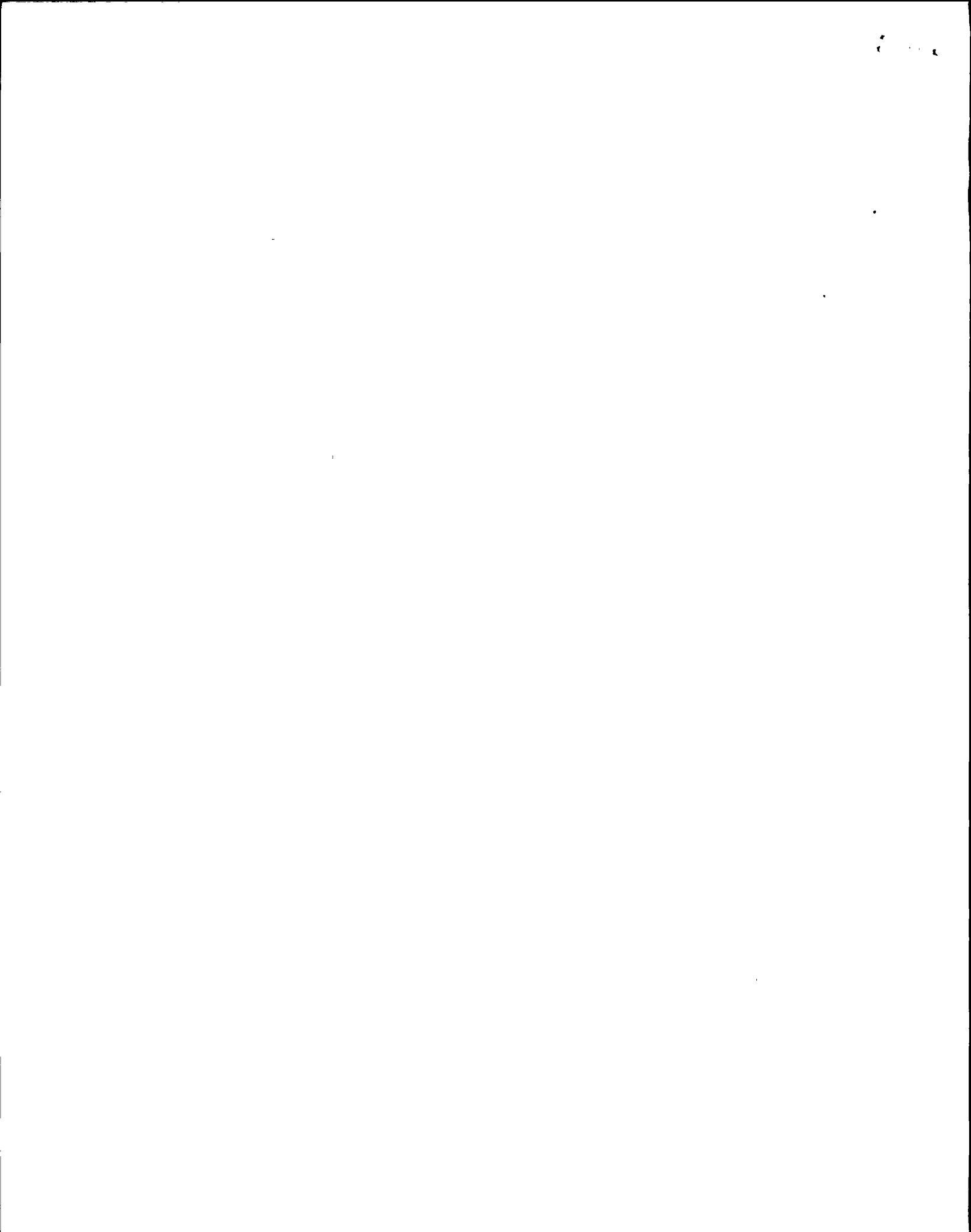
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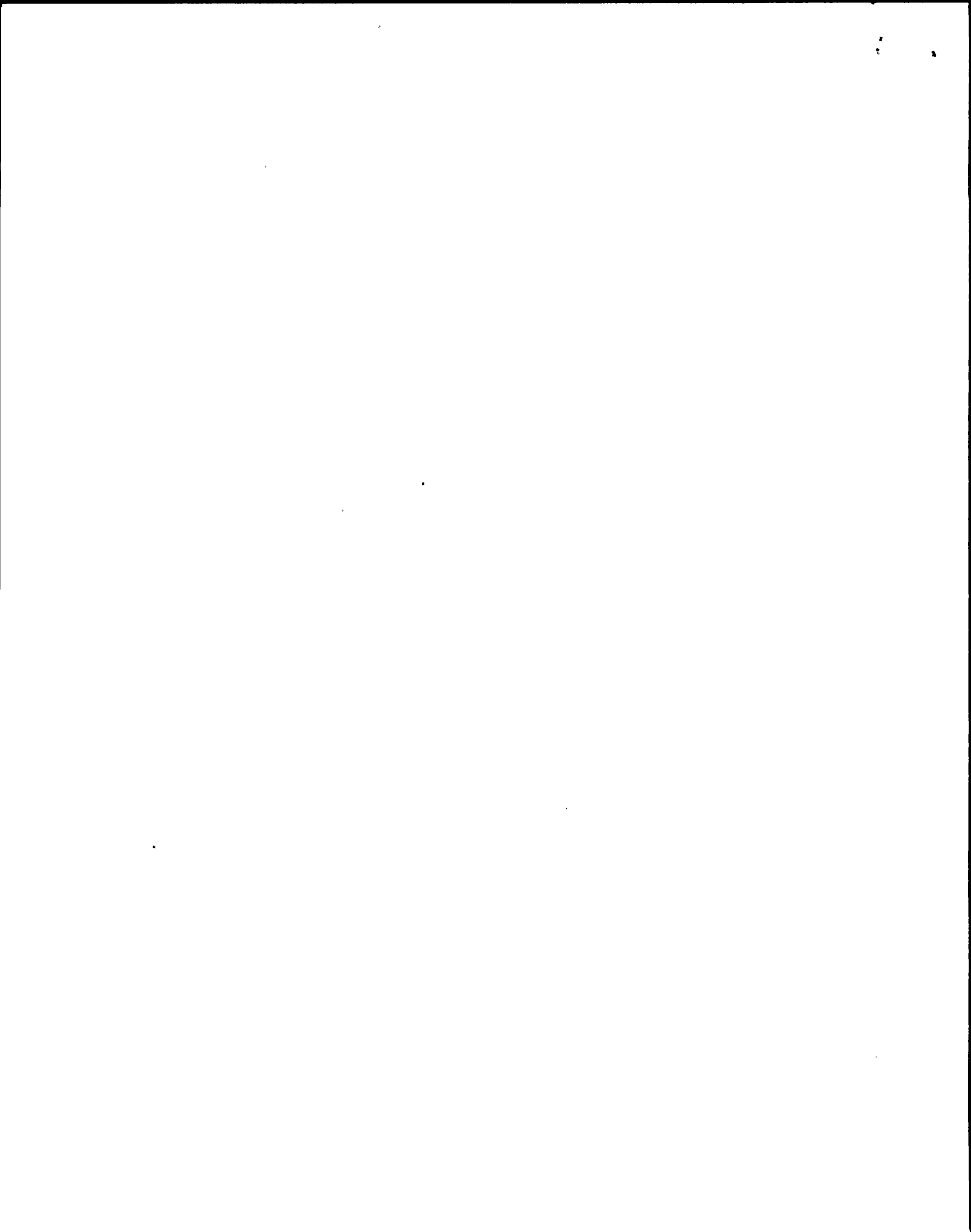
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	ESK-10IHA496 Annunciator Elementary
	ESK-10IHA500 Annunciator Elementary
	EE-1X 600V One Line-Norm. Bus 2NJS-US5
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	Not Applicable



N2-OP-73A

NORMAL D.C. DISTRIBUTION

A. TECHNICAL SPECIFICATIONS

Not Applicable

B. SYSTEM DESCRIPTION

1.0 System Purpose

The normal D.C. Distribution System provides power to trip certain switchgear; instrument and control power; normal BOP loads; backup power to lighting and RPS inverters, and the process computer inverter.

2.0 General Description

The normal D.C. Distribution System consists of three independent 125V DC systems. Each system is composed of a 5100 ampere hour battery, one 500 amp static charger and an associated switchgear.

Each battery is composed of 120 lead calcium plate, 2550 ampere hour cells. Two series strings of 60 cells are connected in parallel to provide 125V DC @ 5100 A.H. capacity. The batteries are located in individual rooms; battery 1A and 1B are located in the 237' elevation of the Switchgear Building and Battery 1C is located on the 214' elevation of the Control Building. The batteries are designed to be continuously charged with minimal loss of active plate material, and each battery is sized to carry the required loads for at least a period of two hours without its respective charger.

The battery chargers, 2BYS-CHGR1A, 1B, and 1C are 500A, thyristor controlled static chargers designed for a constant potential type of charge. The range of the DC output is from 124.8V DC to 145.2V DC with a three phase 575V AC input. The chargers have two modes of operation: the float mode, with the output adjusted to approx. 135V DC; and the equalize mode, with the output adjusted to approximately 140V DC. Normally the chargers will operate in the float mode but when required can be placed in the equalize position, or by setting the 120 hr. equalize interval timer to the desired time setting with the float-equalize switch in the float position. ITCN-3

The switchgear for battery 1A and 1B is located in the 237' elevation of the switchgear building adjacent to its respective battery. Switchgear for battery 1C is located in the 214' elevation of the Control Building. The switchgear consists of instrumentation, incoming breakers and feeder circuit breaker and fuse compartments. All breakers operations are manual from their respective switchgear.

B. SYSTEM DESCRIPTION (cont'd.)

3.0 Summary of Operation

The Normal DC Distribution systems are normally operated with the battery on a float charge. In this mode the charger supplies all loads, except for large load starting transients, and the batteries are kept fully charged by their respective chargers. On a loss of charger or loss of normal AC power, the batteries supply all loads.

On the rear of control room panel PNL852 are the battery 1A, 1B, and 1C ground detection meters, and switches. By pressing the pushbutton, and at the same time, turning the control knob, the meter will indicate any ground current on the bus chosen by the control knob. This is provided because it is possible to have "balanced" ground current from both (+ and -) buses. This particular grounding mode will not operate the ground alarm.

C. PLANT OPERATING REQUIREMENTS

1.0 Prerequisites

1.1 The following systems must be aligned in accordance with the applicable operating procedure in order to provide unrestricted operation of the Normal DC Distribution System:

- a. Control Building air condition and ventilation sys. N2-OP-53(E)
- b. Normal Switchgear Bldg. ventilation sys. N2-OP-54A
- c. Station Electrical feed, 115KV switchgear N2-OP-70
- d. Normal AC Distribution, N2-OP-71

1.2 Electrolyte level of each cell is in the normal range and all flash arrestors are in place.

2.0 Plant Operating Conditions

2.1 The Normal DC Distribution systems should be in operation at all times to support the BOP and provide backup power for the RPS and lighting inverters, and computer inverter.

D. PRECAUTIONS/LIMITATIONS

1.0 Battery ventilation shall be kept in operation at all times to prevent the build-up of hydrogen gas.

2.0 The use of spark producing devices, open flames or smoking will not be permitted in the battery rooms.

3.0 All tools used in the vicinity of the batteries shall be taped so if inadvertently dropped on a cell, it will not cause a short.

D. PRECAUTIONS (cont'd.)

- 4.0 When working with electrolyte the following protective clothing shall be worn:
 - a. Rubber gloves
 - b. Rubber apron
 - c. Face shield
- 5.0 Only authorized personnel shall be permitted in the battery rooms.
- 6.0 Clean up electrolyte spills immediately to limit ground current from battery terminals to the battery rack.

E. START-UP PROCEDURE

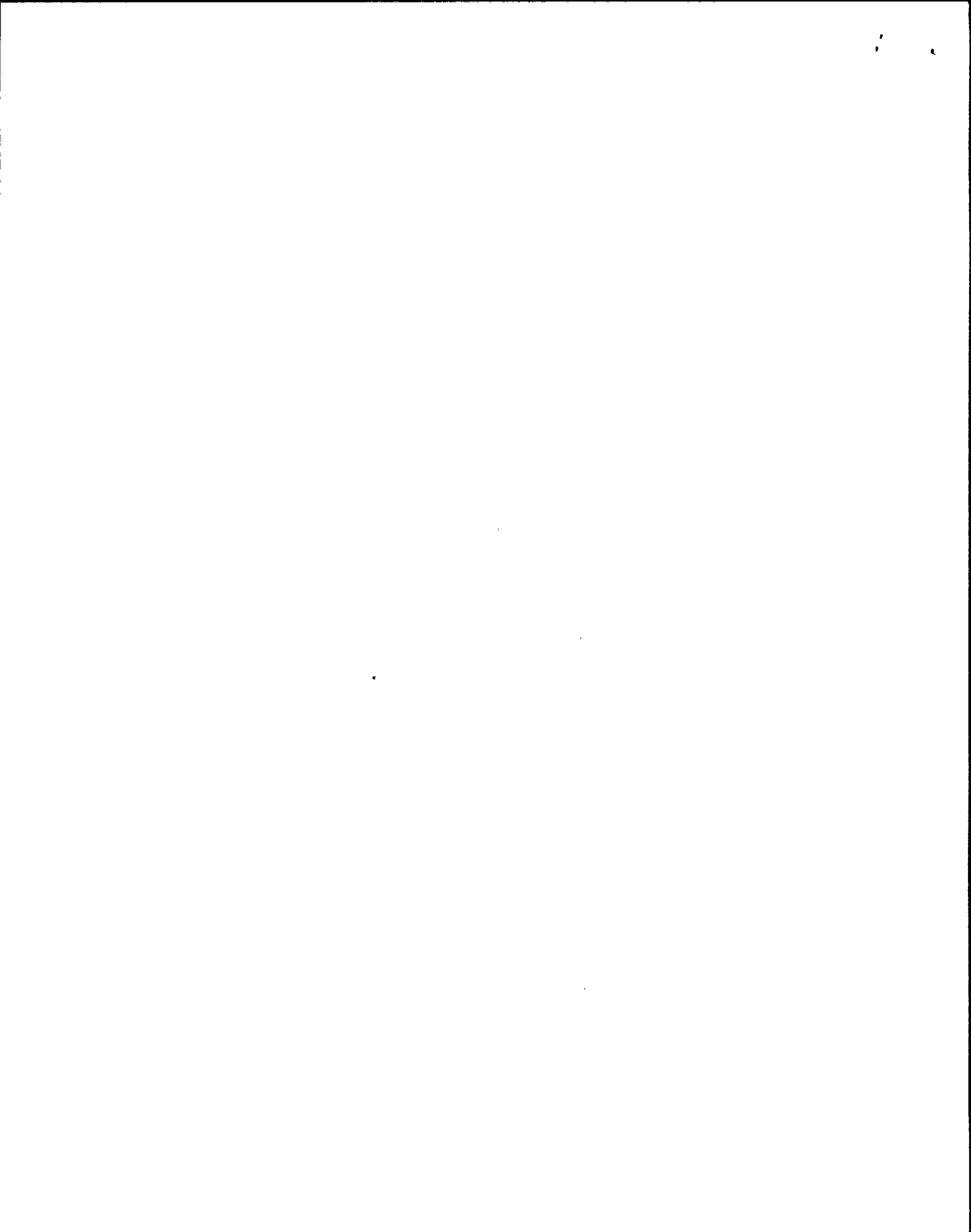
- 1.0 Complete prerequisites as per Section C.1.1. and C.1.2. of this procedure.
- 2.0 Check all load breakers open on the DC switchgear to be placed in service.
- 3.0 Check the input and output breakers on the charger in the OFF position.
- 4.0 Close the battery breaker (1B) on the applicable switchgear.
- 5.0 Complete the following steps for the charger being placed in operation:
 - a. Line up the power supplies in accordance with Table II of this procedure.
 - b. Check the equalizer interval timer in the off position.
 - c. Check the equalizer-float switch in the float position.
 - d. Close the charger DC output breaker.

CAUTION

Charger voltmeter must read battery voltage before closing input breaker.

- e. Close the chargers AC input breaker.

NOTE: Power-on light on charger should come on.



E. START-UP PROCEDURE (Cont'd)

- f. With the float voltage at 135V DC and current at a minimum value, place the float-equalizer switch in the equalize position. [TCN-3]
- g. Check the charger voltmeter for a bus voltage of approximately 140V DC.
- h. Return the float-equalize switch to the float position.
- i. Check the meter to see that 135V float voltage is indicated. [TCN-3]
- j. Check battery ground detector to see if the battery is grounded. While holding the pushbutton in, turn the control knob to POS then NEG and any indication from zero center is ground current.
- k. When battery 1A, 1B and 1C are in service, check annunciator (852501) "Battery 1A, 1B or 1C system trouble" has cleared.

F. NORMAL OPERATION

1.0 The 125V Normal DC Power System requires little operator action during normal operation. However, the batteries should be inspected on a regular basis and should include a check of the following:

- a. General cleanliness of the battery and battery area.
- b. Float voltage 135V, and charger current, less than 500A. [TCN-3]
- c. Cells for cracks or electrolyte leakage.
- d. Plate of cells (plates buckling, discoloring, grid cracks or plate growth).
- e. Ambient temperature and ventilation equipment.
- f. Terminals and connectors for evidence of corrosion.

G. SHUTDOWN

Once this system is placed in service, the 125V Normal DC Power System will not be shutdown as a unit. However, some components of the system may be taken out of service for maintenance. See Section H for procedure.

H. OFF NORMAL PROCEDURES

1.0 Equalizing the Battery

1.1 An equalizing charge is required if any of the following conditions exist:

- a. Any cell voltage on float is less than 2.13 Volts.
- b. The pilot cell specific gravity, corrected for temperature, shows a drop of more than 0.010 within the last 30 days, or is less than 1.205.
- c. Loss of AC power to the battery charger for a period of time such that the battery has become measurably discharged.

1.2 Applying an equalizing charge to a battery.

NOTE: When float-equalize switch is in equalize position, the timer is bypassed and the equalize time is controlled manually. If the timer is used to equalize charge automatically, proceed to step 1.3.

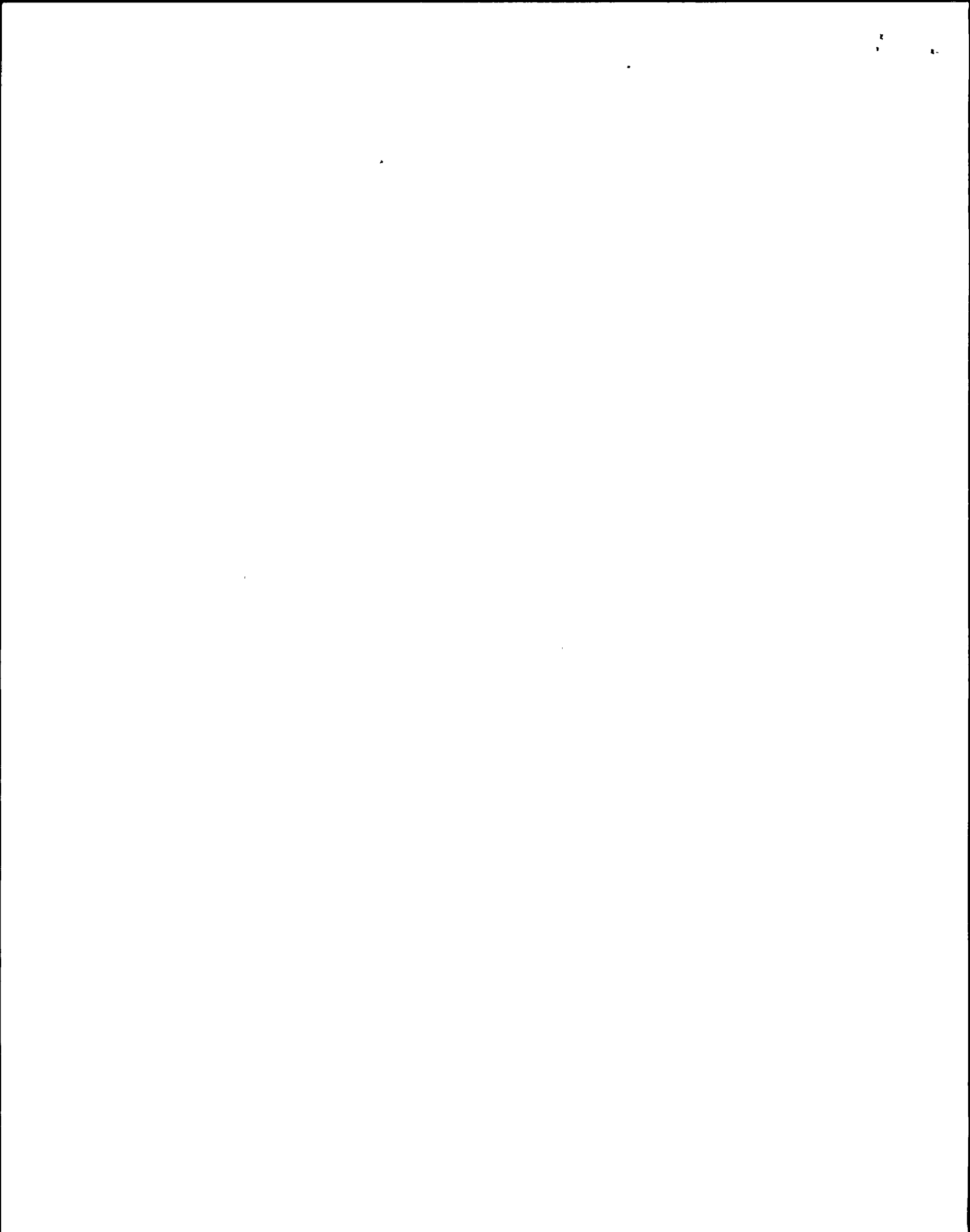
- a. Notify elect. maint. when the charge will begin so maint. data may be collected.
- b. Place the battery charger float-equalize switch in the equalize position. Check that charger output voltage rises to a final value of 140V DC.
- c. After the designated equalizing time is finished, place the float-equalize switch in the float position. Check the charger voltmeter for float (133V) voltage.

1.3 Applying an equalizing charge in AUTO.

- a. Contact Elect. Maint. to determine length of time for application of the equalizing charge and set timer to desired setting. (max. 120 hours)

NOTE: When timer expires, charger will automatically return to float operation.

- b. Notify Elect. Maint. that charge is terminated at completion of equalization time.



H. OFF NORMAL PROCEDURES (Cont'd)

2.0 Removing/Restoring a Battery Charger from Service

2.1 Removing a charger from service:

- a. Open the AC input breaker on the affected charger.
- b. Open the DC output breaker on the affected charger.
- c. Open the AC supply breaker at the 600 volt panel for the affected charger (See Table II).
- d. Open breaker 2B on the appropriate 2 BYS Switchgear.

CAUTION:

WITH THE CHARGER OUT OF SERVICE, THE BATTERY WILL DISCHARGE AT A RATE PROPORTIONAL TO THE LOAD CARRIED. DISCHARGE CAN BE MINIMIZED BY DE-ENERGIZING NON-ESSENTIAL LOADS.

2.2 Returning the charger to service:

- a. Verify charger AC and DC breakers are open.
- b. Close breaker 2B (charger output breaker) on the associated Switchgear for the charger.
- c. Close the 600 VAC charger supply breaker. See Table II.
- d. Proceed as directed in Section E.5.0b through e.

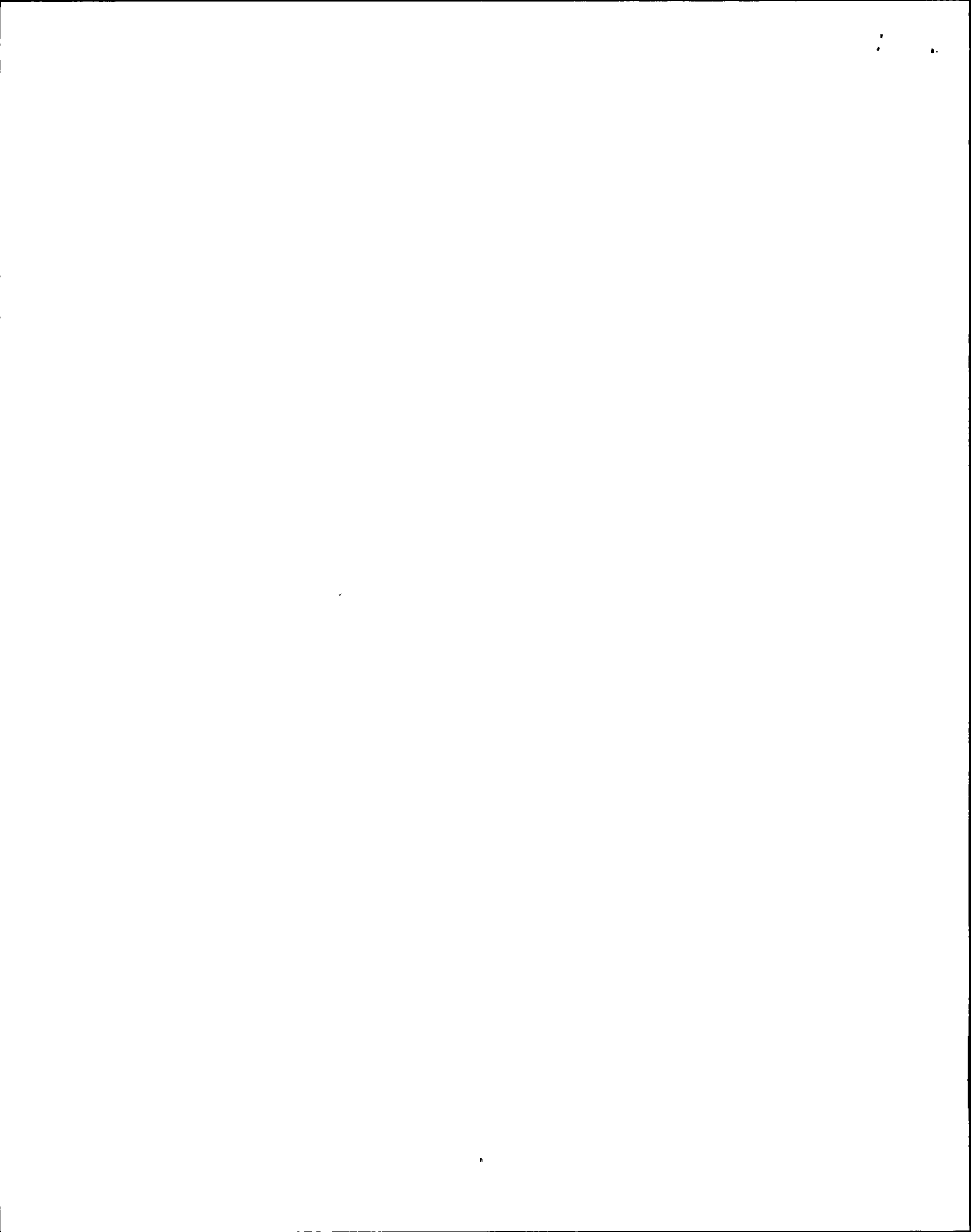
3.0 Removing/Restoring a Battery from Service

NOTES:

1. For maintenance activities of short duration it is permissible to take the batteries out of service and let the charger carry the bus. The following steps are not required to be performed. However, if a unit trip occurs during this line-up a fast (or slow) transfer may not occur.
 2. Removing Battery 1A or 1B from service requires moving fuse blocks from MAIN FEED to ALT. FEED positions in certain plant loads, as defined below. Markup these fuse blocks in accordance with instructions from the SSS in the Control Room.
- a. Removing Battery 1A from Service:
1. Move fuse blocks from the MAIN FEED positions to the ALT FEED positions in the following equipment:

a.	4160V Switchgear	Cubicle Location
	2NNS-SWG016	16-2 Right Side
	2NNS-SWG018	18-2 Right Side
	2NNS-SWG017	17-2 Right Side
b.	13.8KV Switchgear	Cubicle Location
	2NPS-SWG004	4-1 Right Side
	2NPS-SWG005	5-1 Right Side

TCN-5



H. OFF NORMAL PROCEDURES (Cont'd)

c.	600V Unit <u>Substation</u>	<u>Cubicle</u>	<u>Location</u>
	2NJS-US1	3A	Right Side
	2NJS-US2	3A	Right Side
	2NJS-US3	3A	Right Side
	2NJS-US4	3A	Right Side
	2NJS-US5	3A	Right Side
	2NJS-US6	3A	Right Side
	2NJS-US7	3A	Right Side
	2NJS-US8	3A	Right Side
	2NJS-US9	3A	Right Side
	2NJS-US10	3A	Right Side

2. Move fuse blocks from Battery A positions to Battery B positions in the following 4160V Switchgear:

2NNS-SWG011/12	Cub 11-3	Rear
2NNS-SWG013	Cub 13-6	Rear
2NNS-SWG014	Cub 14-8	Rear
2NNS-SWG015	Cub 15-1	Rear

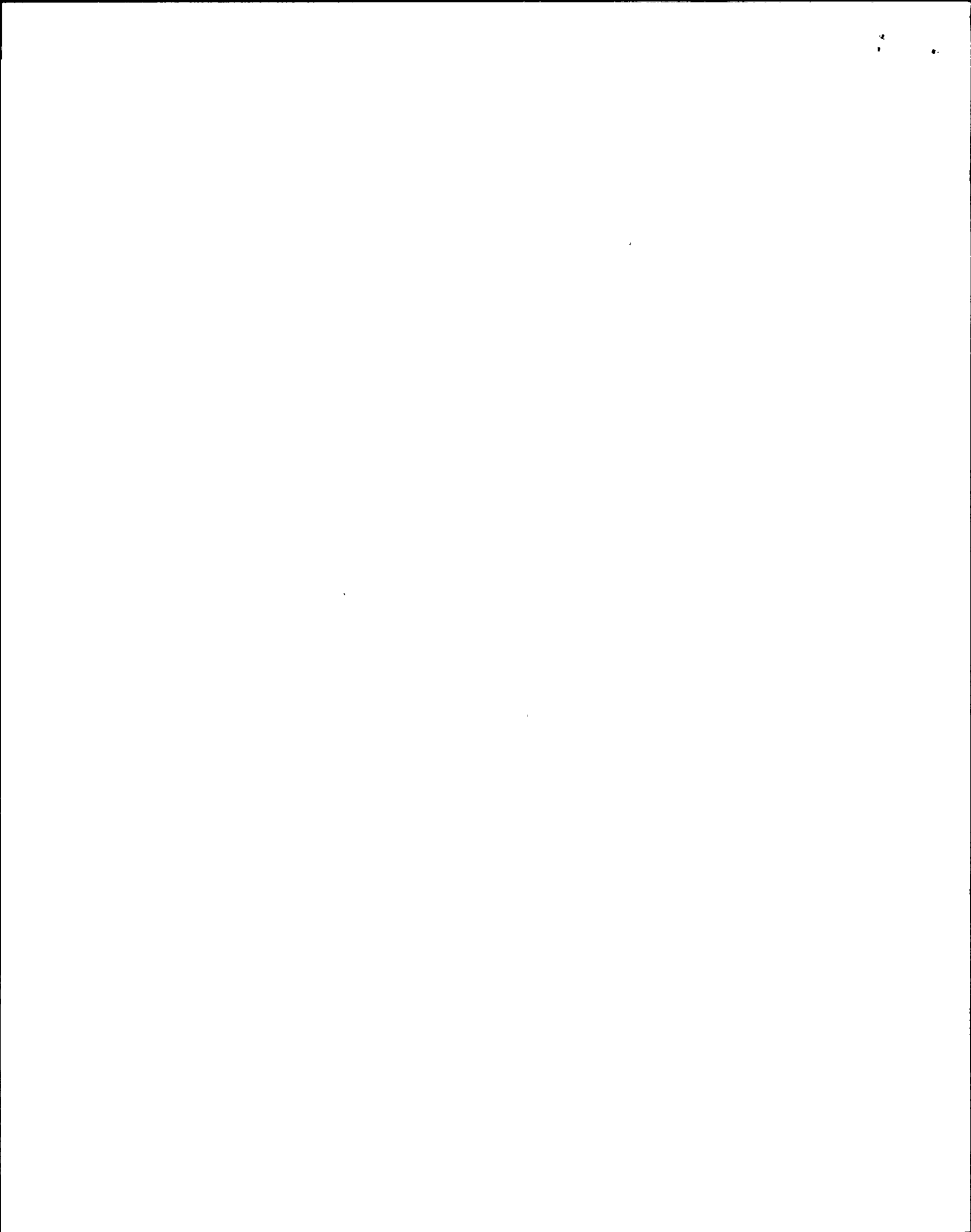
3. Move fuse blocks from BUS A positions to BUS B positions in the following 13.8.KV Switchgear:

2NPS-SWG001	Cub 1-2	Rear
2NPS-SWG002	Cub 2-4	Rear
2NPS-SWG003	Cub 3-15	Rear

4. Ensure BUS Load is within capacity of its charger and its charger is in operation.
5. Open the 1B breaker on DC Switchgear 2BYS-SWG001A and markup and tag as required.
6. Verify BUS voltage is \approx 135V and charger is carrying the load. TCN-3

- b. Returning Battery 1A to Service:

1. Clear markups on equipment as required.
2. See Section H.1.0 to determine if the battery requires equalizing.
3. Close breaker 1B on DC Switchgear 2BYS-SWG001A.
4. Return fuse blocks to MAIN FEED positions in all equipment except those in Section H.3.0.A.2.
5. Return fuse blocks to Battery A, Bus A and Battery B, Bus B in Switchgear listed in Section H.3.0.A.2.



H. OFF NORMAL PROCEDURES (Cont'd)

NOTE: It is also acceptable for positions Battery A, Bus B and Battery B, Bus A, as long as each trip bus is supplied by a different battery during normal operation.

c. Removing Battery 1B from Service:

1. See Section H.3.0 Note.
2. Move fuse blocks from Battery B positions to Battery A positions in the following 4160V Switchgear:

2NNS-SWG011/12	Cub 11-3	Rear
2NNS-SWG013	Cub 13-6	Rear
2NNS-SWG014	Cub 14-8	Rear
2NNS-SWG015	Cub 15-1	Rear

3. Move fuse blocks from Bus B positions to Bus A positions in the following 13.8KV Switchgear:

2NPS-SWG001	Cub 1-2	Rear
2NPS-SWG002	Cub 2-4	Rear
2NPS-SWG003	Cub 3-15	Rear

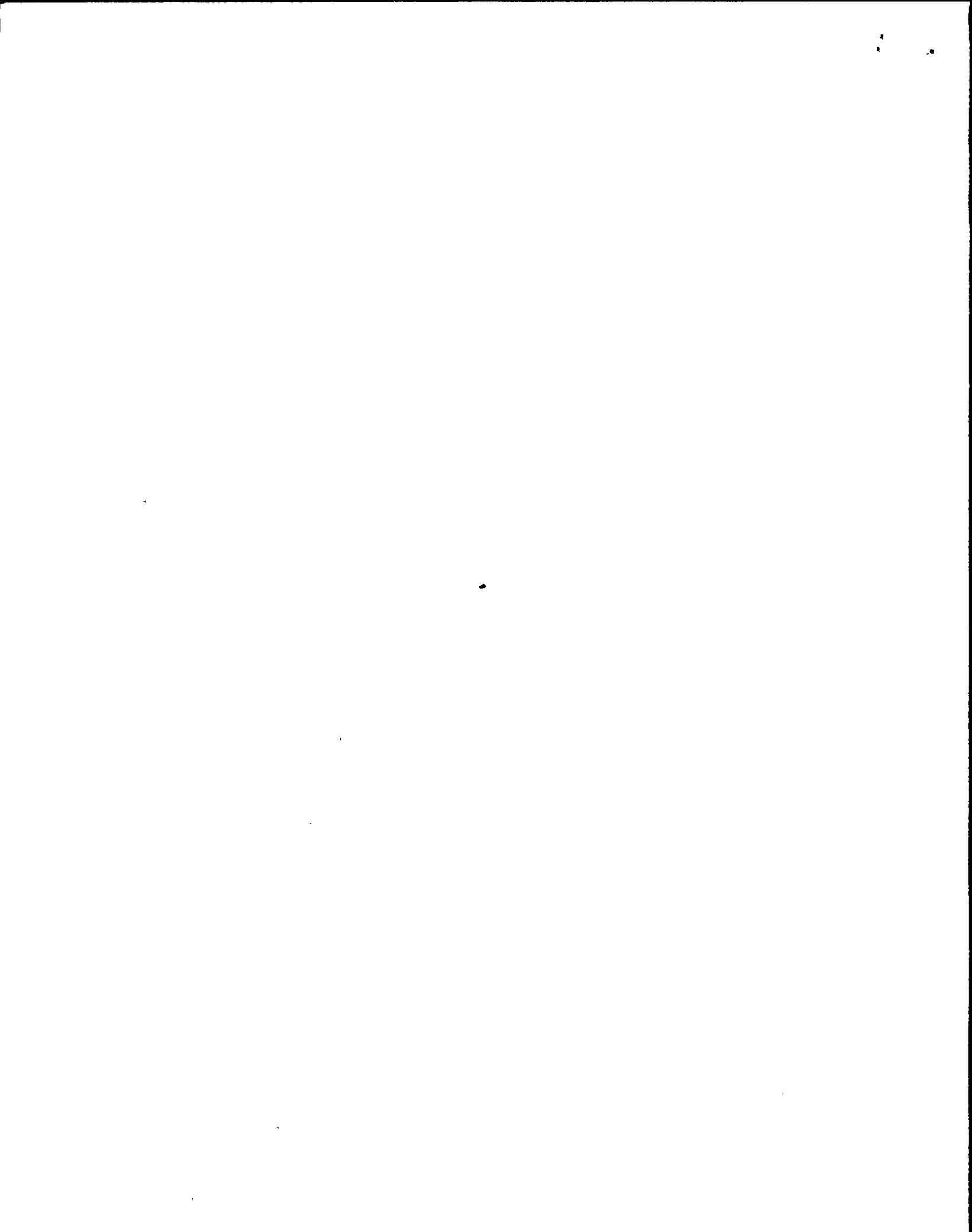
4. Ensure BUS Load is within the capacity of its charger and its charger is in operation.
5. Open the 1B breaker on DC Switchgear 2BYS-SWG001B and markup and tag as required.
6. Verify BUS voltage is \approx 135V and charger is carrying the load.

d. Returning Battery 1B to Service:

1. Clear markups on equipment as required.
2. See Section H.1.0 to determine if the battery requires equalizing.
3. Close breaker 1B on DC Switchgear 2BYS-SWG001B.
4. Return fuse blocks to Battery A, Bus A position and Battery B, Bus B in Switchgear listed in Section H.3.0.C.2.

NOTE: It is also acceptable for positions Battery A, Bus B and Battery B, Bus A, as long as each trip bus is supplied by a different battery during normal operation.

- g. Move fuseblocks to MAIN FEED positions in Switchgear listed in H.3.0.C.3.



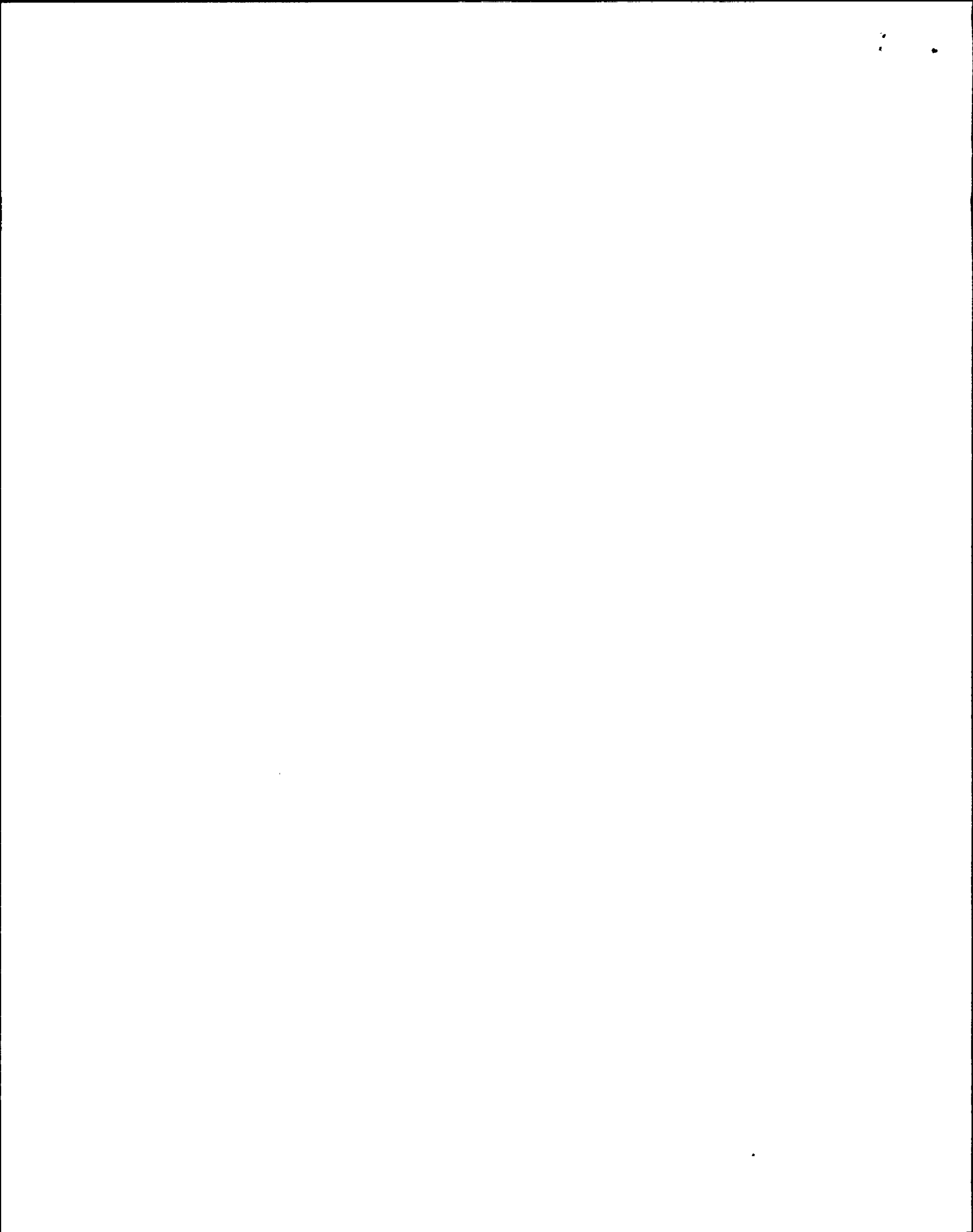
H. OFF NORMAL PROCEDURES (Cont'd)

e. Removing Battery 1C from Service:

1. Ensure BUS Load is within the capacity of its charger and the charger is in operation.
2. Open the 1B breaker on DC Switchgear 2BYS-SWG001C and markup and tag as required.
3. Verify BUS voltage is \approx 135V and charger is carrying the load. TCN-3

f. Returning Battery 1C to Service:

1. Clear markups on equipment as required.
2. Close breaker 1B on DC Switchgear 2BYS-SWG001C.
3. See Section H.1.0 to determine if the battery requires equalizing.



I. PROCEDURE TO CORRECT ALARM CONDITIONS

1.0 852501 Station Battery 1A, 1B, 1C System Trouble

Refresh: Yes

STATION BAT
1A/1B/1C
125VDC SYSTEM
TROUBLE

852501

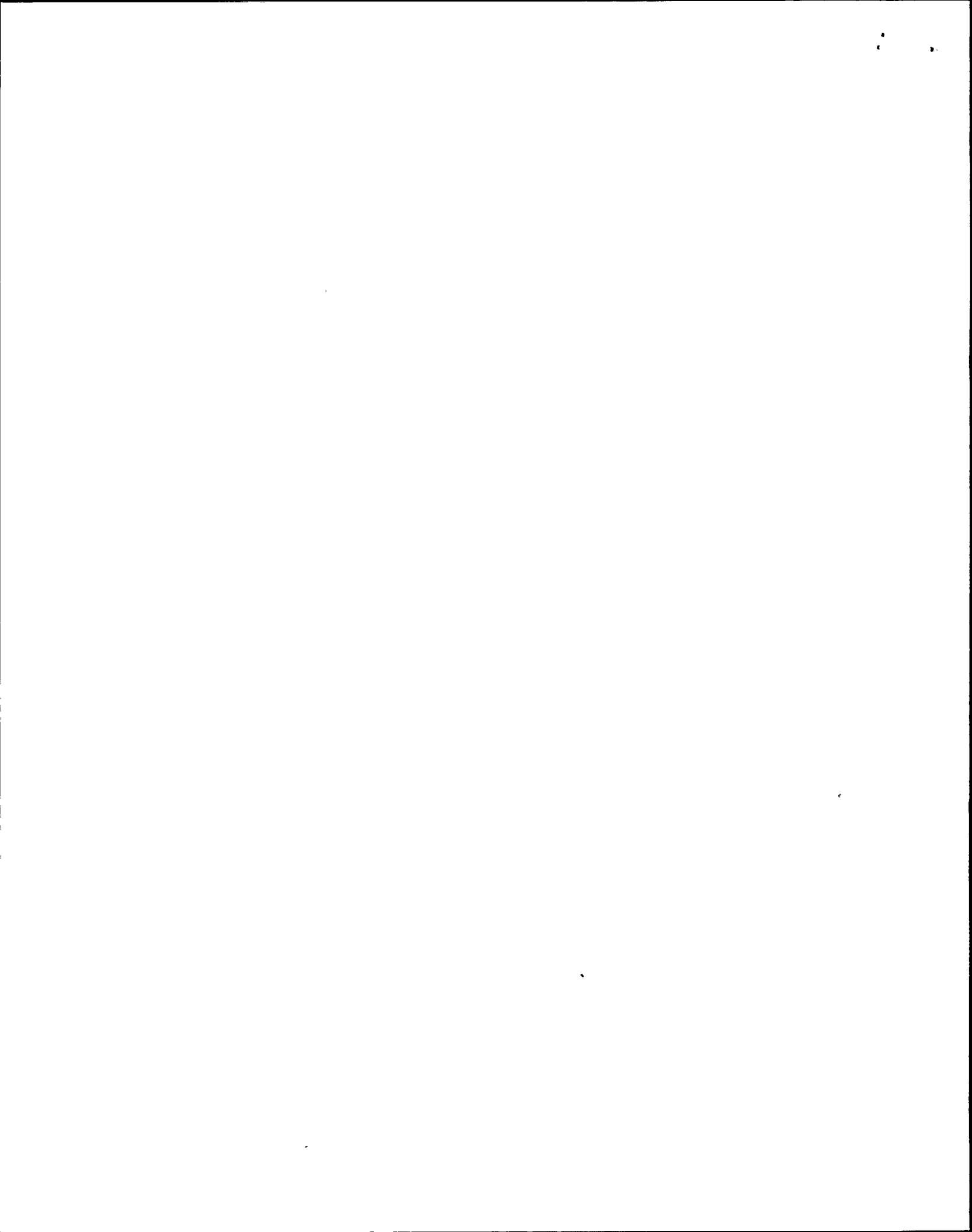
852501

NOTE: See computer printout for this window. Each computer point is a separate section and page, see the table below.

<u>Computer Point</u>	<u>Section</u>	<u>Page</u>
BYSEC01	1.1	10
BYSEC02	2.1	12
BYSEC03	3.1	13
BYSEC04	4.1	15
BYSEC05	5.1	16
BYSEC06	6.1	17
BYSEC20	7.1	18
BYSEC21	8.1	19
BYSEC22	9.1	20
BYSIC03	10.1	21
BYSIC04	11.1	22
BYSIC09	12.1	23

* 2

<u>1.1</u>	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	BYSEC01	BUS 2BYS-SWG001A VOLT	27A-BYSA08 Undervoltage relay in swgr cub. 1A Trips at 125VDC



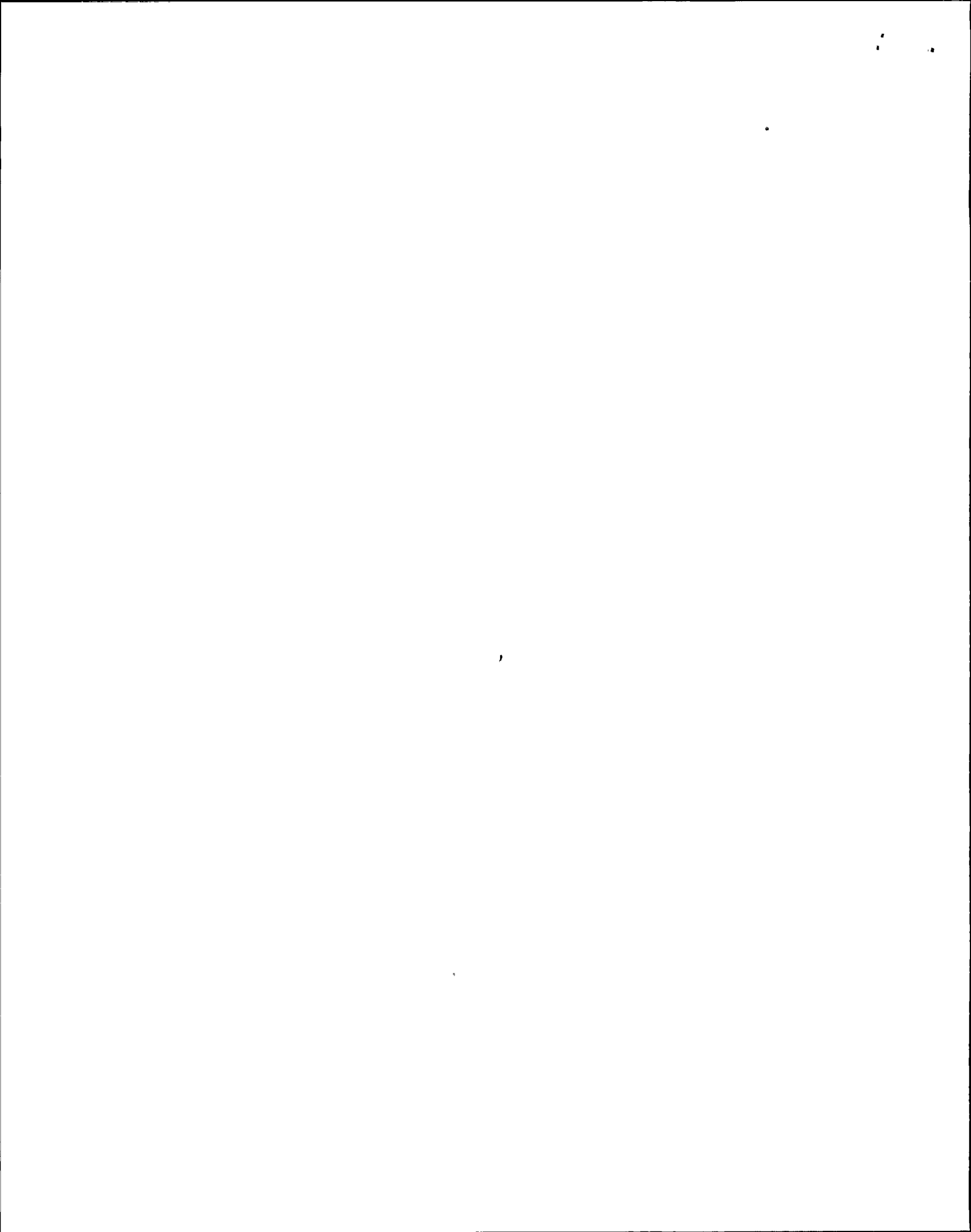
I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

1.2 Automatic Response

Possible overvoltage trip of charger.

1.3 Corrective Action

- a. Verify the low voltage condition on the rear of Control Room Panel PNL852 with the meter labeled BATTERY BUS BYS001A DC VOLTS.
- b. Look at computer printout for a high voltage condition which would have tripped the charger.
 1. If the charger has tripped, the computer will have printed the overvoltage condition. See Section I.7.1.
- c. Check the meter labeled BATTERY 1A D.C.A. for discharge (-) current, (rear of panel PNL852).
- d. If the battery is discharging and the charger has tripped, close the charger AC input breaker.
- e. If the battery is discharging and the charger has not tripped, check the power-on light on the charger.
 1. If the charger is current limited, see if the UPS (see Table II) is on normal AC supply, see N2-OP-71.
 2. If the power-on light is on, and the charger is connected to the DC Switchgear bus, isolate selected loads per Table III Load List, momentarily, to find a faulted branch, then notify Electrical Maintenance of the bus fault and the faulted branch, if known. | 2
 3. If the charger is not connected to the D.C. Bus, open the AC input breaker, then connect to the open D.C. Bus, then close the AC input breaker. | 2
 4. If the power-on light is off, check the AC supply breaker (see Table II) for a trip.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

2.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC02	BUS 2BYS-SWG001A VOLT	27B-BYSA08 Undervoltage relay in swgr cub. 1A Trips at 110VDC

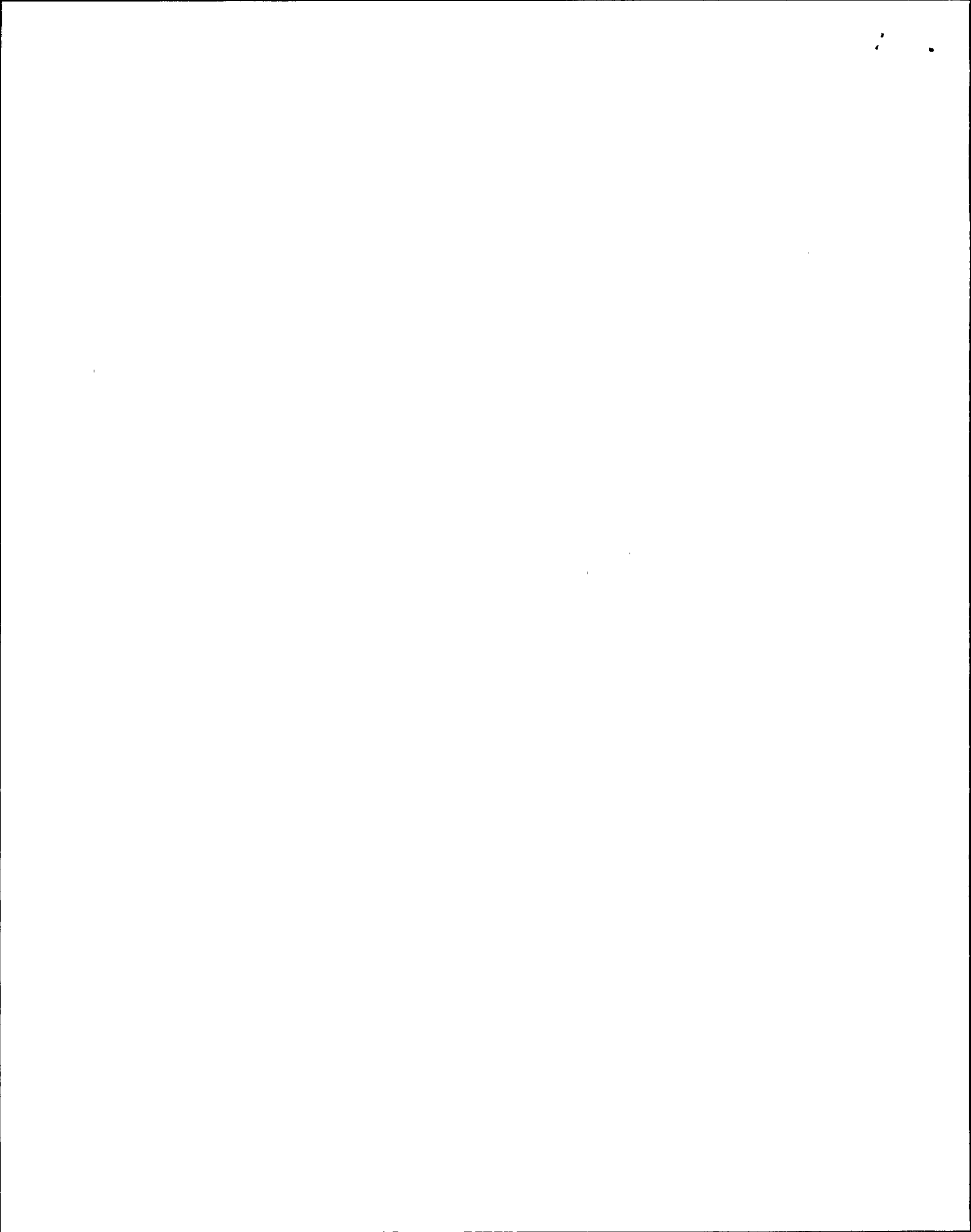
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2.2 Automatic Response

None

2.3 Corrective Action

- a. Verify the voltage on the meter labeled BATTERY BUS BYS001A D.C. VOLTS on the rear of Control Room Panel PNL852.
- b. If AC power is available to the charger, begin an equalizing charge per Section H.1.0.
- c. If AC power is not available to the charger, shed loads until only essential loads remain. See Table III Load List for effects on plant.
- d. Monitor battery voltage closely, move loads per Section H.3.0.A and disconnect the battery before it reaches 105V. See Table III Load List for effects on Plant.
- e. Charge the battery per Section H.1.0 as soon as possible.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

3.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC03	BUS 2BYS-SWG001B VOLT	27A-BYSB08 Undervoltage relay in swgr cub. 1A Trips at 125VDC

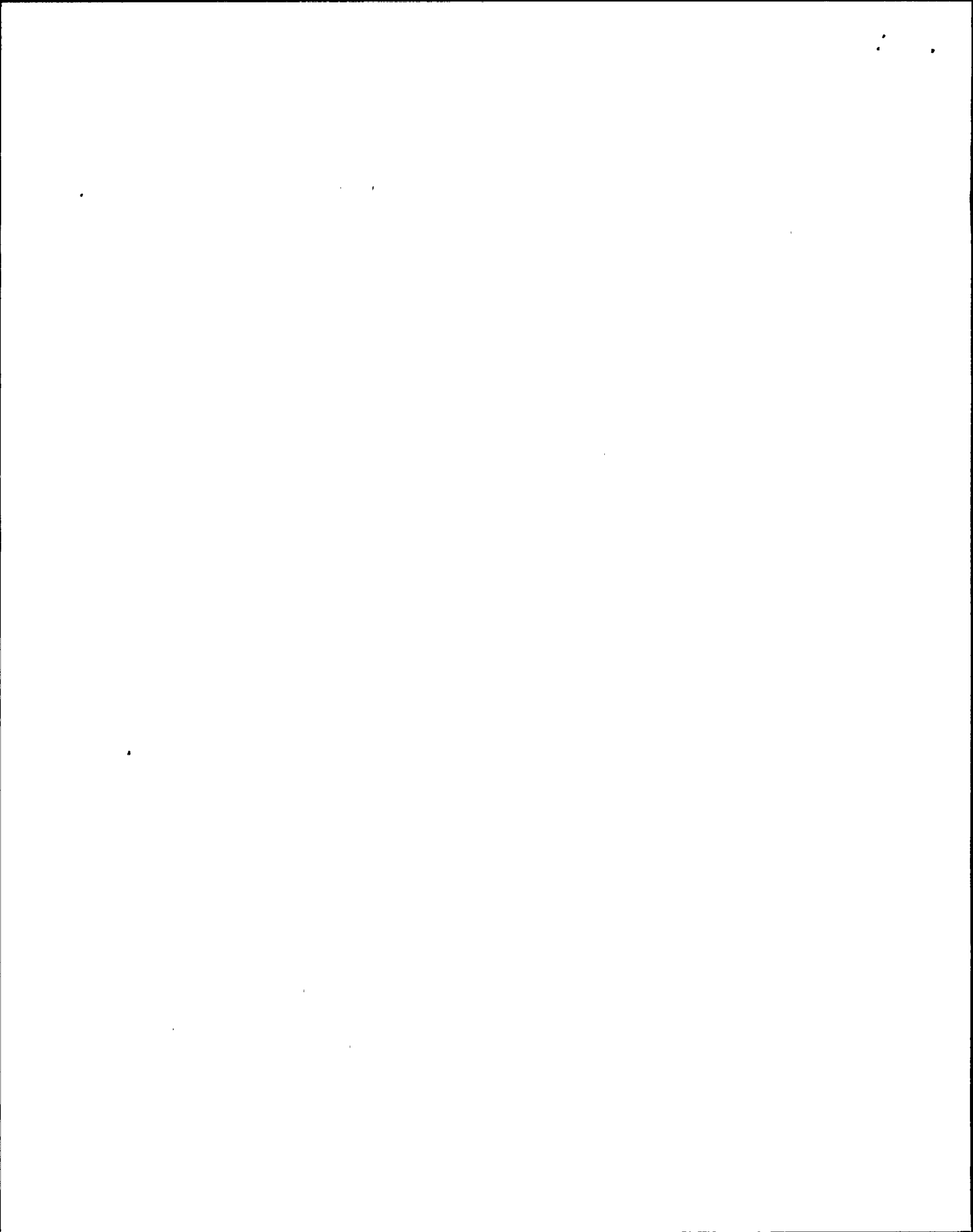
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3.2 Automatic Response

Possible overvoltage trip of charger.

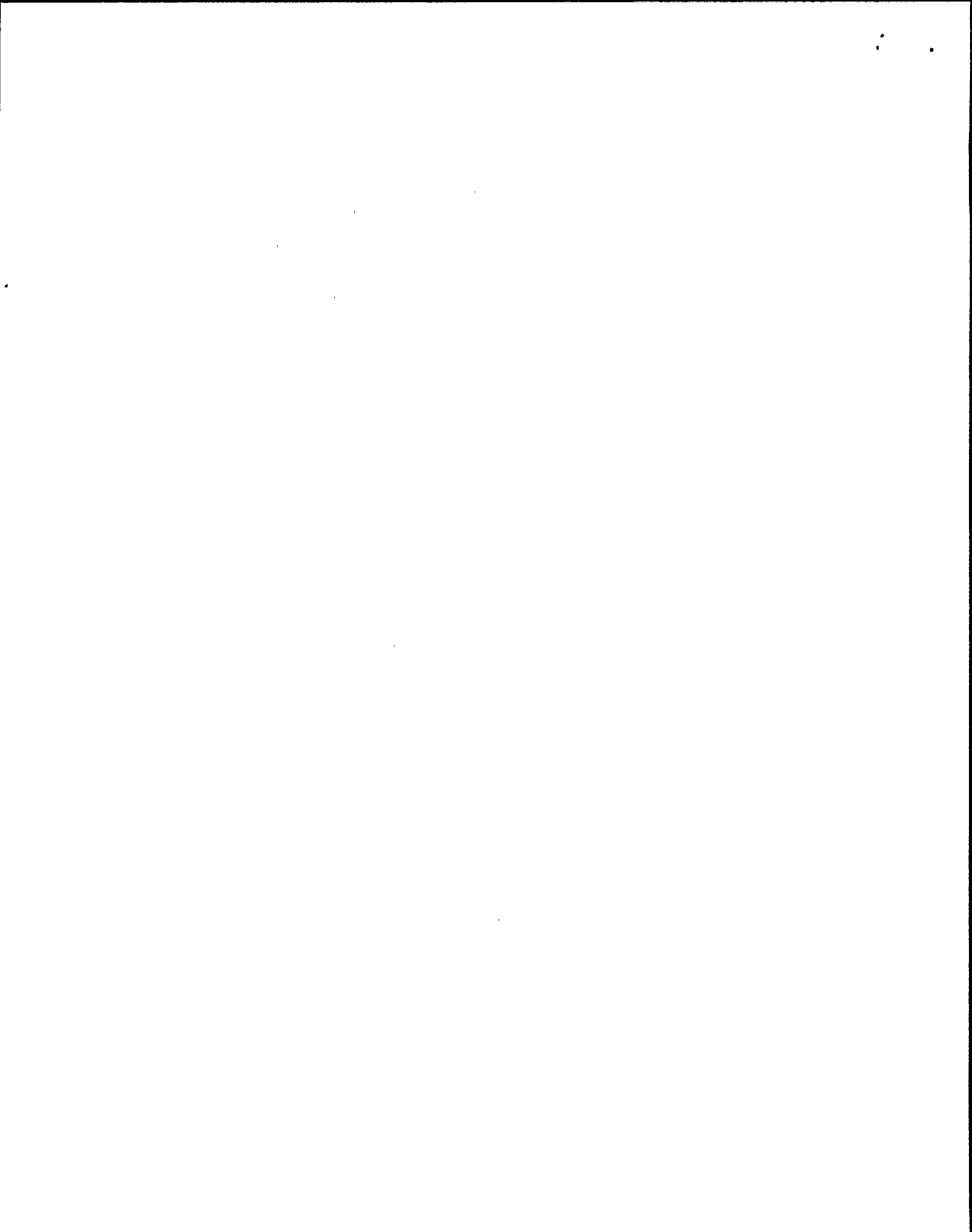
3.3 Corrective Action

- a. Look at the computer printout for a high voltage condition which would trip the charger.
- b. Verify the low voltage on the meter labeled BATTERY BUS BYS001B D.C. VOLTS, on the rear of Control Room Panel PNL852.
 1. If the charger is current limited, see if the UPS (see Table II) is on normal AC supply, see N2-OP-71.
 2. If the charger has tripped and the charger is connected to the Switchgear bus, the computer will have printed the overvoltage condition. See Section I.8.1.
 3. If the charger is not connected to the bus, open the AC input breaker, then connect to the bus, then close the AC input breaker.
- c. Check the meter labeled BATTERY 1B D.C.A. for discharge (-) current, (rear of panel PNL852).
- d. If the battery is discharging and charger has tripped, close the charger AC input breaker.
- e.. If the battery is discharging and the charger has not tripped, check the power-on light on the charger.
 1. If the charger is current limited, see if the UPS (see Table II) is on normal AC supply, see N2-OP-71.
 2. If the power-on light is on and the charger is connected to the Switchgear bus, isolate selected loads per Table III Load List, momentarily, to find a faulted branch, then notify Electrical Maintenance of the bus fault and the faulted branch, if known.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

3. If the charger is not connected to the bus, open the AC input breaker, then connect to the bus, then close the AC input breaker.
- f. If the power-on light is off, check the AC supply breaker (see Table II) for a trip.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

4.0 852501 Station Battery 1A, 1B, 1C System Trouble

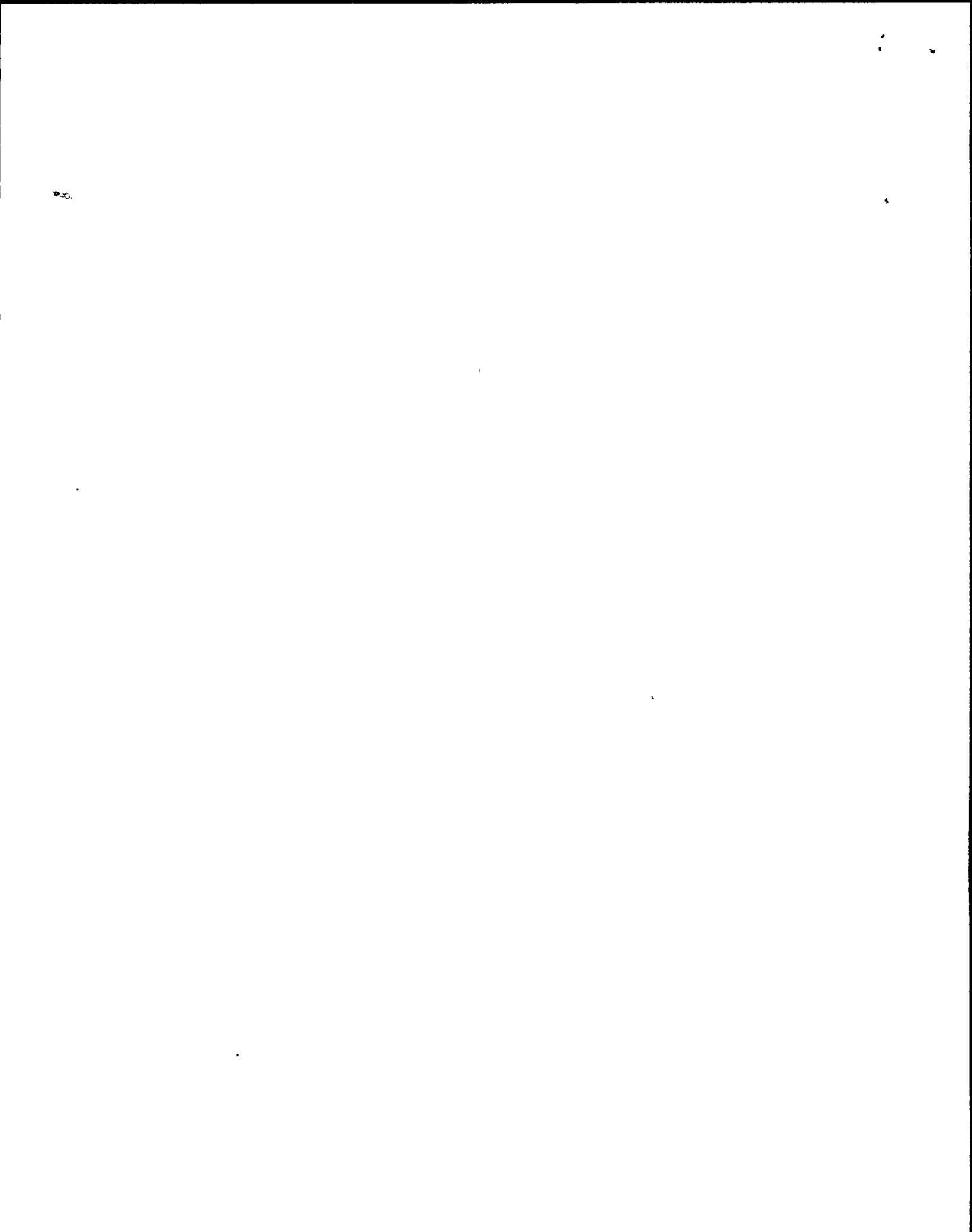
<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC04	BUS 2BYS-SWG001B VOLT	27B-BYSB08 Undervoltage relay in swgr cub. 1A trips at 110VDC

4.2 Automatic Response

None

4.3 Corrective Action

- a. Verify the voltage on the meter labeled BATTERY BUS BYS001B DC VOLTS on the rear of Control Room Panel PNL852.
- b. If AC power is available to the charger, begin an equalizing charge per Section H.1.0.
- c. If AC power is not available to the charger, shed loads until only essential loads remain. See Table III Load List for effects on plant.
- d. Monitor battery voltage closely, move loads per Section H.3.0.C and disconnect the battery before it reaches 105V. | 2
See Table III Load List for effects on plant.
- e. Charge the battery per Section H.1.0 as soon as possible.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

5.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC05	BUS 2BYS-SWG001C VOLT	27A-BYSC08 Undervoltage relay in swgr cub. 1A Trips at 125VDC

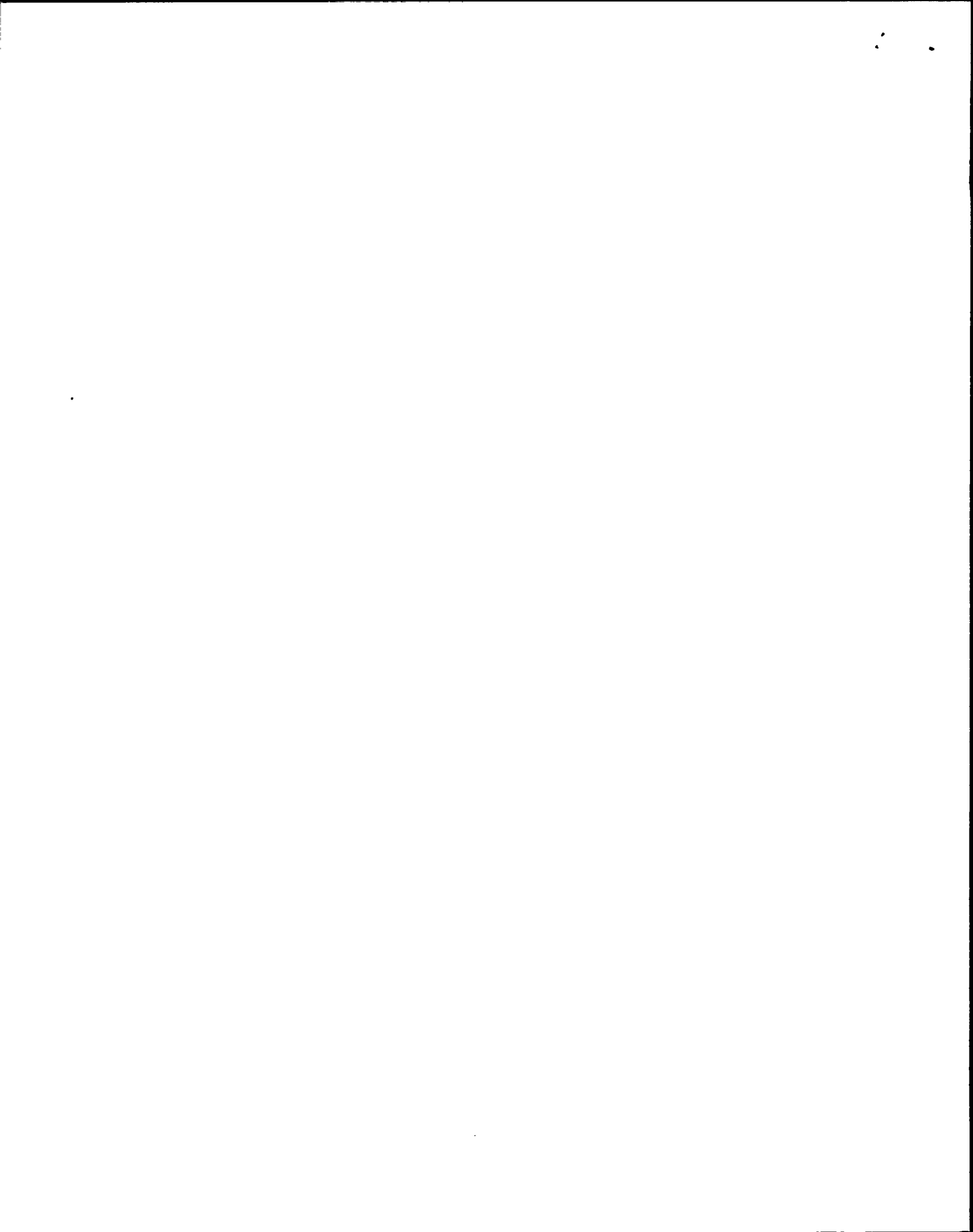
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5.2 Automatic Response

Possible overvoltage trip of charger.

5.3 Corrective Action

- a. Verify the low voltage on the meter labeled BATTERY BUS BYS001C DC VOLTS, on the rear of Control Room Panel PNL852.
- a. Look at the computer printout for a high voltage condition which would trip the charger.
 1. If the charger has tripped, the computer will have printed the overvoltage condition. See Section I.9.1.
- c. Check the meter labeled BATTERY 1C D.C.A. for discharge (-) current, (on the rear of panel PNL852).
- d. If the battery is discharging and charger has tripped, close the charger AC input breaker.
- e. If the battery is discharging and the charger has not tripped, check the power-on light on the charger 2. If the power-on light is on and the charger is connected to the Switchgear bus, isolate selected loads per Table III Load List, momentarily, to find a faulted branch, then notify Electrical Maintenance of the bus fault and the faulted branch, if known.
 1. If the charger is current limited, see if the UPS (see Table II) is on normal AC supply, see N2-OP-71.
 2. If the power-on light is off, check the AC supply breaker (see Table II) for a trip.
 3. If the charger is not connected to the bus, open the AC inlet breaker, then connect to the bus, then close the AC input breaker.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

6.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC06	BUS 2BYS-SWG001C VOLT	27B-BYSC08 Undervoltage relay in swgr cub. 1A Trips at 110VDC

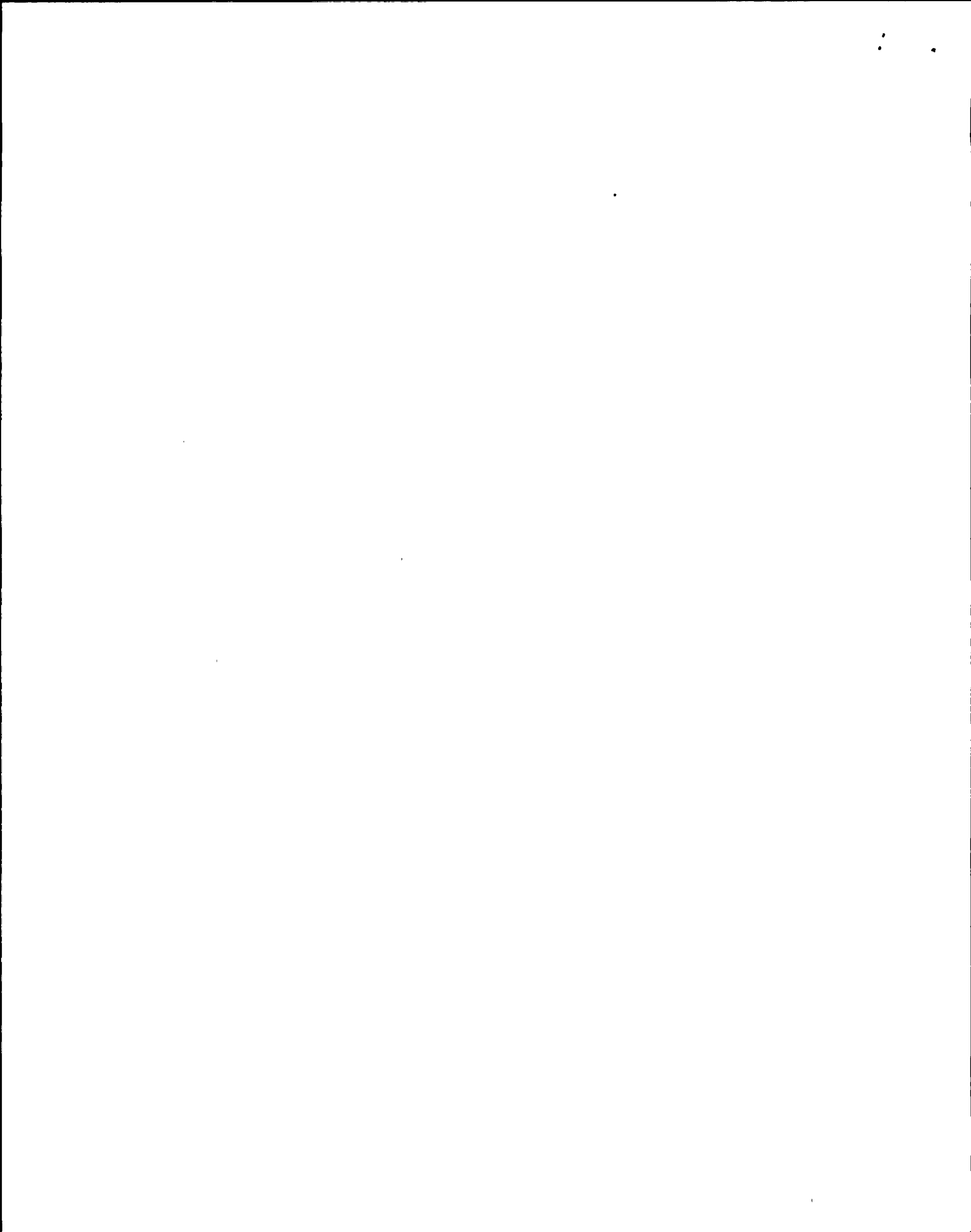
| * 1

6.2 Automatic Response

None

6.3 Corrective Action

- a. Verify the voltage on the meter labeled BATTERY BUS BYS001C DC VOLTS on the rear of Control Room Panel PNL852.
- b. If AC power is available to the charger, begin an equalizing charge per Section H.1.0.
- c. If AC power is not available to the charger, shed loads until only essential loads remain. See Table III Load List for effects on plant.
- d. Monitor battery voltage closely and disconnect the battery before it reaches 105V. See Table III Load List for effects on the plant.
- e. Charge the battery per Section H.1.0 as soon as possible.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

7.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC20	2BYS-CHGR1A VOLT	K1-1 overvoltage relay in charger 1A1 trip at 142VDC

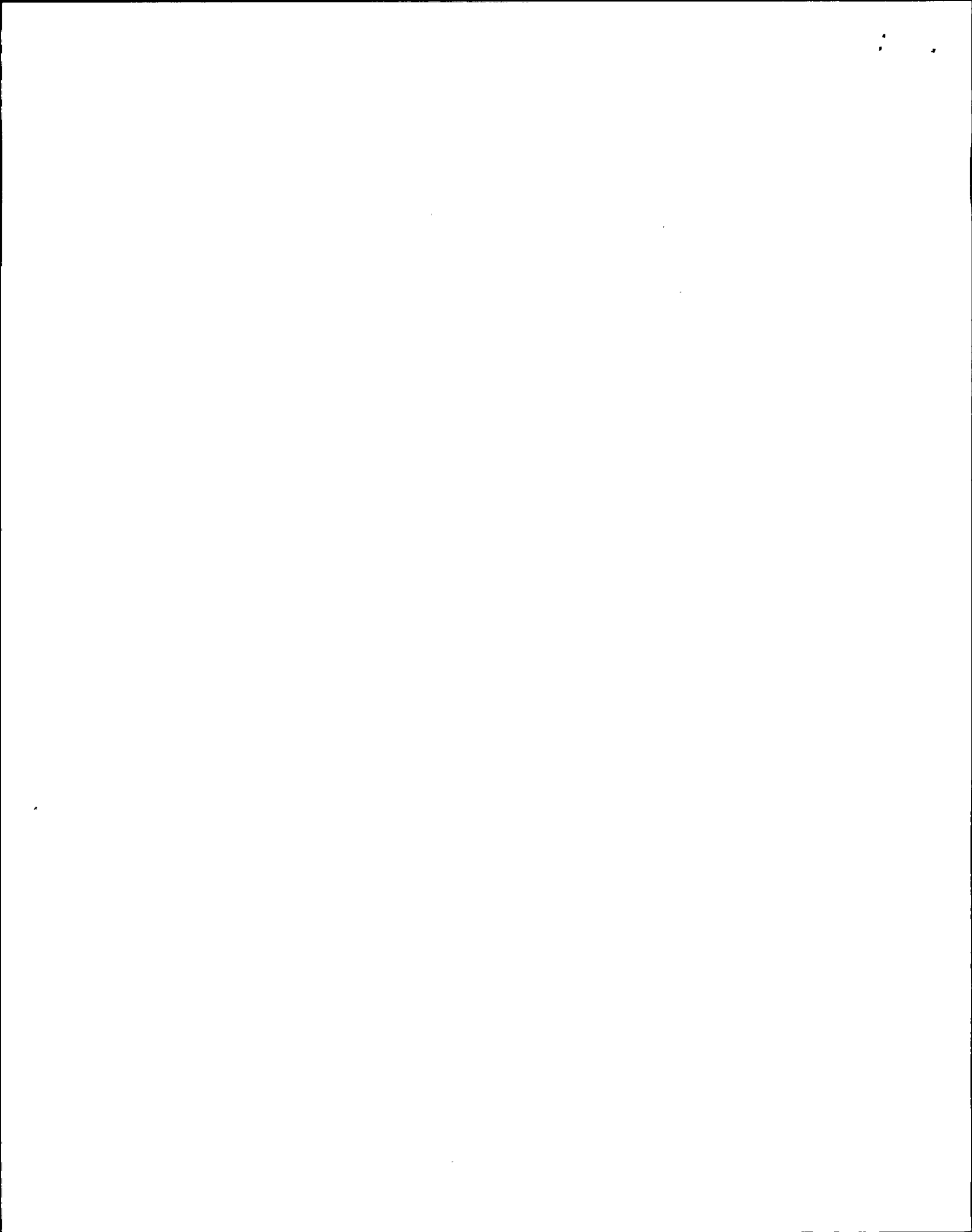
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7.2 Automatic Response

Trip of AC input breaker on charger 1A1.

7.3 Corrective Action

- a. Verify overvoltage condition on meter labeled BATTERY BUS BYS001A D.C. VOLTS on the rear of Control Room Panel PNL852. If charger has tripped, meter will show 125VDC, (battery terminal voltage), and battery D.C.A. meter will show discharge (-) current.
- b. With the float/equalize switch in float, timer off, close the charger AC input breaker.
- c. If unable to restart charger, remove the charger from service per Section H.2.0, and notify Electrical Maintenance of the charger problem.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

8.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSEC21	2BYS-CHGR1B VOLT	K1-1 · overvoltage relay in charger 1B1 trip at 142VDC

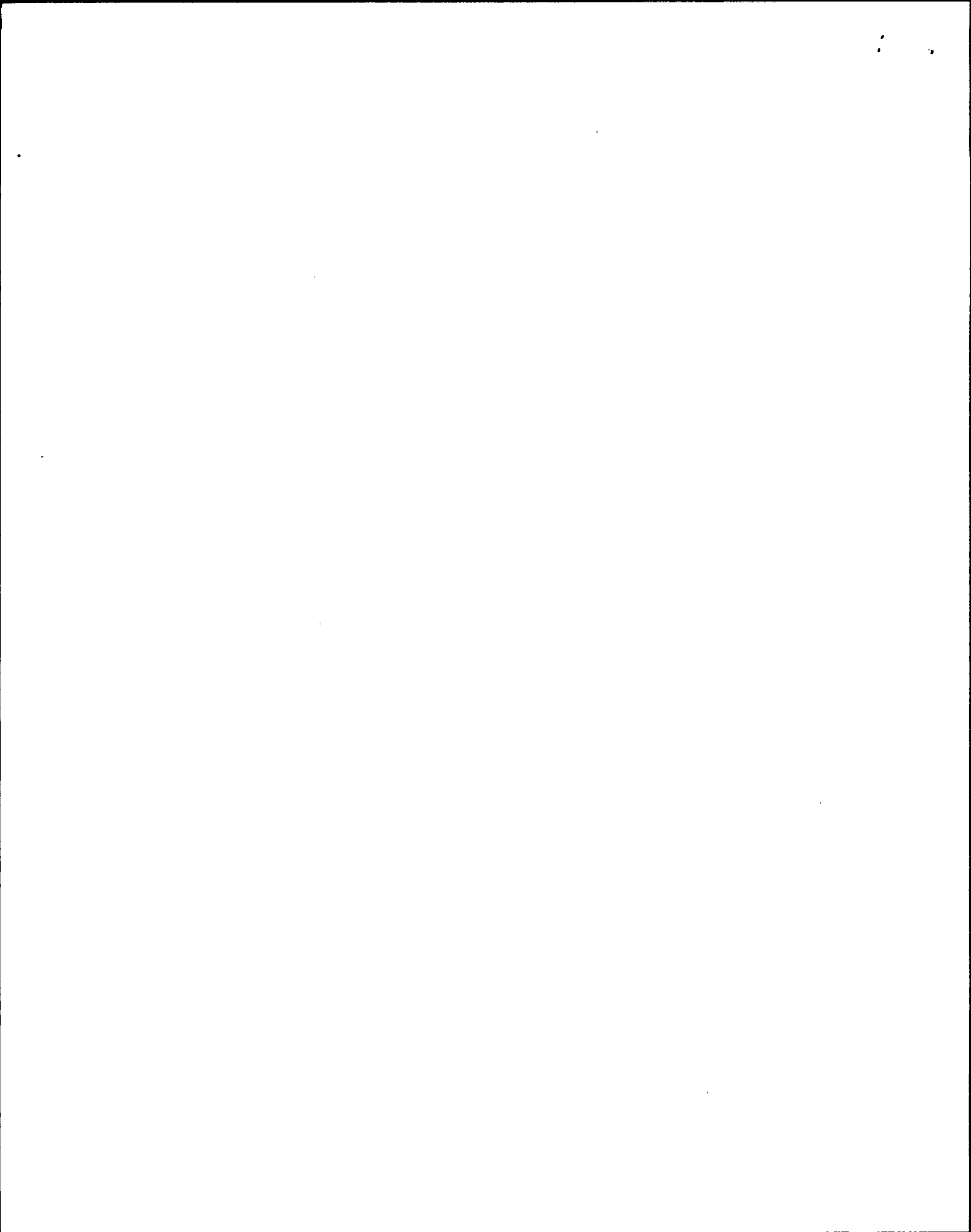
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8.2 Automatic Response

Trip of AC input breaker on charger 1B1.

8.3 Corrective Action

- a. Verify overvoltage condition on meter labeled BATTERY BUS BYS001B D.C. VOLTS on the rear of Control Room Panel PNL852. If charger has tripped, meter will show 125VDC, (battery terminal voltage), and battery D.C.A. meter will show discharge (-) current.
- b. With the float/equalize switch in float, timer off, close the charger AC input breaker.
- c. If unable to restart charger, remove the charger from service per Section H.2.0, and notify Electrical Maintenance of the charger problem.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

9.0 852501 Station Battery 1A, 1B, 1C System Trouble

9.1	<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
	BYSEC22	2BYS-CHGR1C VOLT	K1-1 · overvoltage relay in charger 1C1 trip at 142VDC

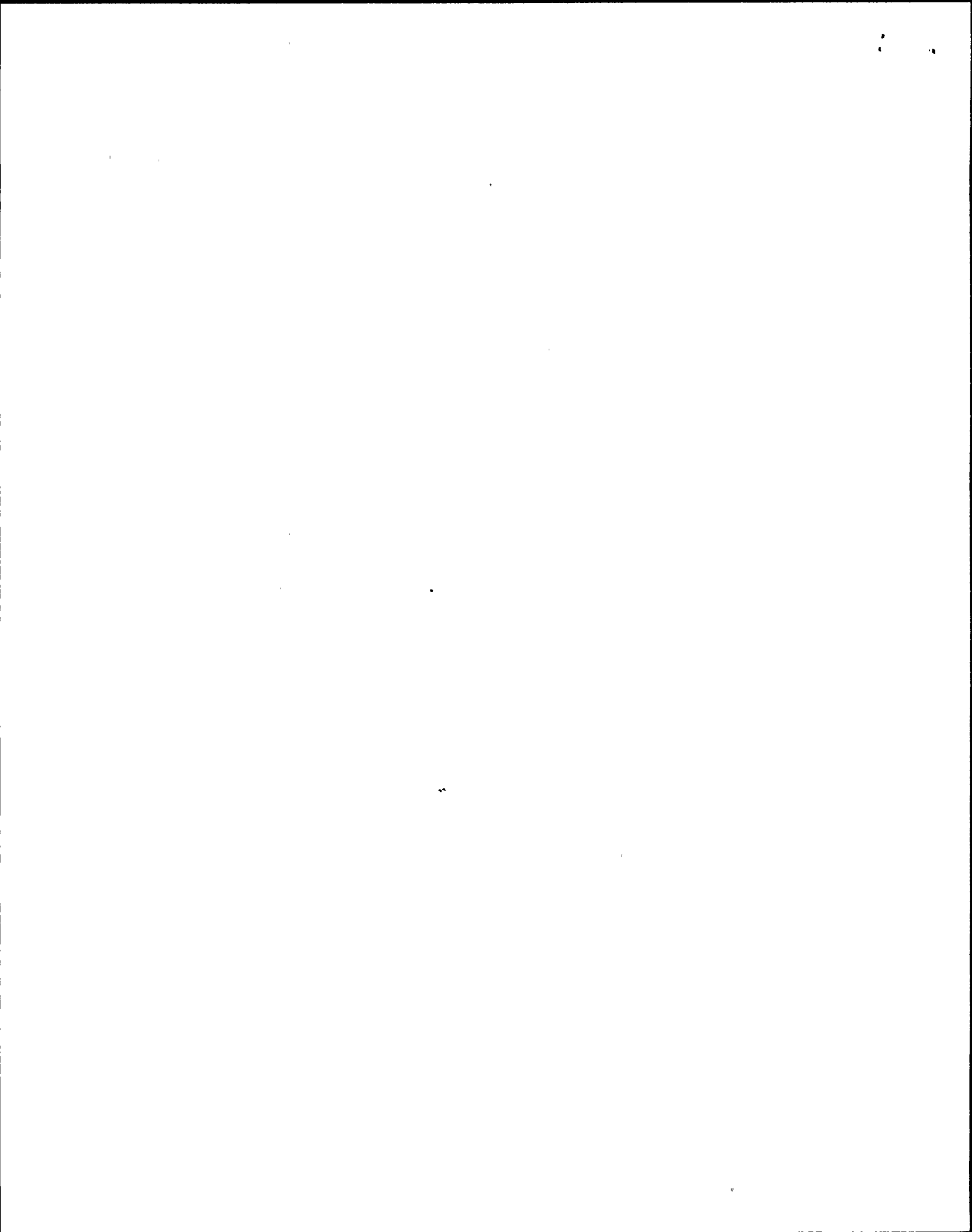
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9.2 Automatic Response

Trip of AC input breaker on charger 1C1.

9.3 Corrective Action

- a. Verify overvoltage condition on meter labeled BATTERY BUS BYS001C D.C. VOLTS on the rear of Control Room Panel PNL852. If charger has tripped, meter will show 125VDC, (battery terminal voltage), and battery D.C.A. meter will show discharge (-) current.
- b. With the float/equalize switch in float, timer off, close the charger AC input breaker.
- c. If unable to restart charger, remove the charger from service per Section H.2.0, and notify Electrical Maintenance of the charger problem.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

10.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSIC03	125VDC STA BAT 1A Ground	BYSAO4 Ground detection circuit in Control Room Panel PNL852.

10.2 Automatic Response

None

10.3 Corrective Action

- a. Verify the ground signal on the meter labeled BATTERY 1A GND DETECTION, on the rear of Control Room Panel PNL852.
- b. Press and hold the gnd detection test pushbutton and rotate the control knob to pos. and neg. and determine on which bus and to what extent the ground is present.

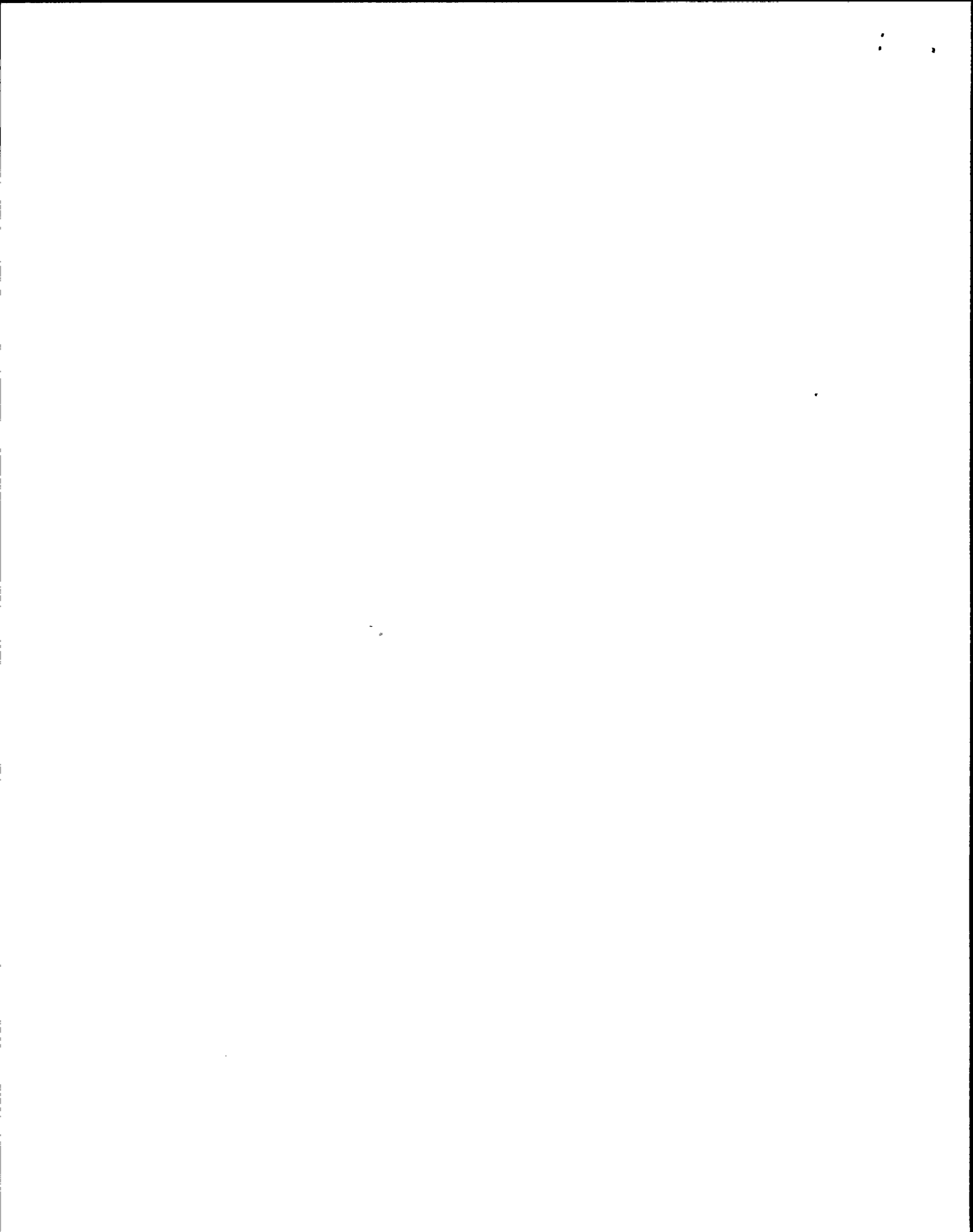
NOTE: Do not open battery breaker unless the charger is energized and connected to the Switchgear bus and not current limited.

- c. At the battery Switchgear SWG-001A, verify that breakers 1B and 2B are closed and momentarily open breaker 1B to see if the gnd condition clears. This will indicate a ground in the bus or on the battery.
- d. If the ground signal clears, then the battery is in ground fault and notify Electrical Maintenance of battery condition.

CAUTION:

PRIOR TO DE-ENERGIZING CIRCUITS TO LOCATE THE GROUND, REVIEW EFFECTS LISTED IN TABLE III. DE-ENERGIZING SOME LOADS CAN CAUSE LOSS OF EQUIPMENT IMPORTANT TO SAFETY OR COULD CAUSE INADVERTANT INITIATION OF ESF EQUIPMENT.

- e. If the ground signal does not clear, then the bus is in ground fault. Begin selectively isolating loads, as plant conditions permit, until the faulted branch is found. Notify Electrical Maintenance of the source of the fault.



I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

11.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSIC04	125VDC STA BAT 1B Ground	BYSB04 Ground detection circuit in Control Room Panel PNL852.

11.2 Automatic Response

None

11.3 Corrective Action

- a. Verify the ground signal on the meter labeled BATTERY 1B GND DETECTION, on the rear of Control Room Panel PNL852.
- b. Press and hold the gnd detection test pushbutton and rotate the control knob to pos. and neg. and determine on which bus to what extent the ground is present.

NOTE: Do not open battery breaker unless the charger is energized and connected to the Switchgear bus and not current limited.

- c. At the battery Switchgear SWG001B, verify that breakers 1B and 2B are closed and momentarily open breaker 1B to see if the gnd condition clears. This will indicate a ground in the bus or on the battery.
- d. If the ground signal clears, then the battery is in ground fault and notify Electrical Maintenance of battery condition.

CAUTION:

PRIOR TO DE-ENERGIZING CIRCUITS TO LOCATE THE GROUND, REVIEW EFFECTS LISTED IN TABLE III. DE-ENERGIZING SOME LOADS CAN CAUSE LOSS OF EQUIPMENT IMPORTANT TO SAFETY OR COULD CAUSE INADVERTANT INITIATION OF ESF EQUIPMENT.

- e. If the ground signal does not clear, then the bus is in ground fault. Begin selectively isolating loads, as plant conditions permit, until the faulted branch is found. Notify Electrical Maintenance of the source of the fault.

I. PROCEDURE TO CORRECT ALARM CONDITIONS (Cont'd)

12.0 852501 Station Battery 1A, 1B, 1C System Trouble

<u>Computer Point</u>	<u>Computer Printout</u>	<u>Source</u>
BYSIC09	125VDC STA BAT 1C Ground	BYSC04 Ground detection circuit in Control Room Panel PNL852.

12.2 Automatic Response

None

12.3 Corrective Action

- a. Verify the ground signal on the meter labeled BATTERY 1C GND DETECTION, on the rear of Control Room Panel PNL852.
- b. Press and hold the gnd detection test pushbutton and rotate the control knob to pos. and neg. and determine on which bus and to what extent the ground is present.

NOTE: Do not open battery breaker unless the charger is energized and connected to the Switchgear bus and not current limited.

- c. At the battery Switchgear SWG001C, verify that breakers 1B and 2B are closed and momentarily open breaker 1B to see if the gnd condition clears. This will indicate a ground in the bus or on the battery.
- d. If the ground signal clears, then the battery is in ground fault and notify Electrical Maintenance of battery condition.

CAUTION:

PRIOR TO DE-ENERGIZING CIRCUITS TO LOCATE THE GROUND, REVIEW EFFECTS LISTED IN TABLE III. DE-ENERGIZING SOME LOADS CAN CAUSE LOSS OF EQUIPMENT IMPORTANT TO SAFETY OR COULD CAUSE INADVERTANT INITIATION OF ESF EQUIPMENT.

- e. If the ground signal does not clear, then the bus is in ground fault. Begin selectively isolating loads, as plant conditions permit, until the faulted branch is found. Notify Electrical Maintenance of the source of the fault.

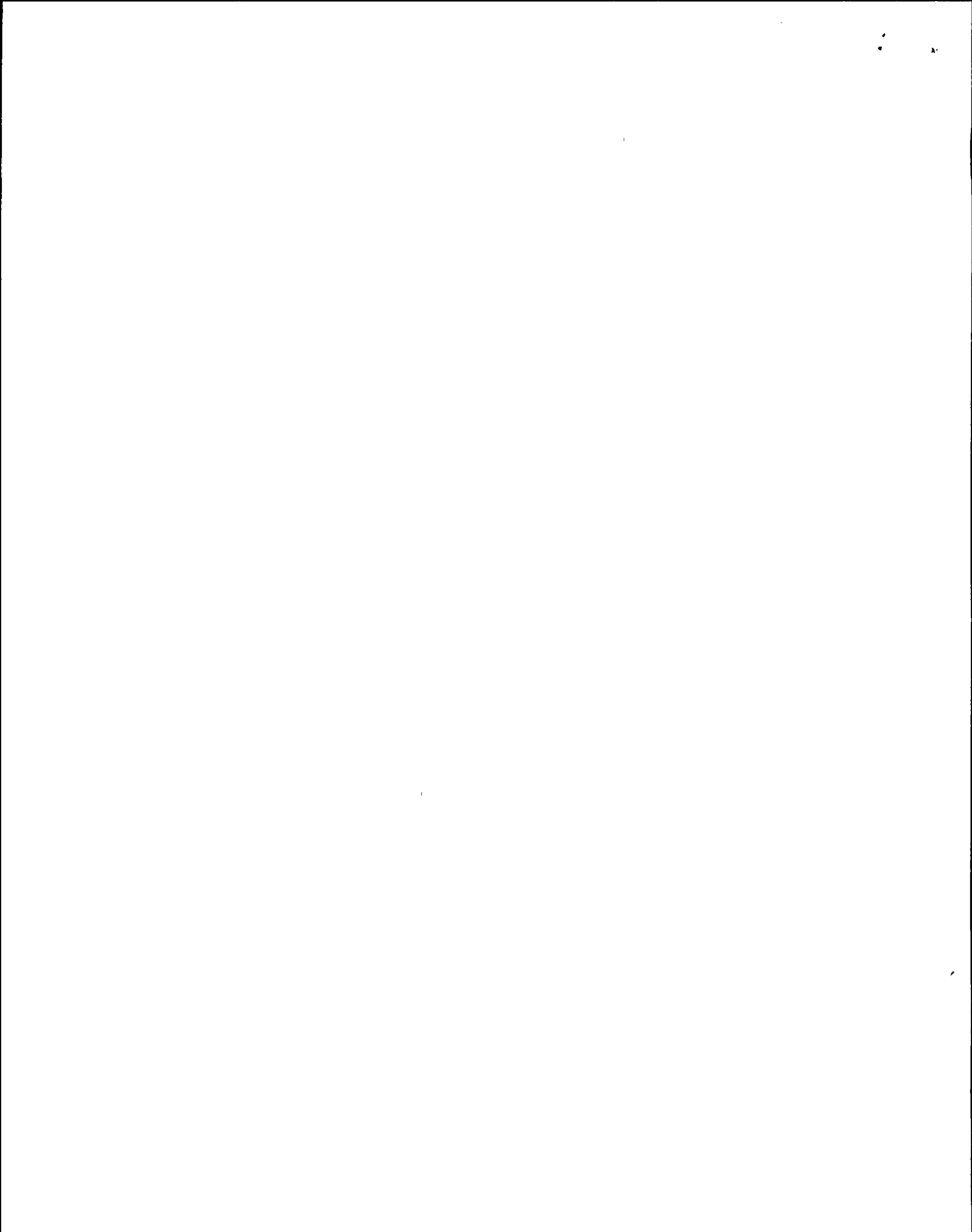


TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2BYS-BAT 1A	Station Battery 1A	2BYS-SWG001A	1B	Closed			
2BYS-ICR1A1	Battery 1A Charger	2BYS-SWG001A	2B	Closed			
2VBB-UPS 1A	A Instrument & Control UPS	2BYS-SWG001A	2C	Closed			
2VBB-UPS 1C	Lighting UPS (Backup Supply)	2BYS-SWG001A	2D	Closed			
2BYS A04	Ground Detection Circuit	2BYS-SWG001A	1A (Back Panel)	Fuses Installed			TCN-2
2BYS A08	DC Metering & Relaying	2BYS-SWG001A	1A (Back Panel)	Fuses Installed			TCN-2
2TML-P5	Emergency Bearing Lube Oil Pump	2BYS-SWG001A	3B	Closed			
2NJS-US1 Cub.3A	DC Control Power	2BYS-SWG001A	5/1	On,			TCN-2
2NJS-US2 Cub.3A	DC Control Power	2BYS-SWG001A	5/2	On,			

TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2NJS-US3 Cub.3A	DC Control Power	2BYS-SWG001A	5/3	On,			
2NJS-US4 Cub.3A	DC Control Power	2BYS-SWG001A	5/4	On,			
2NJS-US5 Cub.3A	DC Control Power	2BYS-SWG001A	5/5	On,			
2NJS-US6 Cub.3A	DC Control Power	2BYS-SWG001A	5/6	On,			
2NJS-US7 Cub.3A	DC Control Power	2BYS-SWG001A	5/7	On,			
2NPS-SWG001 Cub.2	DC Control Power	2BYS-SWG001A	5/8	On,			
2NPS-SWG002 Cub.4	DC Control Power	2BYS-SWG001A	5/9	On,			

TCN-2

TABLE II

SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number - Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2NPS-SWG003 Cub. 15	DC Control Power	2BYS-SWG001A 5/10	On,			
2YUL-MDS1	115KV Motor Operated Switch	2BYS-SWG001A 5/11	On,			
2YUC-MDS5	115KV Motor Operated Switch	2BYS-SWG001A 5/12	On,			# 2
2YUC-MDS3	115KV Motor Operated Switch	2BYS-SWG001A 5/13	On,			# 2
2YUC-MDS10	115KV Motor Operated Switch	2BYS-SWG001A 5/14	On,			# 2
2NPS-SWG004 and 2NPS-SWG005 Cub. 4-1	DC Control Power	2BYS-SWG001A 5/15	On,			
2NJS-US8 Cub. 3A	DC Control Power	2BYS-SWG001A 5/16	On,			
2NNS-SWG011 and 2NNS-SWG012 Cub. 11-3	DC Control Power	2BYS-SWG001A 6/17	On,			

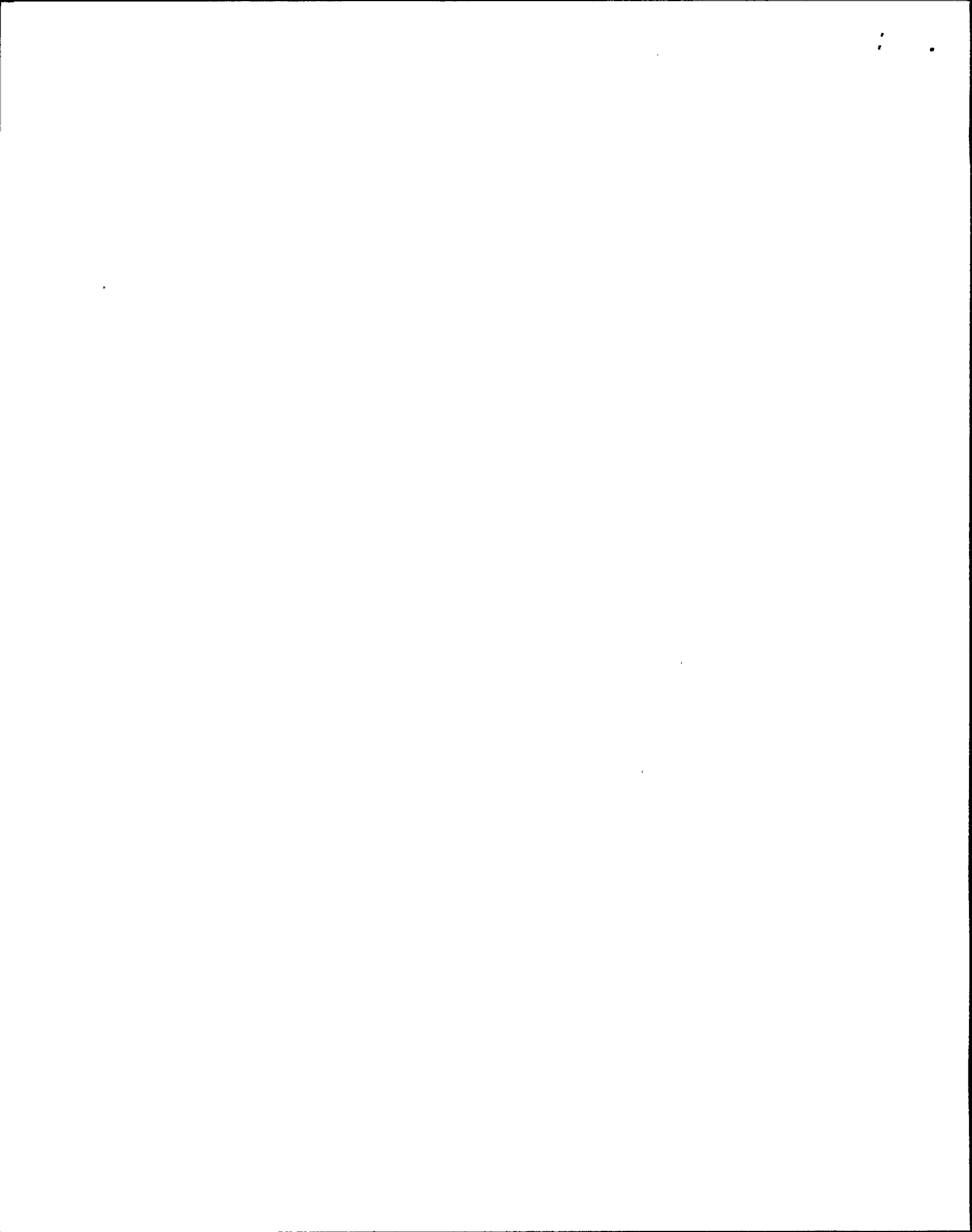


TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2NNS-SWG013 Cub.6	DC Control Power	2BYS-SWG001A	6/19	On,			
2NNS-SWG014 Cub.8	DC Control Power	2BYS-SWG001A	6/20	On,			
2NNS-SWG015 Cub.1	DC Control Power	2BYS-SWG001A	6/21	On,			
2NNS-SWG016 Cub.2	DC Control Power	2BYS-SWG001A	6/22	On,			
2NNS-SWG017 Cub.2	DC Control Power	2BYS-SWG001A	6/23	On,			
2NNS-SWG018 Cub.2	DC Control Power	2BYS-SWG001A	6/24	On,			
2CEC-PNL-732	Line & Transformer Protective Relaying	2BYS-SWG001A	6/25	On,			
2BYS-PNL-A101	DC Distribution Panel	2BYS-SWG001A	6/26	On,			

TCN-2

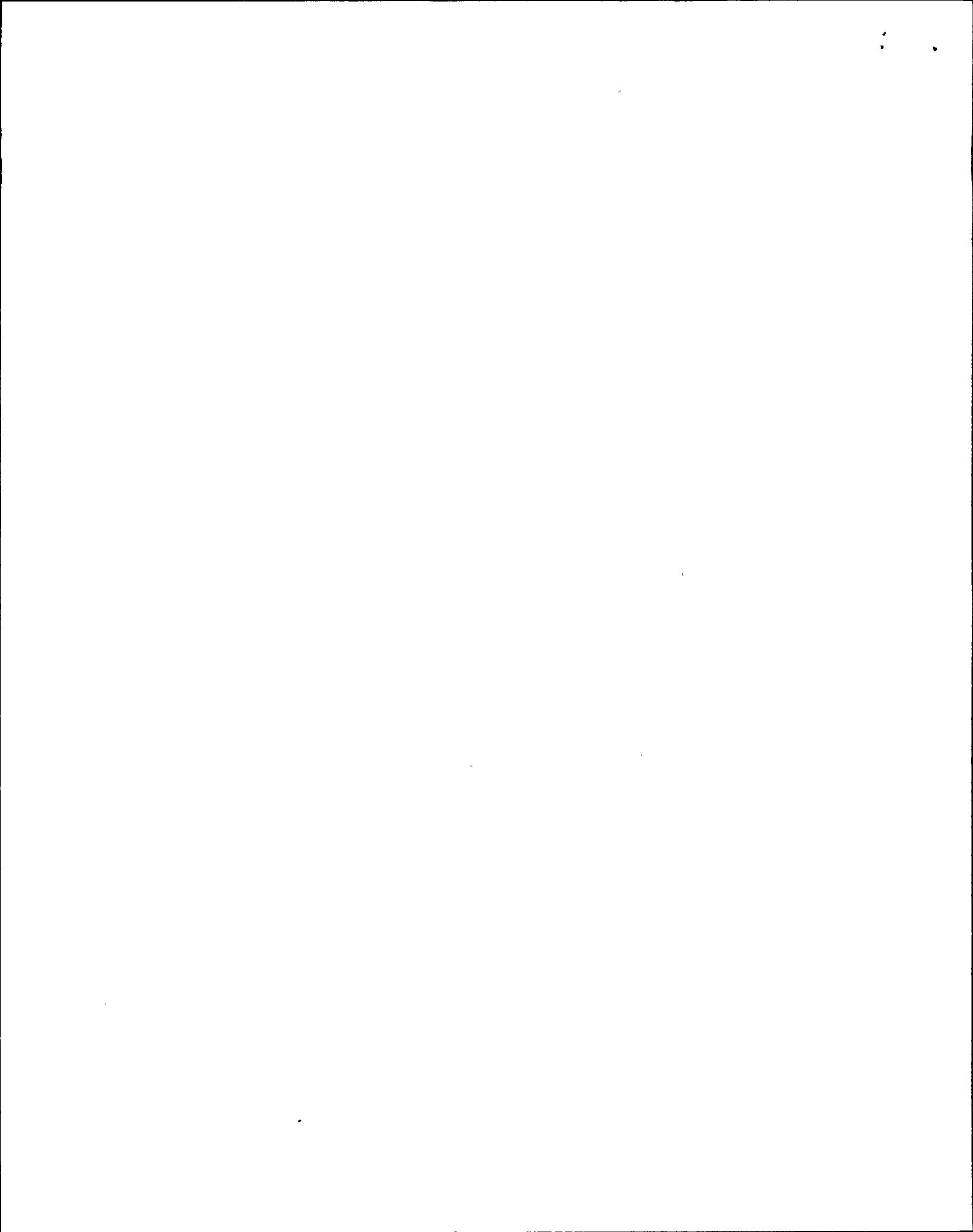


TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2CEC-PNL-735	Line & Transformer Protective Relaying	2BYS-SWG001A	6/27	On,			
2BYS-PNL-A102	DC Distribution Panel (Backup Supply)	2BYS-SWG001A	6/28	On,			
2CEC-PNL-744	Line & Transformer Protective Relaying	2BYS-SWG001A	6/29	On,			
2BYS-PNL-A107	DC Distribution Panel	2BYS-SWG001A	6/30	On,			
2NJS-US9 Cub.3A	DC Control Power	2BYS-SWG001A	6/31	On,			
2NJS-US10 Cub.3A	DC Control Power	2BYS-SWG001A	6/32	On,			
	Test Breaker	2BYS-SWG001A	1C	Open Racked Out			Test Lead BKR is stored in this cubicle

TCN-
2

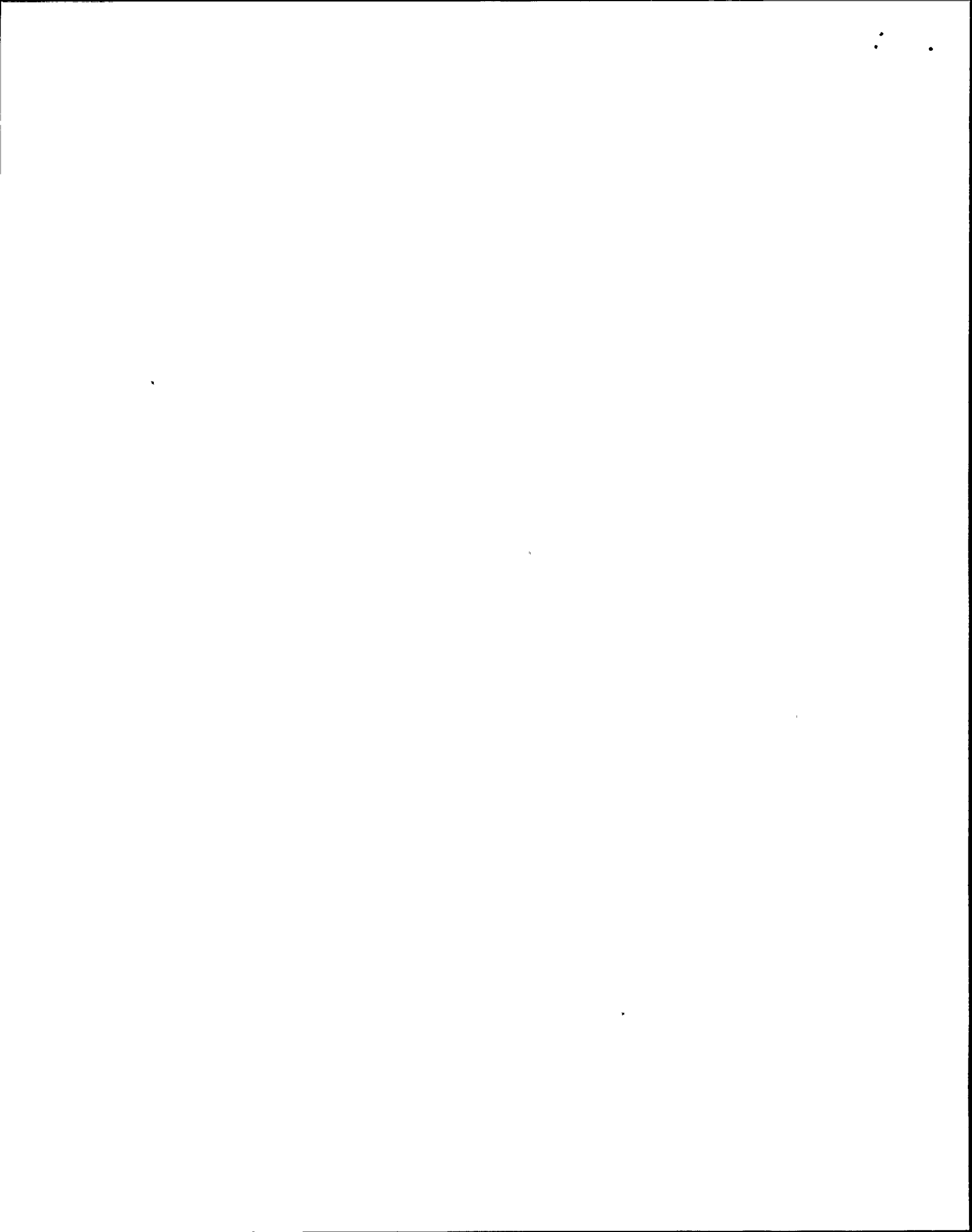


TABLE II
MAJOR COMPONENT POWER SUPPLIES

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	- Cubicle/ Breaker				
2BYS-BAT-1B	Station Battery 1B	2BYS-SHG001B	1B	Closed			
2BYS-Chgr-1B1	Battery 1B Charger	2BYS-SHG001B	2B	Closed			
2VBB-UPS-1D	Lighting UPS	2BYS-SHG001B	2D	Closed			
2BYS-B04	Ground Detection Circuit	2BYS-SHG001B	1A (Back Panel)	Fuses Installed			TCN-2
2BYS-B08	DC Metering & Relaying	2BYS-SHG001B	1A (Back Panel)	Fuses Installed			TCN-2
2GMO-P-2	Emergency Seal Oil Pump	2BYS-SHG001B	3B	Closed			
2ICS-C1	Turb. Gland Seal Omsr.	2BYS-SHG001B	3C	Closed			
2VBB-UPS-3B	"B" RPS UPS	2BYS-SHG001B	3D	Closed			

TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2NJS-US1 Cub.3A	DC Control Power	2BYS-SWG001B	5/1	On,			
2NJS-US2 Cub.3A	DC Control Power	2BYS-SWG001B	5/2	On,			
2NJS-US3 Cub.3A	DC Control Power	2BYS-SWG001B	5/3	On,			
2NJS-US4 Cub.3A	DC Control Power	2BYS-SWG001B	5/4	On,			
2NJS-US5 Cub.3A	DC Control Power	2BYS-SWG001B	5/5	On,			
2NJS-US6 Cub.3A	DC Control Power	2BYS-SWG001B	5/6	On,			
2NJS-US7 Cub.3A	DC Control Power	2BYS-SWG001B	5/7	On,			

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TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	- Cubicle/ Breaker				
2NPS-SWG001 Cub.2	DC Control Power	2BYS-SWG001B	5/8	On,			
2NPS-SWG002 Cub.4	DC Control Power	2BYS-SWG001B	5/9	On,			
2NPS-SWG003 Cub.15	DC Control Power	2BYS-SWG001B	5/10	On,			
2YUL-MDS2	115KV Motor Operated Switch	2BYS-SWG001B	5/11	On,			
2YUC-MDS4	115KV Motor Operated Switch	2BYS-SWG001B	5/12	On,			
2YXC-MDS1	345KV Motor Operated Switch	2BYS-SWG001B	5/13	On,			
2YUC-MDS20	115KV Motor Operated Switch	2BYS-SWG001B	5/14	On,			
2NPS-SWG005 and 2NPS-SWG004 Cub.4-1	DC Control Power	2BYS-SWG001B	5/15	On.			

TCN-2

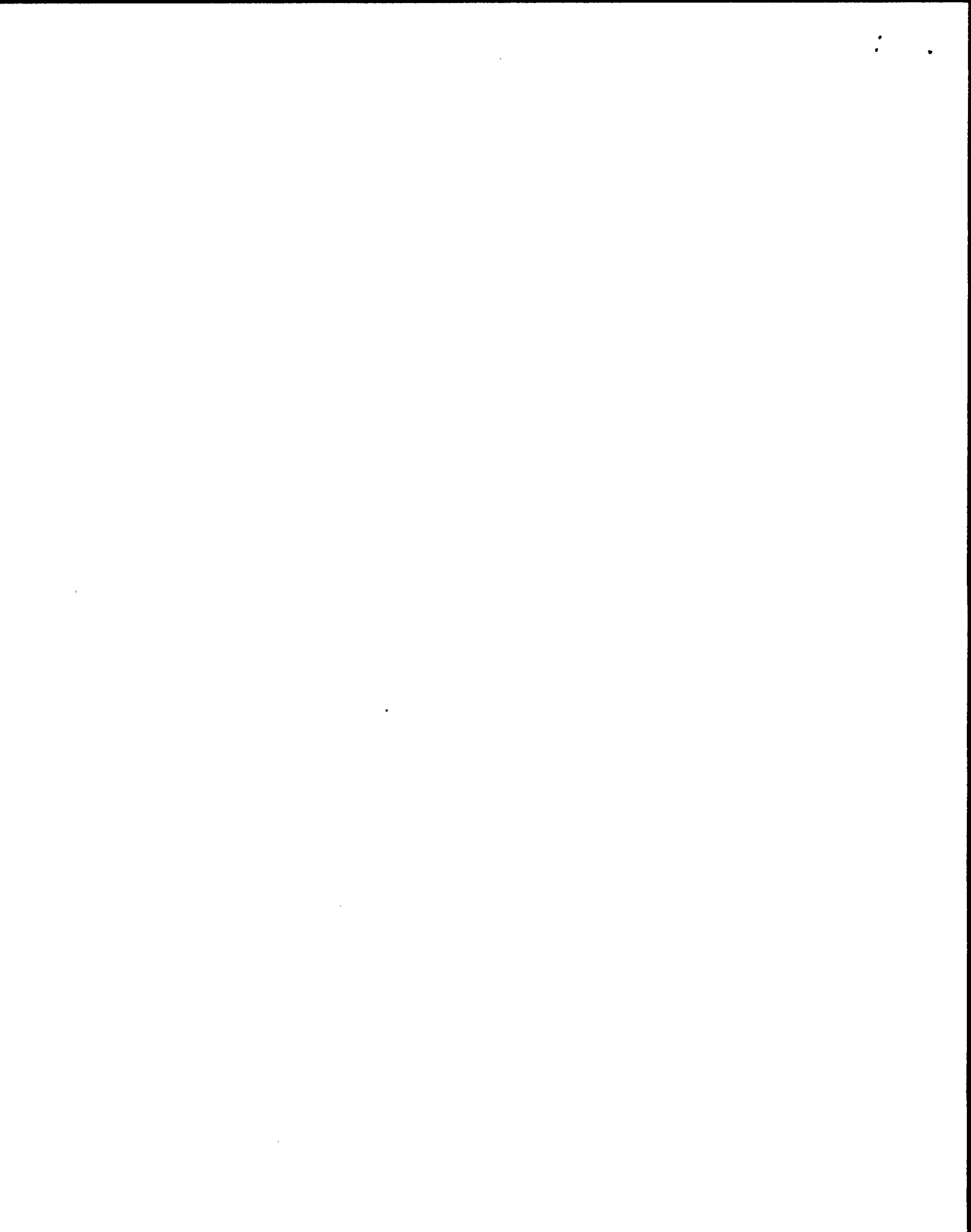


TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	Cubicle/ Breaker				
2NJS-US8 Cub.3A	DC Control Power	2BYS-SWG001B	5/16	On,			
2NNS-SWG011 and 2NNS-SWG012 Cub.11-3	DC Control Power	2BYS-SWG001B	6/17	On,			
2NNS-SWG013 Cub.6	DC Control Power	2BYS-SWG001B	6/19	On,			
2NNS-SWG014 Cub.8	DC Control Power	2BYS-SWG001B	6/20	On,			
2NNS-SWG015 Cub.1	DC Control Power	2BYS-SWG001B	6/21	On,			
2NNS-SWG016 Cub.2	DC Control Power	2BYS-SWG001B	6/22	On,			
2NNS-SWG017 Cub.2	DC Control Power	2BYS-SWG001B	6/23	On,			
2NNS-SWG018 Cub.2	DC Control Power	2BYS-SWG001B	6/24	On,			

TCN-2

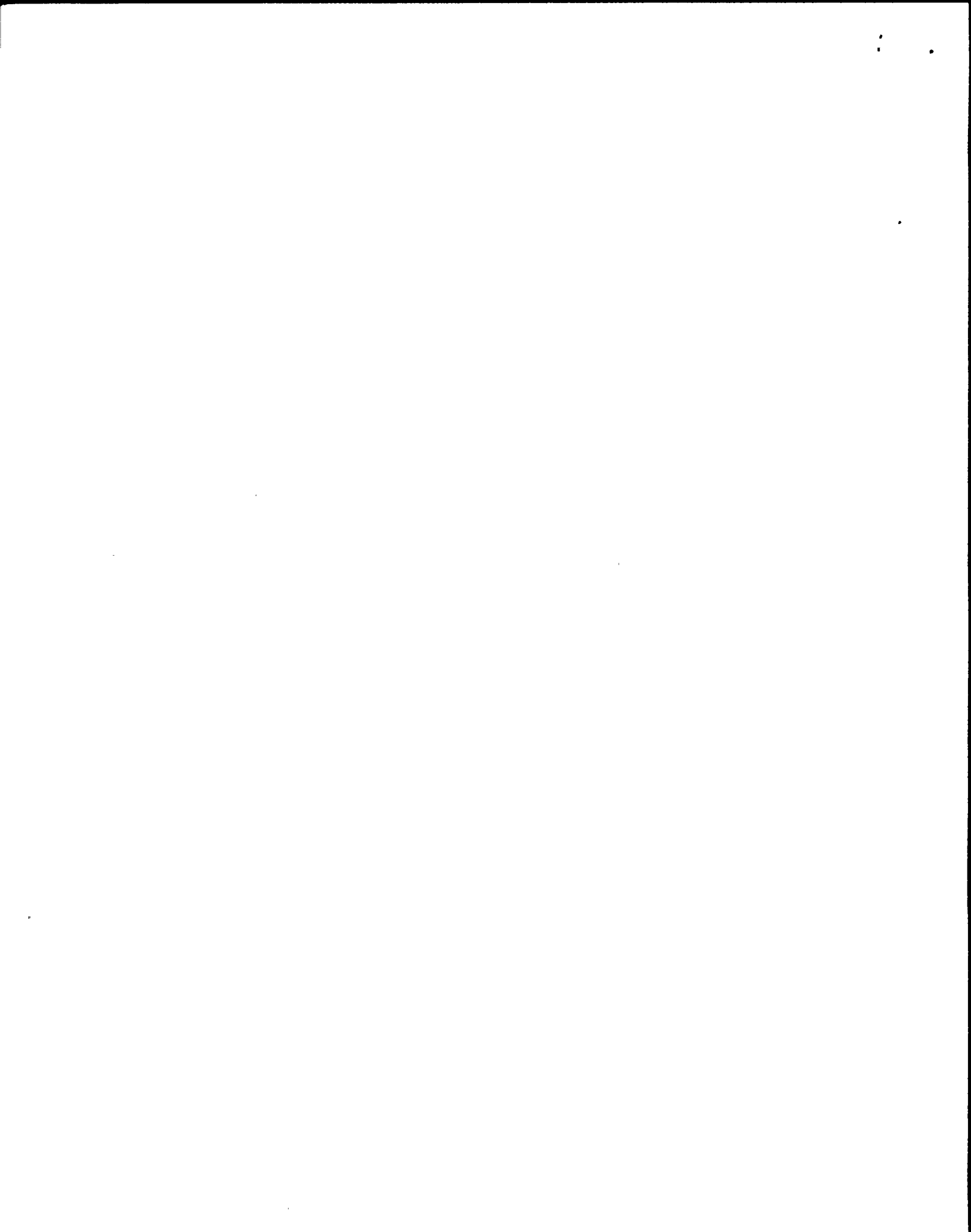


TABLE II
SYSTEM POWER SUPPLY LINEUP

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY Bus Number - Cubicle/ Breaker	NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
2CEC-PNL-732	Line & Transformer Protective Relaying	2BYS-SWG001B	6/25	On,		
2BYS-PNL-B101	DC Distribution Panel	2BYS-SWG001B	6/26	On,		
2CEC-PNL-733	Line & Transformer Protective Relaying	2BYS-SWG001B	6/27	On,		
2BYS-PNL-B102	DC Distribution Panel	2BYS-SWG001B	6/28	On,		
2CEC-PNL-744	Line & Transformer Protective Relaying	2BYS-SWG001B	6/29	On,		
2BYS-PNL-B107	DC Distribution Panel	2BYS-SWG001B	6/30	On,		
2NJS-US9 Cub.3A	DC Control Power	2BYS-SWG001B	6/31	On,		
2NJS-US10 Cub.3A	DC Control Power	2BYS-SWG001B	6/32	On,		

TCN-2

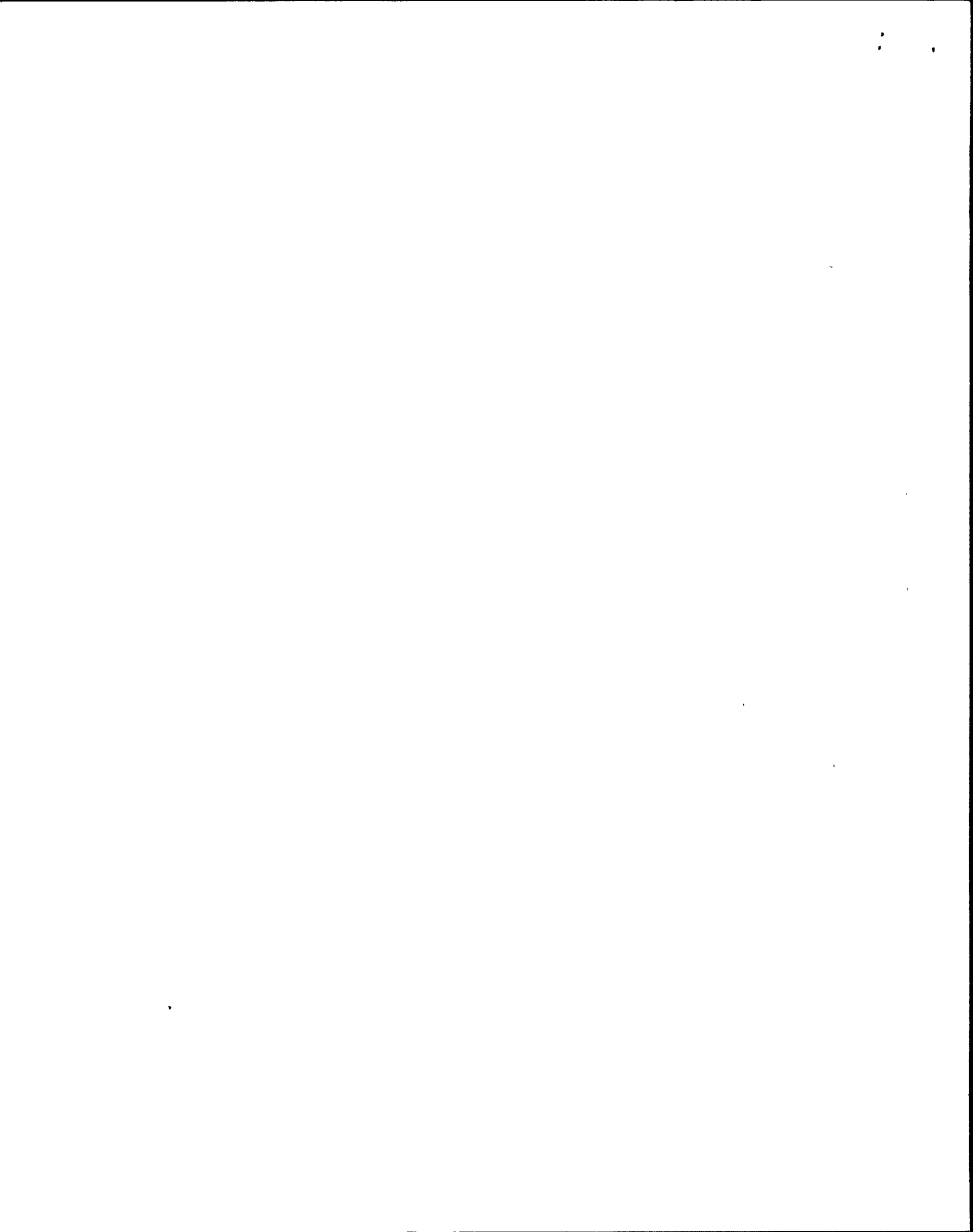


TABLE 11
MAJOR COMPONENT POWER SUPPLIES

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	- Cubicle/ Breaker				
	Test Breaker	2BYS-SWG-001B	1C	Cubicle Empty			
2BYS-BAT-1C	Station Battery 1C	2BYS-SWG001C	1B	Closed			
2VBB-UPS1B	B I&C UPS (Backup)	2BYS-SWG001C	2A	Closed			
2BYS-Chgr-1C1	Battery 1C Charger	2BYS-SWG001C	2B	Closed			
2VBB-UPS-1G	Computer UPS	2BYS-SWG001C	2C	Closed			
2VBB-UPS-3A	"A" RPS UPS	2BYS-SWG001C	2D	Closed			
2BYS-C04	Ground Detection Circuit	2BYS-SWG001C	1A (Back Panel)	Fuses Installed			TCN-2
2BYS-C08	DC Metering & Relay	2BYS-SWG001C	1A (Back Panel)	Fuses Installed			TCN-2
	Test Load	2BYS-SWG001C	1C	Cubicle Empty			

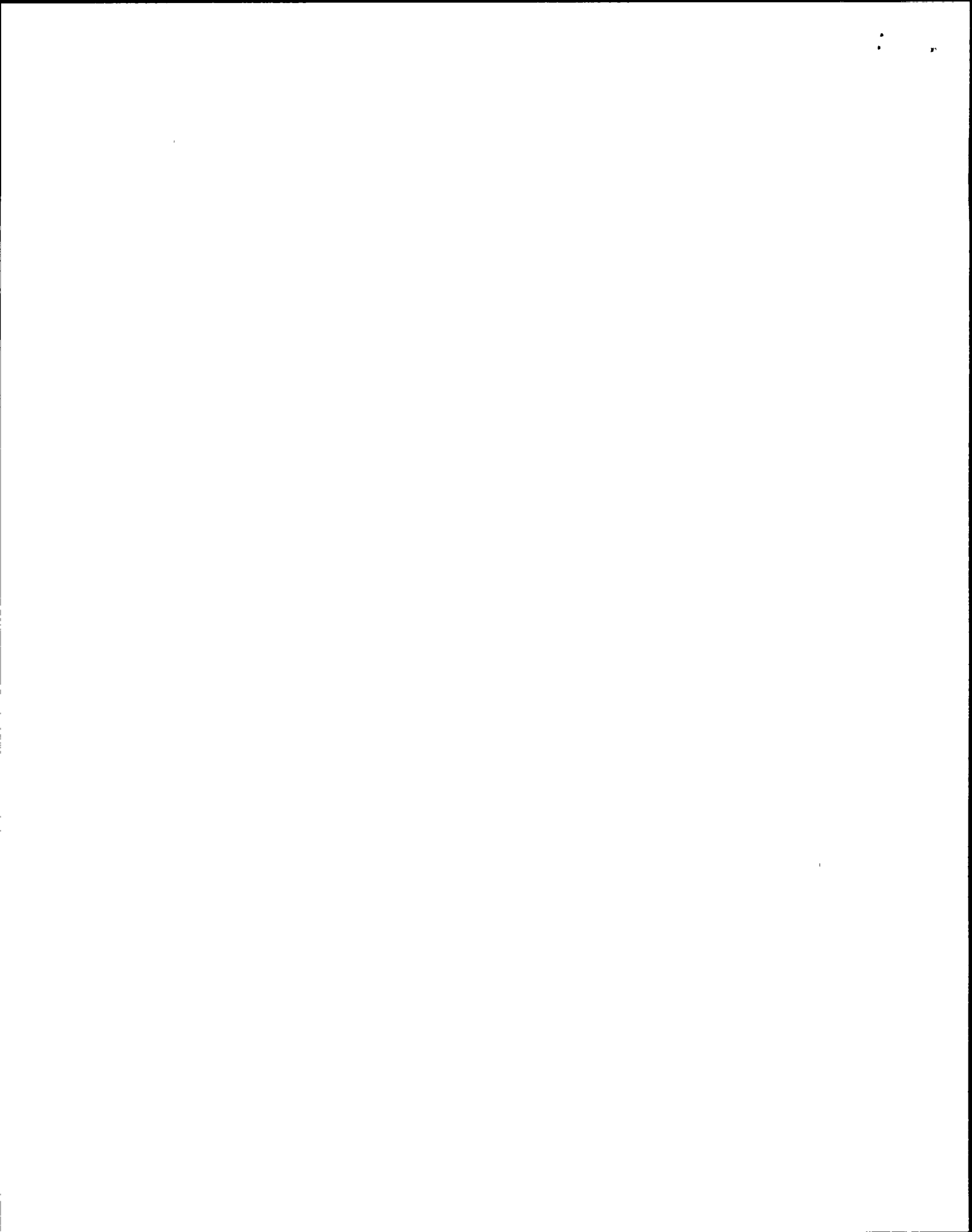


TABLE 11

MAJOR COMPONENT POWER SUPPLIES

COMPONENT NO.	COMPONENT DESCRIPTION	POWER SUPPLY		NORMAL POSITION	ACTUAL POSITION	INITIALS/ DATE	REMARKS
		Bus Number	- Cubicle/ Breaker				
2BYS-A04	Remote Ground Detection & Metering	2CEC-PNL852	F1-10		Fuse Block Installed in "ON" Position		
2BYS-B04	Remote Ground Detection & Metering	2CEC-PNL852	F1-10		Fuse Block Installed in "ON" Position		
2BYS-C04	Remote Ground Detection & Metering	2CEC-PNL852	F1-10		Fuse Block Installed in "ON" Position		
2BYS-Chgr-1A1	Bat. Chgr. 1A1 600V AC Supply	2NJS-US5	5D		Closed		
2BYS-Chgr-1B1	Bat. Chgr. 1B1 600V AC Supply	2NJS-US6	5C		Closed		
2BYS-Chgr-1C1	Bat. Chgr. 1C1 600V AC Supply	2NJS-US6	3D		Closed		

TCN-2

TABLE III
2BYS-SWG001A

<u>CUB/ FUSE</u>	<u>LOAD</u>	<u>CKT #</u>	<u>ESK/VENDOR PRINT</u>	<u>ACTION ON LOSS OF POWER</u>
1A	Metering Cubicle	2BYSA08	8BYS07	Loss of Voltmeter and Ground Det. Ckts.; Annunciator 852501 on (Bat 1A, 1B, 1C Trouble)
1B	Battery Breaker		EE-1BR	No effect provided battery charger is supplying the bus and loads are within the capacity of charger
1C	Battery Test Bkr		EE-1BR	None
2B	Battery Charger Output Bkr		EE-1BR	Provided battery breaker is closed, no immediate effects, however, if open for extended period, batt volt will drop and low voltage alarm will come in
2C	2VBB-UPS 1A Back-up Supply		EE-M01D	Loss of back-up power to UPS-1A; Annunciator 852503 in - "UPS 1A System Trouble"
2D	2VBB-UPS 1C Back-up Power Supply		EE-M01D	Loss of back-up power to UPS-1C; Annunciator 852523 in - "UPS 1C System Trouble"
3B	Emergency Bearing Oil Pump 2TML-P5	2TMLN03	11TML01	Loss of power to 2TML-P5 - pump stops if running; Annunciator 851133 in - "Turb Gen Emerg Brg Oil Pump Trouble"
F1	2NJS-US1 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F2	2NJS-US2 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F3	2NJS-US3 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F4	2NJS-US4 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F5	2NJS-US5 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F6	2NJS-US6 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F7	2NJS-US7 Control Power		EE-1BR	Loss of Control Power to supply, load and tie breakers; loss of bus protection and loss of interlocks
F8	2NPS-SWG001 Bus "A" 125VDC Control Power Source		EE-1BR	Loss of Control Power to supply breakers and loss of bus protection; loss of interlock and auto transfer capability
F9	2NPS-SWG002 Bus "A" 125VDC Control Power Source		EE-1BR	Loss of Control Power to supply breakers and loss of bus protection; loss of interlock

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TABLE III (Cont'd)
2BYS-SWG001A

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
F10	2NPS-SWG003 Bus "A" 125VDC Control Power Source		EE-1BR	Loss of Control Power to supply breakers and loss of bus protection; loss of interlock and auto transfer capability
F11	2YUC-MDS1	2SPFX01	8SPF05	Loss of Control of 2YUC-MDS1
F12	2YUC-MDS5	2YUCZ01	8YUC03	Loss of Control of 2YUC-MDS5; Annunciator 852401 on - "115KV SWYD MDS Transfer Trip Loss of Control Pwr"
F13	2YUC-MDS3	2YUCX01	8YUC01	Loss of Control of 2YUC-MDS3; Annunciator 852401 - "115KV SWYD MDS Transfer Trip Loss of Control Power"
F14	2YUC-MDS10	2SPFX02	8SPF05	Loss of Control of 2YUC-MDS-10
F15	2NPS-SWG004, 2NPS-SWG005	2RCSA11 2RCSB11	5RCS09 5RCS10	Loss of 2RCS-M1A, 2RCS-M1B Low Freq MG set breaker control, interlocks and protection. Ann. 602120 on - "Recirc Pump Bkrs 2A1B, 5A1B Control Circuit Blown Fuse
F16	2NJS-US8		EE-1BR	Loss of control power, protection, interlocks to all US8 Breakers
F17	2NNS-SWG11, 2NNS-SWG12		EE-1BR	Loss of control, alarm and protection to supply and tie Breakers
F18	SPARE			
F19	2NNS-SWG13		EE-1BR	Loss of control, alarm and protection to supply breakers
F20	2NNS-SWG14		EE-1BR	Loss of control, alarm and protection to supply breakers
F21	2NNS-SWG15		EE-1BR	Loss of control, alarm and protection to supply breakers
F22	2NNS-SWG16	2NNSX40	5NNS17	Loss of control, alarm and protection
F23	2NNS-SWG17	2NNSY40	5NNS18	Loss of control, alarm and protection
F24	2NNS-SWG18	2NNSZ40	5NNS16	Loss of control, alarm and protection
F25	2CEC-PNL732		8BYS01	See Panel Load List Page 40
F26	2BYS-PNLA101		EE-10C	See Panel Load List Page 37
F27	2CEC-PNL733		8BYS01	See Panel Load List Page 42
F28	2CEC-PNLA102		EE-10C	See Panel Load List Page 38
F29	2CEC-PNL744		8BYS01	See Panel Load List Page 41
F30	2BYS-PNLA107		EE-10E	See Panel Load List Page 39

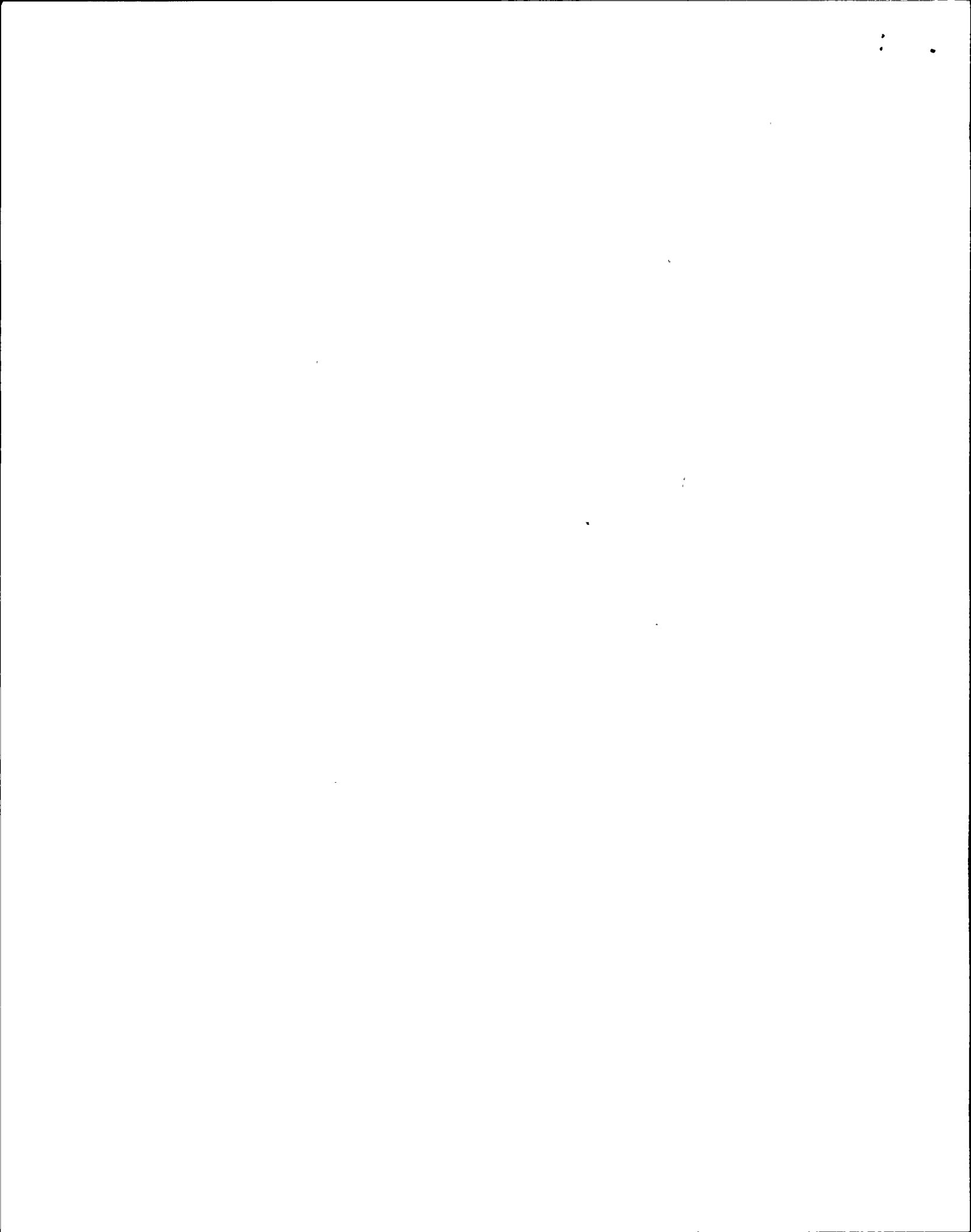


TABLE III (Cont'd)
2BYS-SWG001A (Cont'd)

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
F31	2NJS-US9		EE-1BR	Loss of Control Power, Protection and Interlocks to all Breakers on US-9
F32	2NJS-US10		EE-1BR	Loss of Control Power, Protection and Interlocks to all Breakers on US-10

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TABLE III. (Cont'd)
2BYS-PNLA101

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
01	2WCS-IPNL187 RWCU Power Monitor Circuit	2WCSN17	828E255TY- 03	Loss of Power Monitor
02	125VDC Supply to EHC Cabinet 2CEC-PNL848	2TMB-S2	118D2360	Loss of All 125VDC Turbine Trips if Turbine Speed is > 1300 RPM
03	Stby Diesel Gen Optical Isolator 99-1 2EGFA04	2EGFA05	7EGF02	Inhibits Low Fuel Flow Alarm for Div I Diesel
04	Supply Air Reactor Bldg Optical Isolators	2HVRN04	11HVR01	Trips HVR Supply Fans - Causes RB Isolation
05	Drywell Cooling Optical Isolator	2DRSA05	11DRS01	2DRS-UC1A, 1C, 2A, 2C and 3A Trips
06	2FPL-PNL176 Pwr to CO ₂ Zones (Tech Spec)		EE18AQ	Causes Pnl 176 TS Zones to Swap to Alt DC Power
07	2FPL-PNL177 Pwr to CO ₂ Zones (Tech Spec)		EE18AP	Causes Pnl 177 Zones to Swap to Alt DC Power
08	2RCS-MIA Control and Ind	2RCSA15	5RCS12	"A" Recirc Pump Trips to Zero if Running in Fast Speed
09	Div I Dsl Gen Compressor Cont and Bypass/Inop	2EGAA03	11EGA01	Inhibits Div I Diesel Air Compressor Start on Low Pressure and Inhibits the Low Air Pressure Alarm
10	2WCS*MOV103 Valve Position	2WCSN40	807E175TY- 02	Loss of Position Indication for 2WCS*MOV103
11	SPARE			
12	Fire Protection Optical Isolators (P837)	2FPWA06	7FPW06	Lose Position Indication for Associated SOV's
13	2WCS-IPNL187 Ann. Power		EE3GL	Loss of PNL Annunciators
14	Low Press CO ₂ Zone 733NL and Misc	2FPLN32	7FPL16	Charges Main Headers, Inhibits Electric Operation of CO ₂ to Turb Reservoir (Zone 733NL) and Inhibits Operation of Control Building Revolving Red Lights and Horns for CO ₂ Init
15	SPARE			

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TABLE III . (Cont'd)
2BYS-PNLA102

<u>CUB/ FUSE</u>	<u>LOAD</u>	<u>CKT #</u>	<u>ESK/VENDOR PRINT</u>	<u>ACTION ON LOSS OF POWER</u>
01	"C" Feedwater Level Control	2FWSN32	807E160TY-02	Loss of "C" Water Level Indicator and Initiates "C" High Level Trip Signal to RFP and Main Turbine Trip Circuits
02	RCIC Aux Circuit	2WCSN45	807E173TY-07, 09, 807E175TY-02	Inhibits Main Turbine Trip on RCIC Initiation, Inhibits Start of G1 and Blower on RCIC Start and Inhibits Auto Control of 2ICS*LV-132
03	Stby Diesel Gen Optical Isol 99-1-2EGFC04	2EGFC05	7EGF02	Inhibits Low Fuel Flow Alarm (Div II) Diesel
04	Div III Dsl Gen Compressor Cont and Bypass/Inop	2EGAC01	11EGA03	Inhibits Compressor Start on Low Pressure, Inhibits Low Pressure Alarm
05	Emerg Dsl Gen Pnl 2CES*IPNL-406	P05	G5-553-133, A3	Inhibits Cooldown Mode, Incomplete Sequence, Test Mode, Start System Checks and LO Pump Alarms. If Running in Test Mode, Diesel will Trip
06	Emerg Dsl Gen Pnl 2CES*IPNL-408	P06	G5-553-133, A3	Inhibits Cooldown Mode, Incomplete Sequence, Test Mode, Start System Checks and LO Pump Alarms. If Running in Test Mode, Diesel will Trip
07	SPARE			
08	Off-Normal Status Display	2SCIB06	7SCI14	Removes Mode Switch Position Input to Off-Normal Status Display for Inboard Valves
09	2ICS-LV132	2ICSN31	807C173TY-02	Power Supply to Air Solenoid for 2ICS-LV-132
10	Inop Alarms, Div II SFC	2SFCB13	7SFC08	Actuates Div II SFC Inop Annunciator
11	SPARE			
12	RWCU Pump Suction Permissive Ckt	2WCSN50	807E175TY-02	Trips Running RWCU Pumps

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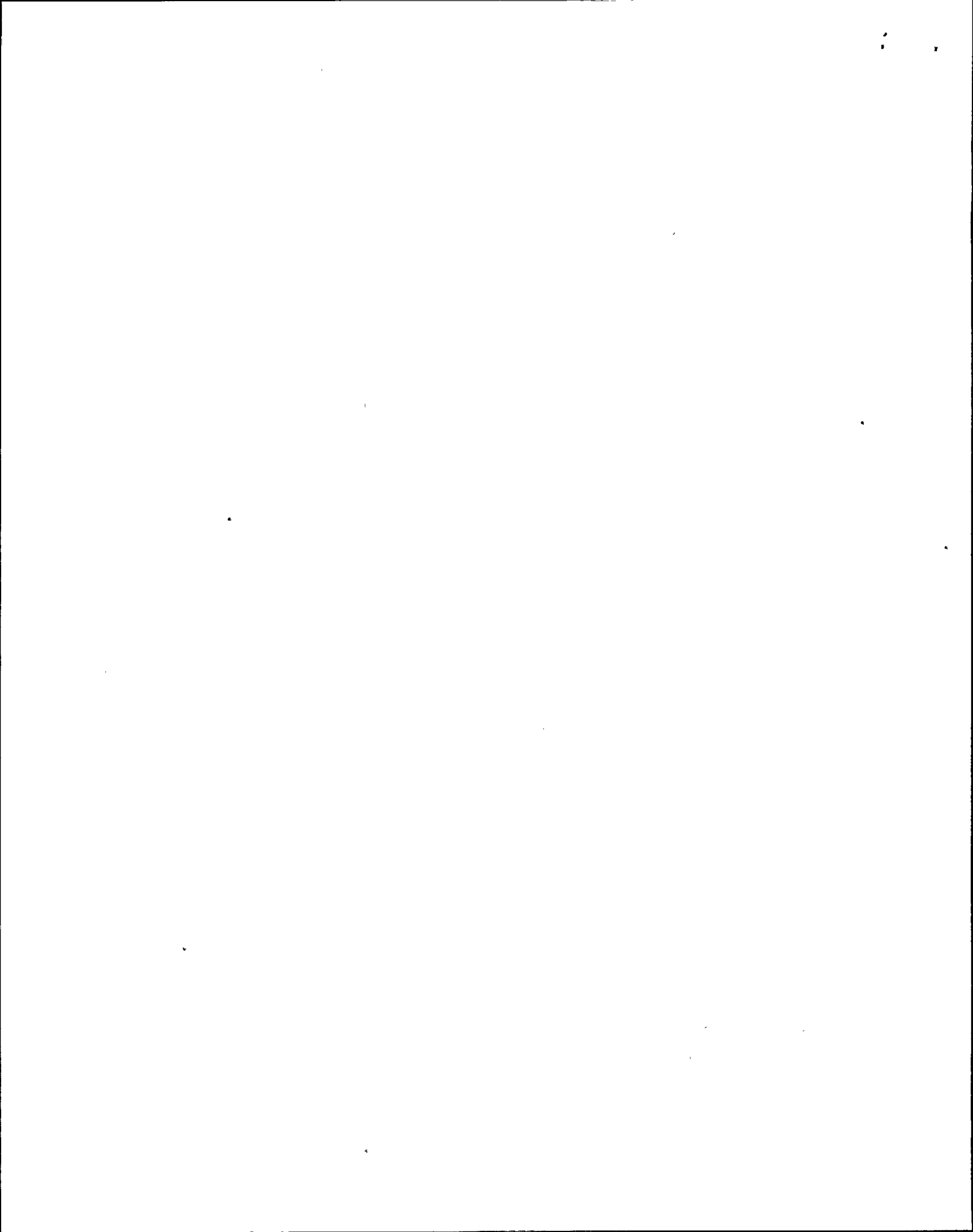


TABLE III . (Cont'd)
2BYS-PNL107

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
01	2RTX-XSR1A Alarm and Signal Bus	POO/NOO	0001.130. 203.006	Loss of Auto Start of Cooling Fans (Can be Run Manually); Loss of Transformer Alarm Bus; Trouble Annunciator in
02	2SPI-OSC001 Fault Recorder	2SPIANC	0001.460. 804.009	Loss of Bus Fault Recording Capability
03	2STX-XNS1 Alarm and Signal Bus	POO/NOO	0001.120. 202.017	Loss of Auto Start of Cooling Fans (Can be Run Manually); Loss of Transformer Alarms
04	Spent Pool Filter Optical Isolator	2SFCA13	7SFC07	Annunciator 873319, "Spent Fuel Pool System Trouble", on
05	2MTX-XM1A Transformer Control Power	P05/N05	0001.110. 988.056	Loss of Hot Spot Aux Relay Circuit and Alarms for Transformer 1A
06	SPARE			
07	2RCS-PNL1A Low Freq MG Set	2RCSA22	5RCS19	Prevent Trip of "A" RCS MG Set on Generator Ground or Voltage - Restraint Overcurrent
08	2CES-IPNL205, H ₂ and Stator Water Cooling Alarms	2GMHA20	0001.010. 002.095	Loss of Alarm Functions From Stator Water/H ₂ Panel; Will Receive Generator Aux Trouble Annunciator
09	2MTX-XM1C Alarm and Signal Bus		0001.110. 988.056	Loss of Hot Spot Aux Relay Circuit and Alarms for Transformer 1C
10	SPARE			
11	2EGF-MST00 Starter For Div I Fuel Oil Pump P-3	2EGFA03	EE-14J	Loss of Div I Fuel Oil Booster Pump P-3
12	SPARE			
13	SPARE			
14	SPARE			
15	2ATX-XS1 LTC Fault Protection Circuit	2SPXX05	8SPX09	Loss of LTC Fault Protection and Associated Alarm; Get Undervoltage Alarm (Loss of DC)
16	Control Power For Exciter Field Breaker ACB 41-E	EXSX02	8EXS03	Loss of Trip and Closing Power for Exciter Field Breaker
17	SPARE			
18	SPARE			

TABLE III . (Cont'd)
2CEC-PNL732

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P815	2NNSZ01	5NPS08	2NPS-SWG002 Bus Protection defeated, Alarm 2292, Window 852559 13.8 KV Bus 001/002/003 Prot Circuit Loss of Power - ON
2CEC-P808	2NNSY28	8NNS08	XFMR 2RTX-XSR1B 4 KV Winding Prot Defeated Alarm 2448 Window 852557 4KV Bus NNS 011-018 Prot Circuit Loss of Power
2CEC-P808	2SPRY01	8SPR13	XFMR 2RTX-XSR1B Prim Prot defeated Alarm 2231 Window 852405 Res Sta Ser XFMR 1B Prot Relay Power Failure - ON
2CEC-P808	2YUCX03	8YUC04	115KV Transfer Trip 1st Alternate Defeated. Alarm 4832, Window 852401 115KV Swyd MDC Transfer Trip Loss of Control Power - ON
2CEC-P813	2NPSY01	5NPS05	2NPS-SWG003 Bus Protection defeated. Alarm 2290 Window 852559 13.8 KV Bus 001/002/003 Prot Circuit Loss of Power - ON
2CEC-P813	2NPSY21	5NPS14	Auto Transfer Ckt Bus 2NPS-SWG003 Defeated. Alarm 2462 Window 852559 13.8 KV Bus 001/002/003 Prot Circuit Loss of Power - ON
2CEC-P813	2NNSY04	5NNS10	2NNS-SWG013 Bus Protection Defeated Alarm 2427 Window 852559 13.8 KV Bus 001/002/003 Prot Circuit Loss of Power - ON
2CEC-P804	2NNSY15	5NNS24	2NNS-SWG015 Bus Protection Defeated Alarm 2762 Window 852559 13.8 KV Bus 001/002/003 Prot Circuit Loss of Power - ON
2CEC-P811	2NNSZ28	8NNS07	XFMR 2ABS-X1 4 KV Winding Prot Defeated Alarm 2444 Window 85255 4 KV Bus NNS011-018 Prot Circuit Loss of Power - ON
2CEC-P811	2SPRY11	8SPR12	XFMR 2ABS-X1 Pri Prot Defeated Alarm 2229 Window 852406 Aux Boiler Transformer Prot Relay Power Failure - ON
2CEC-P811	2YUCX04	8YUC04	115 KV, Transformer Trip 1st Alternate Defeated. Alarm 4883 Window 852401 115KV Swyd MD8 Transfer Trip Loss of Control Power - ON

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TABLE III . (Cont'd)
2CEC-PNL744

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P864	2SPUX01	8SPU02	Unit Protection Altn 1 Defeated Alarm 2327 Window 852604 "Generator Prot Relays Control Power Failure" - ON
2CEC-P864	2SPUX02	8SPU06	Gen Anti Motoring Prot Defeated Alarm 3237 Window 852604 Gen Prot Relays Control Power Failure" - ON
2CEC-P868	2YXCX04	8YXC09	Alternate 1 Unit ON/OFF Interlock and Reset Defeated

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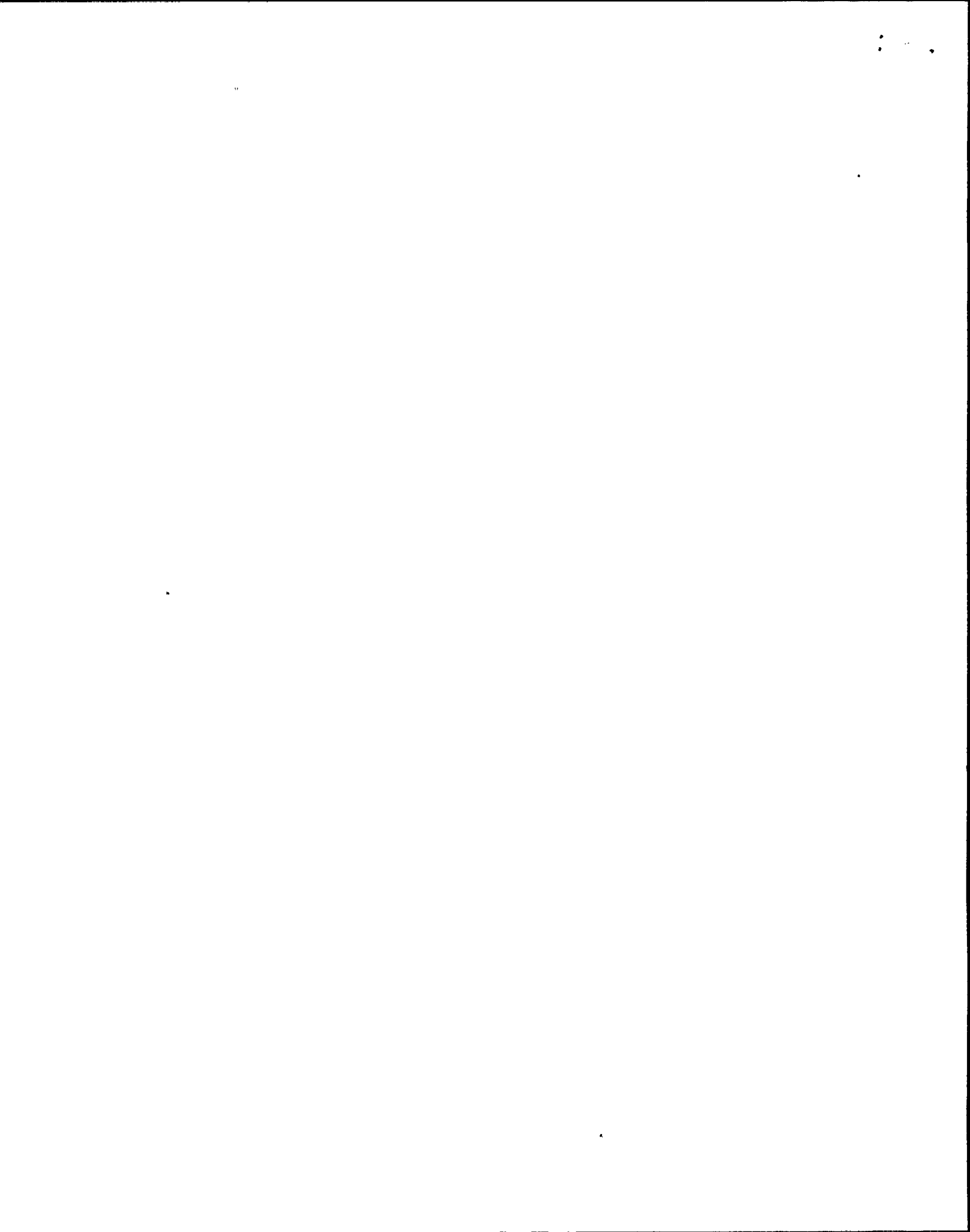


TABLE III . (Cont'd)
2CEC-PNL733

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P805	2NNSX28	8NNS06	XFMR 2RTX-XSR1A 4KV Winding Protection Defeated. Alarm 2440 Window 852557 "4KV RNS NNS 011-018 Prot Circuit Loss of Power"- ON
2CEC-P805	2SPRX01	8SPR05	XFMR 2RTX-XSR1A Primary Protection Defeated. Alarm 2221 Window 852404 "Res Sta Ser XFMR 1A Prot Relay Power Failure" - ON
2CEC-P805	2YUCX02	8YUC04	115KV Transfer Trip 1st Alternate Defeated. Alarm 4831 Window 852401 "115 KV Swyd MDS Transfer Trip Loss of Control Power" - ON
2CEC-P812	2NNSX01	5NNS10	2NNS-SWG011 Prim Bus Protection Defeated. Alarm 2427 Window 852557 See 1B
2CEC-P812	2NPSX01	5NPS02	2NPS-SWG001 Prim Bus Protection Defeated. Alarm 2283 Window 852559 "13.8 KV Bus 001/002/003 Prot Circuit Loss of Power" - ON
2CEC-P812	2NPSX17	5NPS13	Auto XFR Bus 2NPS-SWG001 Defeated. Alarm 2461 Window 852559 See 5B
2CEC-P803	2NNSX15	5NNS21	2NNS-SWG014 Bus Protection Defeated. Alarm 2760 Window 852557 See 1B
2CEC-P814	2NNSZ01	5NNS06	2NNS-SWG012 Bus Protection Defeated. Alarm 2421 Window 852557 See 1B

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TABLE III (Cont'd)
2BYS-SWG001B

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
1A	Metering Cubicle	8BYSB08	8BYS08	Loss of Voltmeter and Ground Det Ckts; Ann 852501 on "Bat 1A, 1B, 1C Trouble"
1B	Battery Breaker		EE-1BR	No Effect Provided Battery Charger is Supplying Bus and Bus Load is within Charger Capacity
1C	Battery Test Breaker		EE-1BR	None
2B	Battery Charger Output Breaker		EE-1BR	Provided Battery Breaker is Closed, No Immediate Effects; However, if Left Open for an Extended Period of Time, Voltage Will Drop and Ann 852501 Will Turn On
2D	2VBB-UPS-1D Back-up Power Supply		EE-M01C	Loss of Back-up Power to UPS-1D; Annunciator 852533, "UPS-1D System Trouble" Will Turn On
3B	Emergency Seal Oil Pump 2GMO-P2		11GM001	Loss of Power to Emergency Seal Oil Pump - Pump Stops if Running; Ann. 851121 "Generator Emergency Seal Oil Pump 2 Trouble" - ON
3C	RCIC Gland Seal Compressor 2ICS-C1		11ICS12	Loss of Power to RCIC Gland Seal Compressor - Stops if Running
3D	2VBB-UPS-3B Back-up Power Supply		EEM01D	Loss of Back-up Power to UPS-3B; Annunciator 852555, "UPS-3B System Trouble" - ON
F1	2NJS-US1		EE-1BR	None - Back-up Power Supply
F2	2NJS-US2		EE-1BR	None - Back-up Power Supply
F3	2NJS-US3		EE-1BR	None - Back-up Power Supply
F4	2NJS-US4		EE-1BR	None - Back-up Power Supply
F5	2NJS-US5		EE-1BR	None - Back-up Power Supply
F6	2NJS-US6		EE-1BR	None - Back-up Power Supply
F7	2NJS-US7		EE-1BR	None - Back-up Power Supply
F8	2NPS-SWG001		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F9	2NPS-SWG002		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F10	2NPS-SWG003		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers

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TABLE III (Cont'd)
2BYS-SWG001B (Cont'd)

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
F11	2YUC-MDS2	2SPFY10	8SPF04	Loss of Control to 2YUC-MDS2
F12	2YUC-MDS4	2YUCY01	8YUC02	Loss of Control to 115KV Ckt Switcher 2YUC-MDS4 Annunciator 852401, "115KV Swyd Mds Transfer Trip Loss of Cnt Pwr" - On
F13	2YXC-MDS1	2YXCNO2	8YXC04	Loss of Control to 2YXC-MDS1; Annunciator 852606, "345KV 2YXC-MDS1 Cont Pwr Failure" - ON
F14	2YUC-MDS20	2SPFY02	8SPF04	Loss of Control to 2YUC-MDS20
F15	2NPS-SWG004 2NPS-SWG005	2RCSA11 2RCSB11	5RCS09 5RCS10	None - Back-up Power Supply
F16	2NJS-VS8		EE-1BR	None - Back-up Power Supply
F17	2NNS-SWG11 2NNS-SWG12		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F18	Spare			
F19	2NNS-SWG13		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F20	2NNS-SWG14		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F21	2NNS-SWG15		EE-1BR	Loss of Control Power, Protection and Interlocks to Feeder Breakers
F22	2NNS-SWG16		EE-1BR	None - Back-up Power Supply
F23	2NNS-SWG17		EE-1BR	None - Back-up Power Supply
F24	2NNS-SWG18		EE-1BR	None - Back-up Power Supply
F25	2CEC-PNL732		8BYS-02	See Panel Load List Pg 46
F26	2BYS-PNLB101		EE-10C	See Panel Load List Pg 48

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TABLE III . (Cont'd)
2BYS-SWG001B (Cont'd)

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
F27	2CEC-PNL733		8BYS02	See Panel Load List Pg 47
F28	2BYS-PNLB102		EE-10C	See Panel Load List Pg 49
F29	2CEC-PNL744		8BYS02	See Panel Load List Pg 51
F30	2BYS-PNLB107		EE-10E	See Panel Load List Pg 50
F31	2NJS-US9		EE-1BR	None - Back-up Power Supply
F32	2NJS-US10		EE-1BR	None - Back-up Power Supply

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TABLE III (Cont'd)
2CEC-PNL732

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P809	2SPRZ08	8SPR07	XFMR 2RTX-XSR1B Backup Protection Defeated. Alarm 2225 Window 852405 "Res Sta Ser XFMR 1B Prot Relay Power Failure" - ON
2CEC-P809	2SPRX10	8SPR08	XFMR 2RTX-XSR1B Fault Press Protection Defeated. Alarm 2497 Window 852405 "Res Sta Ser XFMR 1B Prot Relay Power Failure" - ON
2CEC-P809	2YUCY03	8YUC05	115KV Transfer Trip 2nd Alternate Defeated. Alarm 4835 Window 852401 "115 KV Swyd MDS Transfer Trip Loss of Control Power" - ON
2CEC-P810	2SPXX01	8SPX08	XFMR 2ATX-X53 Primary Protection Defeated. Alarm Window 852601 "Aux XFMR X51 Aux XFMR X53 Prot Control Power Failure" - ON
2CEC-P815	2NNSX05	5NNS13	2NNS-SWG012 Back-up Bus Protection Defeated. Alarm 2431 Window 852557 "4KV Bus NNS 011-018 Prot Circuit Loss of Power" - ON
2CEC-P815	2NNSY01	5NNS13	2NNS-SWG012 Back-up Bus Protection Defeated. Alarm 2433 Window 852557 See 5B
2CEC-P802	2SPRX11	8SPR10	XFMR 2ABS-X1 Back-up Protection Defeated. Alarm 2227 Window 852406 "Aux Boiler Transformer Prot Relay Power Failure" - ON
2CEC-P802	2SPRZ10	8SPR11	XFMR 2ABS-X1 Fault Press Protection Defeated. Alarm 2504 Window 852406 Aux Boiler Transformer Prot Relay Power Failure" - ON
2CEC-P802	2YUCY04	8YUC05	115 KV Transfer Trip 2nd Alternate Defeated. Alarm 4836 Window 852401 "115 KV Swyd MDS Transfer Trip Loss of Control Power" - On

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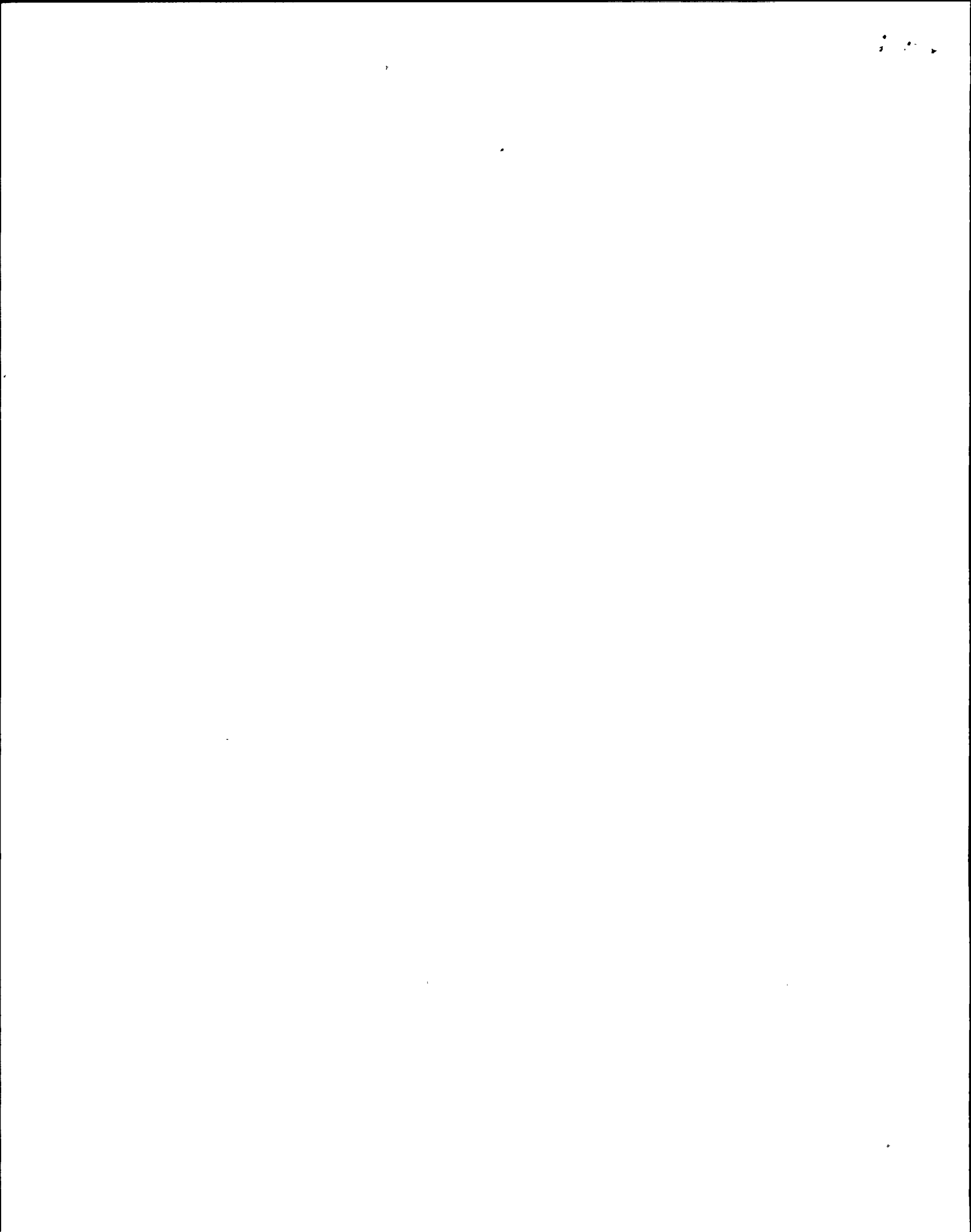


TABLE III (Cont'd)
2CEC-PNL733

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P806	2SPRZ01	8SPR06	XFMR 2RTX-XSR1A Backup Protection Defeated. Alarm 2223 Window 852404 "Res Sta Ser XFMR 1A Prot Relay Power Failure" - On
2CEC-P806	2SPRY10	8SPR08	XFMR 2RTX-XSR1A Fault Press Protection Defeated. Alarm 2434 Window 852404 "Res Sta Ser XFMR 1A Prot Relay Power Failure" - On
2CEC-P806	2YUCY02	8YUC05	115 LV Transfer Trip 2nd Alternate Defeated. Alarm 4834 Window 852401 "115 KV Swyd Mds Transfer Trip Loss of Control Power" - On
2CEC-P807	2SPXY01	8SPX04	XFMR 2ATX-XS1 Pri Protection Defeated. Alarm 2201 Window 852601 "Aux XFMR XS1 Aux XFMR XS3 Prot Cont Pwr Failure" - On

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TABLE III . (Cont'd)
2BYS-PNLB101

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
01	"B" FWS Level Control	2FWSN33	807E160TY- 02	Loss of "B" Level Ind and Control, Initiates "B" Channel Trip of High Level to Main Turbine and RFP's; Inhibit FWS Runback From RRCS
02	Yard Structure Vent Optical Isolator	2HVYA20	7HVY10	Inhibits Operation of Smoke Removal Fans for Div I Service Water Bay
03	SWP Strainer Aux Control Circuits	2SWPA62	11SWP03	Inhibits Auto Operation of SWP Strainer for Div I on timer; Provides 1/2 Trip Signal (Div I) to SWP Vacuum Breakers
04	Control Bldg Ventilation	2HVCN35	7HVC10	Inhibits Smoke Removal Fans for Electric Tunnels and Equipment Rooms
05	Steam Drain Valve Aux Control Circuit	2MSSN05	11MSS05	Inhibits Auto Opening of 2MSS*MOV187 When Rcis Steam Supply is Isolated
06	Stby Dsl Gen Vent (Div I)	2HVPN11	7HVP08	Inhibits the Shutdown of Div I Diesel Room Normal Ventilation on Diesel Start and Eliminates Annunciator on Manual Start of Emergency Fans
07	2FPL-PNL177,230,231 Alt Power to CO ₂ Zone		EE-18AP	None - Back Power Supply
08	Standby Diesel Gen Vent (Div II)	2HVPN12	7HVP08	Inhibits the Shutdown of Div II Diesel Room Normal Ventilation on Diesel Start and Eliminates Annunciator On Manual Start of Emergency Fans
09	2FPL-PNL176 Alt Power to CO ₂ Zone		EE18AQ	None - Back-up Power Supply
10	Standby Diesel Gen Vent (Div III)	2HVPN13	7HVP08	Inhibits the Shutdown of Div III Diesel Room Normal Ventilation on Diesel Start and Eliminates Annunciator On Manual Start of Emergency Fans
11	Condensate System Aux Control	2CNMNO6	5CNM09	Inhibits the Start of the Condensate and Booster Pumps on the Following Hi Flow Coincident with Less than 2 HDC Pumps Running, Low FWS Pump Suction Pressure, Low Booster Pump Suction Pressure, Bus Undervoltage
12	CO ₂ Hose Reels	2FPLN33	7FPL17	Changes Hose Reels up to Hose Valves
13	Condensate Transfer Pumps Aux Control	2CNSN03	11CNS01	Inhibits the Start of the Stby Pump on High Flow or Low Discharge Pressure; Inhibits the Trip of the Pumps on Lo-Lo CST Level
14	Off-Normal Status Display	2SCIA06	7SCI03	Removes Mode Switch Input to Off-Normal Status Display For Outboard Isolation Valves
15	Spare			
16	Spare			

TABLE III (Cont'd)
2BYS-PNLB102

CUB/ FUSE	LOAD	CKT #	BSK/VENDOR PRINT	ACTION ON LOSS OF POWER
01	2WCS-IPNL188 Power Monitor Circuit	2WCSN19	828E255TY- 03A	Loss of Power Monitor Circuit
02	Drywell Cooling Optical Isolator	2DRSB05	11DRS01	2DRS-UC1B, 1D, 2B, 2D, 3B Trips
03	Div II Stdby Dsl Gen, Optical Isolator 99-1 2EGFBOY	2EGFB05	7EGF02	Inhibits Low Fuel Oil Flow Alarm for Div II Diesel
04	2RCS-M1B Cont and Ind	2RCSB15	5RCS14	"B" Recirc Pump Trips to Zero if Running in Fast Speed
05	Control Bldg Vent Smoke Removal	2HVCN36	7HVC15	Lose Damper Position Interlock Which Inhibits Smoke Removal Fans
06	Tip Shear Valve Power and Ball Valve Pos Indication	2NMTN02	807E165TY- 03	Removes Tip Shear Valve Power, Loss of Position Indication for Ball Valves and ERF Position Ind for Tip Isol
07	Div II Diesel Generator Air Compressor Cont and Bypass/Inop	2EGAB03	11EGA02	Inhibits Div II Diesel Air Compressor Start on Low Pressure and Inhibits the Low Pressure Alarm
08	Spare			
09	Yard Structure Vent Optical Isolator 99-1-2HVYB19	2HVYB20	7HVY10	Inhibits Smoke Removal Fan Operation for Div II Swp Bay
10	SWP Strainer Aux Control (Div II)	2SWPB62	11SWP03	Inhibits Strainer Start of Div II Swp Strainers on Timer; Provide 1/2 Trip Signal (Div II) to Swp Vacuum Breakers
11	Fire Prot Optical Isol For DW Inbd Isol Valve	2FPWB06	7FPW07	None - System Deactivated by ECN
12	Spare			
13	2WCS-IPNL188 Ann Power Supply		EE3GM	Loss of Annunciation from IPNL 188

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TABLE III . (Cont'd)
2BYS-PNLB107

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
01	2BNS-BTC1 - Breaker Test Station For ENS Breakers		EE-8DL	Loss of Power to Test Station
02	2NPS-BTC1 - Breaker Test Station For NPS Breakers		EE-8DA	Loss of Power to Test Station
03	2RTX-XR1B Transformer Control Cabinet		0001.130. 203.006	Loss of Auto on Cooling Fans (Must Start Manually); Loss of Transformer Alarms; Ann in for Transformer Trouble
04	2MTX-XR1B Transformer Control Power		0001.110. 988.056	Loss of Hot Spot Aux Relay Circuits and Transformer Alarms for Main Transformer 1B
05	2RCS-PNL1B - Low Freq MG Set	2RCSB22	5RCSB20	Prevents Trip of 1B Res MG Set on Generator Ground or Volt- age - Restraint Overcurrent
06	Pwr for Thermal Switches for Gen Field Rectifier	2EXSN04	8EXS09	Receive Generator Field High Temperature Annunciator
07	Spare			
08	2EJS-BTC1 Breaker Test Station for EJS Breakers		EE-9PC	Loss of Power to Test Station
09	2MTX-XM1D Control Cabinet		0001.110. 988.056	Loss of Hot Spot Aux Relay Circuits and Transformer Alarms for Main Transformer 1D
10	2EGF-MST003 Starter for Div II Fuel Pump 2EGF-P4	2EGFB03	EE-145	Loss of Div II Diesel Fuel Oil Booster Pump
11	Spare			
12	Spare			
13	Control Power for Gen- erator Field Breaker ACB 41-M	2EXS01	8EXS02	Loss of Close and Trip Power for the Generator Field Breaker
14	Spare			
15	2STX-XNS1 LTC Fault Protection Circuit	2SPSY03	8SPS06	Loss of LTC Fault Press Prot and Associated Alarm; Get undervoltage alarm (Loss of DC)
16	2ATX-XS3 LTC Fault Pressure Det Circuit	2SPXY05	8SPX09	Loss of LTC Fault Press Prot and Associated Alarm; Get undervoltage alarm (Loss of DC)
17	2RTX-XSR1 LTC Pressure Protection Circuit	2SPRY17	8SPR19	Loss of LTC Fault Press Prot and Associated Alarm; Get undervoltage alarm (Loss of DC)
18	2RTX-XSR1B LTC Press Protection Circuit	2SPRX17	8SPR19	Loss of LTC Fault Press Prot and Associated Alarm; Get undervoltage alarm (Loss of DC)

TABLE III . (Cont'd)
2CEC-PNL744

LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
2CEC-P867	2SPGZ01	8SPG04	Generator Back-up Protection Defeated. Alarm 3078 Window 852612 Generator Back-up Prot DC Power Failure" - On
2CEC-P866	2SPUZ01	8SPU04	Unit Back-up Protection Defeated. Alarm 2329 Window 852604 "Generator Prot Relays Control Power Failure" - On
2CEC-P865	2SPSY01	8SPS03	XFMR 2STX-XNS1 Fault Press Protection Defeated. Alarm 2414 Window 852640 "Norm Sta Ser XFMR Fault Press Loss of DC Control" - On
2CEC-P865	2SPMY01	8SPM04	XFMR 2MTX-XM1A,1B,1C,1D Fault Press Protection Defeated. Alarm 2405 Window 852608 Main XFMR 1A/1B/1C/1D Sudden Press/Cont Pwr Fail" - On
2CEC-P865	2SPUY01	8SPU03	Unit Protection Altn 2 Defeated. Alarm 2328 Window 852604 "Generator Prot Relays Control Power Failure" - On
2CEC-P868	2YXCY04	8YXC09	Unit On/Off Alternate 2 Interlock and Reset Defeated.

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TABLE III (Cont'd)
2BYS-SWG001C

CUB/ FUSE	LOAD	CKT #	ESK/VENDOR PRINT	ACTION ON LOSS OF POWER
1A	Metering Cubicle	2BYSC08	8BYS09	Loss of Voltmeter and Ground Det Ckts, Annunciator 852501 on (Bat 1A,1B,1C) 125 VDC System Trouble on (Alarms #3870, 3871)
1B	Battery Breaker	2BYSC06	8BYS09	No Effect Provided Battery Charger is Supplying the Bus and Loads are Within the Capacity of Charger
2A	2VBB-UPS-1B Back-up Supply		EE-M01D	Loss of Back-up Power to UPS-1B, Annunciator 852513 in - "UPS-1B System Trouble"
2B	Battery Charger Output Breaker	2BYSC07	8BYS09	Provided Battery Brkr is closed, no Immediate Effects, However if Open for Extended Period, Batt Volt will Drop and Low Volt Alarm will Come in
2C	2VBB-UPS-1A Back-up Supply		EE-M01D	Loss of Back-up Power to UPS-1A, Annunciator 852543 in - "UPS-1G System Trouble"
2D	2VBB-UPS-1C Back-up Supply		EE-M01D	Loss of Back-up Power to UPS-1C, Annunciator 852553 in - "UPS-3A System Trouble"

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