WP 04-ED1542

Revision 3

Central Uninterruptible Power Supply 45P-UPS03/2

Technical Procedure

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APPROVED FOR USE

CONTINUOUS USE PROCEDURE

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INTRODUCTION

This procedure provides the detailed instructions for routine operation of the Central Uninterruptible Power Supply (UPS) System 45P-UPS03/2. As required per WP 04-CO, this procedure shall be followed step-by-step for the activities and operations addressed therein. This procedure shall be performed under the direct supervision of the Facility Shift Manager (FSM)/Facility Shift Engineer.

Daily inspections for mechanical operability and deterioration as identified in Hazardous Waste Facility Permit, Waste Isolation Pilot Plant (WIPP), Permit No. NM4890139088-TSDF, issued by the New Mexico Environment Department (NMED) are documented on the Facility Operation Round Sheets. The Round Sheets document any deterioration or malfunction alarms. If there are any abnormalities, an Action Request (AR) should be written to correct the problem and corrective actions are recorded on the work order. Inspector signature, date, and time are recorded on Round Sheets.

The Round Sheets completed as a results of this procedure are quality records.

REFERENCES

BASELINE DOCUMENTS

- EPS - 2000 50 TO 125 KVA UNINTERRUPTIBLE POWER SUPPLY SYSTEM
- Drawing 45-J-095-WI, Support Bldg. 451, Central UPS (45P-UP503/2) and Supportive System Single Line Diagram

REFERENCED DOCUMENT

- *Hazardous Waste Facility Permit, Waste Isolation Pilot Plant* (WIPP), Permit No. NM4890139088-TSDF, issued by the New Mexico Environment Department (NMED)
- WP 04-CO, Conduct of Operations

PRECAUTIONS AND LIMITATIONS

- The Maintenance Bypass Breaker (CB-2) located on 45P-DP04/28 will normally be in the OPEN position unless maintenance is being performed on the UPS.
- Transfer Switch 45P-SW04/54 is a Break before Make type switch which takes approximately 30 seconds to transfer upon loss of primary power or an intentional transfer to the alternate source. (Power to the load will not be lost during the transfer due to the batteries carrying the load.)

- The UPS Air Conditioner should be in service whenever the UPS is in operation. Short periods of time without air conditioning, such as during maintenance, etc., can be tolerated as long as ambient temperature at the UPS is not above 104 degrees Fahrenheit.

- The Maintenance Bypass Mode of operation will be utilized only when the 45P-SW04/54 Transfer Switch is positioned to the normal source. Placing the UPS in Maintenance Bypass while the 45P-SW04/54 Transfer Switch is positioned to alternate is prohibited; equipment damage/personnel injury could result.

PERFORMANCE

1.0 STARTING UP THE UPS AIR CONDITIONING SYSTEM

1.1 CLOSE CB-10 on 45P-DP04/28.

1.2 CLOSE CB-8 on 45P-DP04/28.

1.3 CLOSE UPS Air Conditioner Main Breaker on the front of the Air Conditioner.

1.4 CLOSE the UPS Air Conditioner Control Panel Power Supply Switch on the front of the Air Conditioner.

2.0 SHUTTING DOWN THE UPS AIR CONDITIONING SYSTEM

2.1 OPEN the UPS Air Conditioning Control Panel Power Supply Switch on the front of the Air Conditioner.

2.2 OPEN UPS Air Conditioner Main Breaker on the front of the Air Conditioner.

2.3 OPEN CB-8 on 45P-DP04/28.

2.4 OPEN CB-10 on 45P-DPO4/28.

3.0 SYSTEM STARTUP FROM COMPLETE SHUTDOWN

3.1 Verify CB-2 on 45P-DP04/28 is OPEN.

3.2 Verify CB-1 on 45P-DP04/28 is CLOSED.

3.3 Verify 45P-SW04/54 is selected to NORMAL.

3.4 Verify CB-23 on 45P-MCC04/3 is OPEN.

3.5 CLOSE Q-1 in Cabinet C.

NOTE

The display will say "CHECKING" followed by "TEST POSITION."

3.6 Select English from the Display Pad by Pressing "1" on the keypad.

NOTE

The Display will show a set of commands.

3.7 Press "MENU" on the keypad.

3.8 Press "1" on the keypad for "STARTUP."

3.9 CLOSE Q5N in Cabinet E.

3.10 CLOSE Q4S in Cabinet C.

3.11 OPEN Q3BP in Cabinet E.

3.12 Press "1" on the keypad and "ENTER" to start the Charger.

3.13 CLOSE **BOTH** Battery Bank Breakers QF1 in Cabinet A and B.

3.14 Press "1" on the keypad and "ENTER" to start the Inverter.

3.15 Press "ENTER" on the keypad to restore LCD to normal.

3.16 CLOSE CB-23 on 45P-MCC04/3.

3.17 CLOSE 45P-CB03/1 and 45P-CB03/2 in Cabinet D as directed by the FSM.

3.18 Start up additional loads as directed by the FSM.

4.0 SHIFTING TO MAINTENANCE BYPASS MODE

WARNING

Operation in the Maintenance Bypass Mode while 45P-SW04/54 is positioned to the Alternate Source is prohibited; equipment damage/person injury could result.

NOTE

Completing Steps 4.1 through 4.17 will shut down the UPS for maintenance purposes leaving the load supplied by the Maintenance Bypass Breaker.

4.1 Check the UPS is carrying the load and all conditions appear to be normal.

4.2 Verify 45P-SW04/54 Transfer Switch is positioned to normal source.

4.3 OPEN CB-23 on 45P-MCC04/3.

4.4 CLOSE CB-2 on 45P-DP04/28.

4.5 Press "MENU" on the keypad and scroll down to "5" (Bypass Procedure).

4.6 Press "5" on the keypad to select Bypass.

4.7 Press "1" on the keypad to switch to Bypass.

4.8 Press "0" on the keypad then "ENTER" to stop the Inverter.

4.9 CLOSE Q3BP in Cabinet E.

4.10 OPEN Q4S in Cabinet C.

4.11 OPEN Q5N in Cabinet E.

4.12 Press "ENTER" on the keypad to return to previous menu.

4.13 Press menu button on keypad.

4.14 Scroll to "6" "COMMANDS."

4.15 Press "6" and scroll to "CHARGER" "0 = STOP."

4.16 Press "0" then "ENTER" to shut down the Battery Charger.

4.17 OPEN **BOTH** Battery Bank Breakers QF1 in Cabinet A and B.

4.18 OPEN Q-1 in Cabinet C.

5.0 SHIFTING FROM MAINTENANCE BYPASS BACK TO UPS SUPPLYING LOAD

5.1 Verify 45P-SW04/54 Transfer Switch is positioned to normal source.

5.2 Verify CB-23 on 45P-MCC04/3 is OPEN.

5.3 CLOSE Q-1 in Cabinet C.

NOTE

The Display will say "CHECKING" followed by "TEST POSITION."

5.4 Select "ENGLISH" from the Display Pad by Pressing "1" on the keypad.

5.5 Press "MENU" on the keypad. (The display will show a set of commands.)

5.6 Press "1" on the keypad for "STARTUP."

5.7 CLOSE Q5N in Cabinet E.

5.8 CLOSE Q4S in Cabinet C.

5.9 OPEN Q3BP in Cabinet E.

5.10 Press "1" on the keypad then "ENTER" to start the Charger.

5.11 CLOSE **BOTH** Battery Bank Breakers QF1 in Cabinet A and B.

5.12 Press "1" on the key pad then "ENTER" to start the Inverter.

5.13 Press "ENTER" on the keypad one more time when "COMMAND ACCEPTED" is displayed.

5.14 OPEN CB-2 on 45P-DP04/28.

5.15 CLOSE CB-23 on 45P-MCC04/3.

6.0 SHUTTING DOWN THE UPS

NOTE

Completing Steps 6.2 through 6.4 will result in complete shutdown of the system including critical loads.

6.1 Verify Steps 4.1 through 4.18 have been completed, placing the UPS in Maintenance Bypass Mode.

6.2 Shut down all loads on the system as directed by the FSM.

6.3 OPEN 45P-CB03/1 and 45P-CB03/2 in Cabinet D as directed by the FSM.

6.4 OPEN CB-2 on 45P-DP04/28.

7.0 SHIFTING THE UPS FROM NORMAL TO ALTERNATE SUPPLY

7.1 Verify Q3BP in Cabinet E is OPEN.

7.2 Check the UPS is carrying the load and appears to be operating normally.

7.3 OPEN CB-1 on 45P-DP04/28.

NOTE

Alternate power supply transfer will occur in approximately 30 seconds.

7.4 Check the UPS is carrying the load and appears to be operating normally.

8.0 SHIFTING THE UPS FROM ALTERNATE TO NORMAL SUPPLY

8.1 Verify Q3BP in Cabinet E is OPEN.

8.2 Verify the UPS is on the line and appears to be operating normal.

8.3 CLOSE CB-1 on 45P-DP04/28.

NOTE

Alternate power supply transfer will occur in approximately 30 seconds.

8.4 Check the UPS is carrying the load and appears to be operating normally.

NOTE

Pressing both Emergency Shutdown Buttons on the keypad simultaneously trips Breakers Q-1, Q4S, and both Battery Breakers QF1.

9.0 EMERGENCY SHUTDOWN

9.1 Press both Emergency Shutdown Buttons on the keypad simultaneously.