USQ Not Required – ETF is a < Hazard Category 3 Radiological Facility

<table>
<thead>
<tr>
<th>Rev-Mod</th>
<th>Release Date</th>
<th>Justification</th>
<th>Summary of Changes</th>
</tr>
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<tbody>
<tr>
<td>A-2</td>
<td>09/20/2018</td>
<td>Operations Request</td>
<td>Updated the RadCon Statement and improved (added flexibility) the special instructions in Section 5.0.</td>
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<tr>
<td>A-1</td>
<td>05/24/2016</td>
<td>TA requested changes identified during unplanned power outage</td>
<td>Summary of Changes: Deleted control panel image in step 5.2.22 and added clarifying instructions when to place UPS control switch to OFF.</td>
</tr>
<tr>
<td>A-0</td>
<td>10/19/2015</td>
<td>Converting to WRPS Format</td>
<td>New Procedure; Supersedes ETF-PRO-OP-51503 (POP-25B-003)</td>
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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for the safe operation of the Lortec LE3030-2020 UPS.

1.2 Scope

This procedure involves the startup, operation, and shutdown instructions for the Lortec LE3030-2020 UPS located at the ETF.

2.0 INFORMATION

2.1 General Information

2.1.1 If the UPS has been allowed to operate on battery power to the point of automatic shutdown (DC volt = 178), then the LED alarm lights may not be lit (ON or OFF) as specified in this procedure. Under this condition, those steps identifying LEDs as ON or OFF may be skipped. This is due to internal logic that will be reset when the UPS has been returned to normal operation.

2.1.2 Each step in this procedure must be completed before going to the next step. Failure to do so may result in loss of power to:

- Monitor and Control System
- Communication system.
3.0 PRECAUTION AND LIMITATION

3.1 Personnel Safety

3.1.1 Personnel operating circuit breakers shall be properly trained and wear appropriate PPE.

3.2 Radiation and Contamination Control

3.2.1 When this procedure is worked in radiological areas, an approved radiological work permit (RWP) is required. If radiological conditions or work performed falls outside the scope of the RWP, all work activities must be discontinued until a new or revised RWP has been issued in accordance with TFC-ESHQ-RP_RWP-C-03.

3.3 Environmental Compliance

3.3.1 The UPS is required by the LERF & 200 Area ETF unit specific portion of the RCRA permit. The Environmental Field Representative should be notified if loss of this equipment occurs during normal business hours. Outside of normal business hours contact the appropriate Shift Office and ask that the Environmental On-Call be contacted per procedure TFC-ESHQ-ENV_FS-C-01, Environmental Notification.

3.3.2 In the event of a spill/leak/release, notify the SOM/FWS and respond per ETF-ERP-85B-003, Emergency Spill or Release at ETF.

4.0 PREREQUISITES

4.1 Field Preparations

4.1.1 ENSURE Allen Key is available for unlocking UPS cabinet doors.
5.0 PROCEDURE

Special Instructions

Tasks in this procedure may be performed concurrently or out of order unless specifically noted before that task.

Trips and resetting of protective devices must be recorded in the ETF Control Room Logbook.

Permission from SOM shall be obtained before:
- Unlocking and opening UPS cabinet doors
- Opening bypass circuit breakers
- Closing and locking UPS cabinet doors.

5.1 UPS Startup

5.1.1 UNLOCK AND OPEN UPS cabinet right-hand door.

NOTE - UPS control switch is inside UPS right-hand door at top of compartment.

5.1.2 ENSURE UPS control switch is OFF.

5.1.3 IF restarting UPS from SHUTDOWN, PERFORM the following:

5.1.3.1 ENSURE following circuit breakers are OFF or TRIPPED:
- Input circuit breaker
- Static bypass circuit breaker
- Bypass circuit breaker
- Output circuit breaker.

5.1.3.2 GO TO step 5.1.5.

5.1.4 IF restarting from BYPASS mode, ENSURE the following circuit breaker positions:
- Input circuit breaker is OFF or TRIPPED
- Static bypass circuit breaker is OFF or TRIPPED
- Bypass circuit breaker is ON
- Output circuit breaker is OFF or TRIPPED.

5.1.5 UNLOCK AND OPEN UPS cabinet left-hand door.

NOTE - Battery circuit breaker is inside UPS left-hand door (battery compartment).

5.1.6 ENSURE battery circuit breaker is OFF or TRIPPED.
5.1 UPS Startup (Cont.)

5.1.7 CLOSE AND LOCK UPS cabinet left-hand door.

NOTE - The following ganged breakers may be placed to ON in any logical order. Ganged breakers refer to a single switch containing multiple breakers.

5.1.8 AT distribution panel DP-1, RESTORE power to UPS cabinet.

5.1.8.1 ENSURE ganged breaker (DP-1-22, 24, 26, 28, 30, and 32) is ON.

5.1.8.2 ENSURE ganged breaker (DP-1-23, 25, and 27) is ON.

NOTE - UPS control switch is inside UPS right hand door at top of compartment.
- The following screen may appear for a short time when UPS is first turned on.

![Checksum]

Checksum Good

(BLANK)

5.1.9 PLACE UPS control switch to ON.

5.1.10 IF screen prompts:

![Checksum Bad]

Service

Required

NOTIFY SOM (UPS is inoperable).

5.1.11 CHECK following LEDs are steady ON:
- AC INPUT FAILURE
- RETRANSFER INHIBITED
- TRANSFER NOT AVAILABLE
- BATTERY NOT AVAILABLE.
5.1 UPS Startup (Cont.)

5.1.12 IF bypass circuit breaker is ON, GO TO step 5.1.15.

5.1.13 WHEN screen prompts:

- Close
- BYPASS
- CKT BREAKER

TURN ON bypass circuit breaker.

5.1.14 CHECK the following LEDs are steady ON:
- AC INPUT FAILURE
- RETRANSFER INHIBITED
- TRANSFER NOT AVAILABLE
- BATTERY NOT AVAILABLE.

5.1.15 WHEN screen prompts:

- Close
- INPUT
- CKT BREAKER

TURN ON input circuit breaker.

NOTE - The following screen appears briefly. (DC link is 218.7 to 267.3 VDC.)

- Waiting
- DC Link =
- XXX.X VDC
5.1 UPS Startup (Cont.)

5.1.16 **UNLOCK AND OPEN** UPS cabinet left-hand door.

NOTE - Battery circuit breaker is inside UPS left-hand door.

5.1.17 **WHEN** screen prompts:

- Close
- BATTERY
- CKT BREAKER

**TURN ON** battery circuit breaker.

5.1.18 **CLOSE AND LOCK** UPS cabinet left-hand door.

NOTE - Abnormal UPS operating conditions, such as indicated by previous high temperature alarms or other unforeseen conditions, could cause some UPS LEDs to be ON. Other LED indications that could potentially be ON include:

- AC INPUT FAILURE
- RETRANFER INHIBITED
- TRANSFER NOT AVAILABLE.

5.1.19 **PRESS** “ALARM SILENCE” push button twice AND **CHECK** the following:

- TRANSFER NOT AVAILABLE LED steady ON
- Other UPS LEDs OFF (unless ON as noted above).

5.1.20 **IF** other LEDs from step 5.1.19 are ON, **FOLLOW** on-screen instructions.

5.1.20.1 **ONCE** on-screen instructions are completed, **GO TO** step 5.1.28.
5.1 UPS Startup (Cont.)

5.1.21 WHEN screen prompts:

- Close
- OUTPUT
- SWITCH OR BKR

TURN ON output circuit breaker.

5.1.22 CONFIRM only the following LEDs are steady ON:
- AC INPUT FAILURE
- TRANSFER NOT AVAILABLE
- RETRANSFER INHIBITED.

5.1.23 WHEN screen prompts:

- Close
- SBS INPUT
- CKT BREAKER

TURN ON static bypass circuit breaker.

5.1.24 WAIT for TRANSFERRED TO BYPASS to be the only LED in steady state.

5.1.25 WHEN screen prompts:

- Open
- BYPASS
- CKT BREAKER

TURN OFF bypass circuit breaker (alarm sounds in approximately two minutes).
5.1 UPS Startup (Cont.)

5.1.26 PRESS “ALARM SILENCE” push button.

5.1.27 CHECK:
- Alarm is silenced
- TRANSFERRED TO BYPASS LED - OFF
- RETRANSFER INHIBITED LED - OFF
- UPS NORMAL LED steady ON.

NOTE - The following screen may appear briefly:

<table>
<thead>
<tr>
<th>Wait</th>
<th>Transfer</th>
<th>Pending</th>
</tr>
</thead>
</table>

5.1.28 CHECK that the following screen appears:

<table>
<thead>
<tr>
<th>UPS Operating Normally</th>
</tr>
</thead>
</table>

5.1.29 IF transfer does not complete and the above screen does not appear, STOP AND CONTACT FWS and DA.

5.1.30 CLOSE AND LOCK UPS cabinet right-hand door.
5.2 UPS Bypass

NOTE - Backup power is not available in BYPASS mode.

Special Instructions

Once begun, all steps in Section 5.2 must be performed in order listed before exiting section.

5.2.1 PRESS “NEXT” until screen prompts:

- UPS
- Maintenance
- Menu

5.2.2 PRESS “ENTER”; screen prompts:

- Enter
- Password
- 0

5.2.3 PRESS “UP” until first password digit “4” displays.

- Enter
- Password
- 4

5.2.4 PRESS “NEXT.”
5.2 UPS Bypass (Cont.)

5.2.5 PRESS “UP” or “DOWN” until “F” displays.

```
<table>
<thead>
<tr>
<th>Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
</tr>
<tr>
<td>4F</td>
</tr>
</tbody>
</table>
```

5.2.6 PRESS “NEXT”; screen prompts:

```
<table>
<thead>
<tr>
<th>Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
</tr>
<tr>
<td>4F0</td>
</tr>
</tbody>
</table>
```

5.2.7 PRESS “NEXT”; screen prompts:

```
<table>
<thead>
<tr>
<th>Enter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Password</td>
</tr>
<tr>
<td>4F00</td>
</tr>
</tbody>
</table>
```

5.2.8 PRESS “ENTER”; screen prompts:

```
<table>
<thead>
<tr>
<th>Rectifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance</td>
</tr>
<tr>
<td>Menu</td>
</tr>
</tbody>
</table>
```
5.2 UPS Bypass (Cont.)

5.2.9 PRESS “NEXT”; screen prompts:

- Inverter
- Maintenance
- Menu

5.2.10 PRESS “NEXT”; screen prompts:

- SBS
- Maintenance
- Menu

5.2.11 PRESS “ENTER”; screen prompts:

- Bypass
- Shutdown UPS
- UP=Bypass

5.2.12 PRESS “UP”; screen prompts:

- Confirm
- Yes=UP No=DN
- (BLANK)

5.2.13 PRESS “UP.”

5.2.14 UNLOCK AND OPEN UPS cabinet right-hand door.
5.2 UPS Bypass (Cont.)

5.2.15 WHEN screen prompts:

- Close
- Bypass
- Breaker

TURN ON bypass circuit breaker.

5.2.16 WHEN screen prompts:

- Open
- Output
- Breaker

TURN OFF output circuit breaker.

5.2.17 UNLOCK AND OPEN UPS cabinet left-hand door.

5.2.18 WHEN screen prompts:

- Open
- Battery
- Breaker

TURN OFF battery circuit breaker.

5.2.19 CLOSE AND LOCK UPS cabinet left-hand door.
5.2 UPS Bypass (Cont.)

5.2.20 WHEN screen prompts:

<table>
<thead>
<tr>
<th>Open SBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
</tr>
<tr>
<td>Breaker</td>
</tr>
</tbody>
</table>

**TURN OFF** static bypass circuit breaker.

5.2.21 WHEN screen prompts:

<table>
<thead>
<tr>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
</tr>
<tr>
<td>Breaker</td>
</tr>
</tbody>
</table>

**TURN OFF** input circuit breaker.

**NOTE** - UPS control switch is inside UPS right hand door at top of compartment.
- DC Link voltage will lower, **BYPASS SHUTDOWN COMPLETE** will appear when step 5.2.22 is performed.

5.2.22 WHEN DC Link voltage no longer appears on screen, **PLACE** UPS control switch to OFF. (Critical load is now powered by utility power source through the bypass.)

5.2.23 **CLOSE AND LOCK** UPS cabinet right-hand door.
5.3 UPS Shutdown

5.3.1 CONFIRM UPS in BYPASS per Section 5.2.

5.3.2 OBTAIN SOM permission to perform the following steps.

5.3.2.1 UNLOCK AND OPEN UPS cabinet right-hand door.

5.3.2.2 TURN OFF bypass circuit breaker.

5.3.2.3 CLOSE AND LOCK UPS cabinet right-hand door.

NOTE - The following ganged breakers may be placed to ON in any logical order. Ganged breakers refer to a single switch containing multiple breakers.

5.3.3 AT distribution panel DP-1, REMOVE power from UPS cabinet.

5.3.3.1 TURN ganged breaker (DP1-22, 24, 26, 28, 30, and 32) to OFF.

5.3.3.2 TURN ganged breaker (DP-1-23, 25, and 27) to OFF.

5.4 Records

The performance of this procedure generates no records.

The record custodian identified in the Company Level Records Inventory and Disposition Schedule (RIDS) is responsible for record retention in accordance with TFC-BSM-IRM_DC-C-02.