

Booster Power Outage Response

Reviewed by _____

If the Booster Galleries, Towers, or power supplies are affected by a power outage, use the guidance below to aid in the investigation and recovery. Steps don't need to be done in the order they're written. Some can be done simultaneously and some can be skipped depending on the situation. **As always, the major objective during any power outage is to ensure the safety of personnel and equipment, and to restore power.**

Contact Personnel as Necessary:

- Duty Electrician
- Booster Machine Coordinator
- Operations Specialist for Proton Source
- Booster Group Leader
- Booster HLRF Group Leader
- Proton Source Department Head
- Mechanical Support Department Head

Booster 95 LCW:

- Reminder: the Booster 95 LCW system runs at CUB, so a Booster power outage doesn't necessarily mean the LCW system is off.

Scout:

If personnel are available, a field team can try to ascertain the extent of the outage.

- Bring a flashlight and walk the Booster Galleries and Towers and make note of the areas that are without power.
- Check the Booster enclosure entrance gate in the Staging Area to see if power is still on.
- Make note of any other issues found such as strange odors and water on the floor.

Monitor:

If the Controls System is running, it can be used to monitor the following:

- Supply and Return pressures and temperatures for the Booster 95 LCW system.
- Booster 95 make-up flow.
- LLRF Room temperature in Booster East Gallery.
- Status of Booster power supplies and RF.
- Status of Booster interlocks.

Actions

If you discover signs of trouble with any Booster system, take reasonable action to protect associated equipment.

- For LCW system issues, turn off Booster power supplies. This can be done via the Controls System, or it can be expediently done by disabling the Booster ESS.
- If LCW leaks are discovered, the leak can be valved out.

Follow all guidance given by the experts who are contacted. They may have additional instructions.

When Power Returns:

- Inform everyone who has already been contacted.
- Validate alarms to ensure everything that should be monitored is being monitored.
- Continue to monitor Booster LCW system pressures, temperatures, and levels.
- Walk the Booster Galleries, Towers, and Staging Area as time and personnel availability permit. Look for any signs of lingering complications.
- Work with experts to begin recovering affected systems (vacuum, RF, magnet power supplies, etc.)
- Verify that all Booster Nodes are responding to the node poll.
- Restore all Booster CAMAC crates to a recent good running file via D2.
- Do a 400MeV Power Cycle.

Make sure to document all steps taken in the e-log.

***A word file for this document is kept on the BD/Operations Staff Sharepoint.**

NOTES: Please use this area to note any problems encountered during recovery.