Los Alamos NATIONAL LABORATORY

SBND Operations Report

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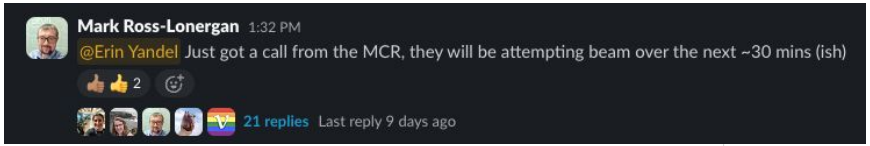
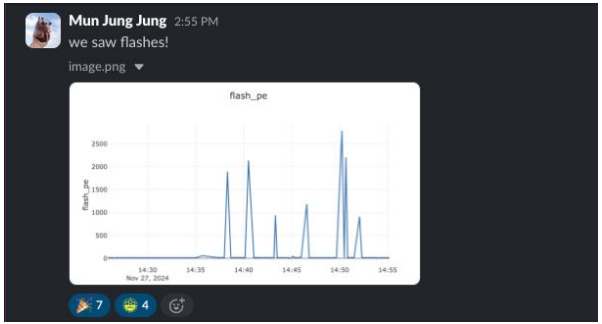
Proton PMG Meeting

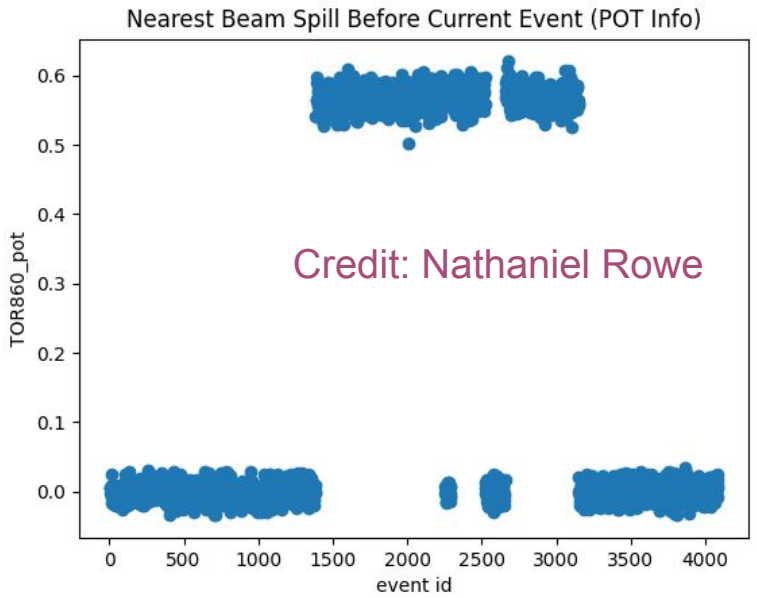
December 12, 2024

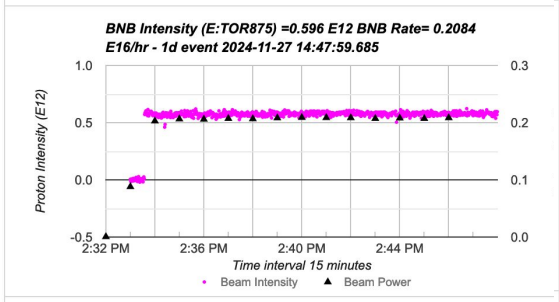
A Bit of Beam 😊

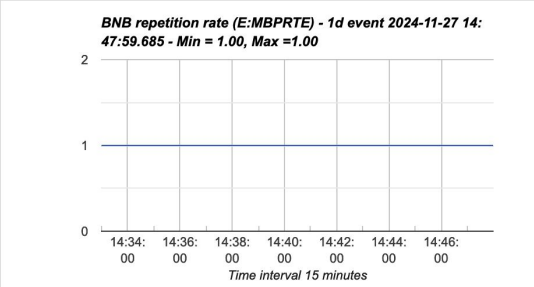
- Two weeks ago (11/27) we got ~1 hour of the BNB on!
- Low intensity (~0.5E12), low repetition rate (1 Hz)
- Started validating the POT accounting →
- Some validation of top hat plots and triggers started as well











Power Outage (or not)

Yesterday (Dec 10) we had another fake power outage.

Due to work being performed to bring the BNB back, we were informed on Monday that we would have another power outage at SBND yesterday.

We ramped the detector down, turned the servers off, and the cryo team turned the circulation pumps off.

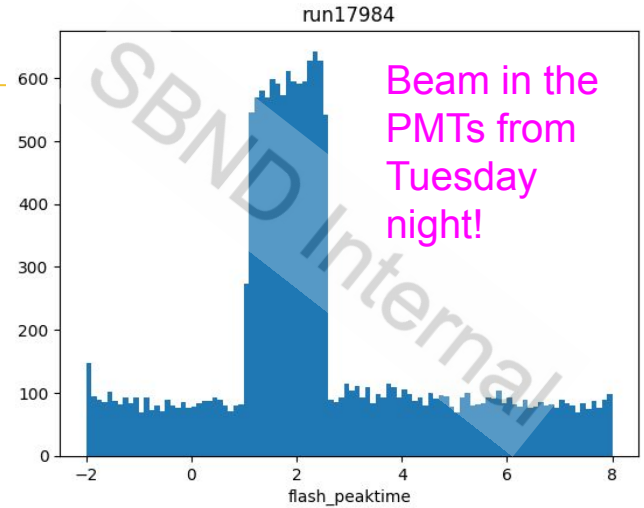
The outage didn't happen 🙃. The electricians found a different way to perform the work without affecting other buildings (unfortunately only about 2 minutes before the planned 8am start time).

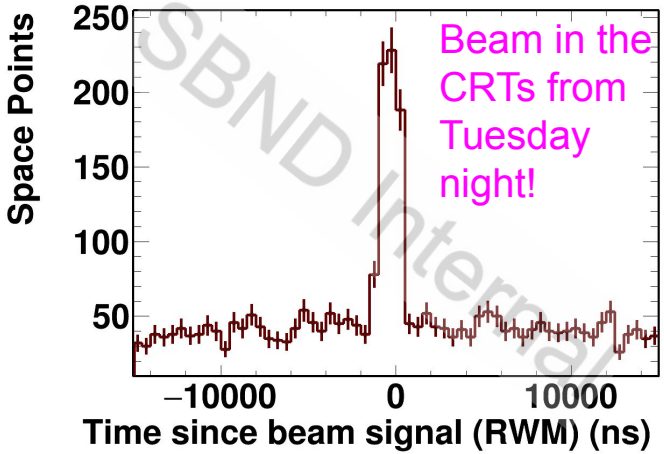
We brought the detector back up yesterday after we extra confirmed no outage would happen, and right on time for some fun!

Beam!

10 Dec 2024 15:51:06
Beam established to BNB

- **Beam started getting turned on at ~3:30pm Tuesday!**
- We were still ramping up the PMTs and CRTs but luckily all we really missed was the ramping part of the beam, by the time they were at ~nominal conditions so were we 🙂
- Have already started collecting and looking at the beam data

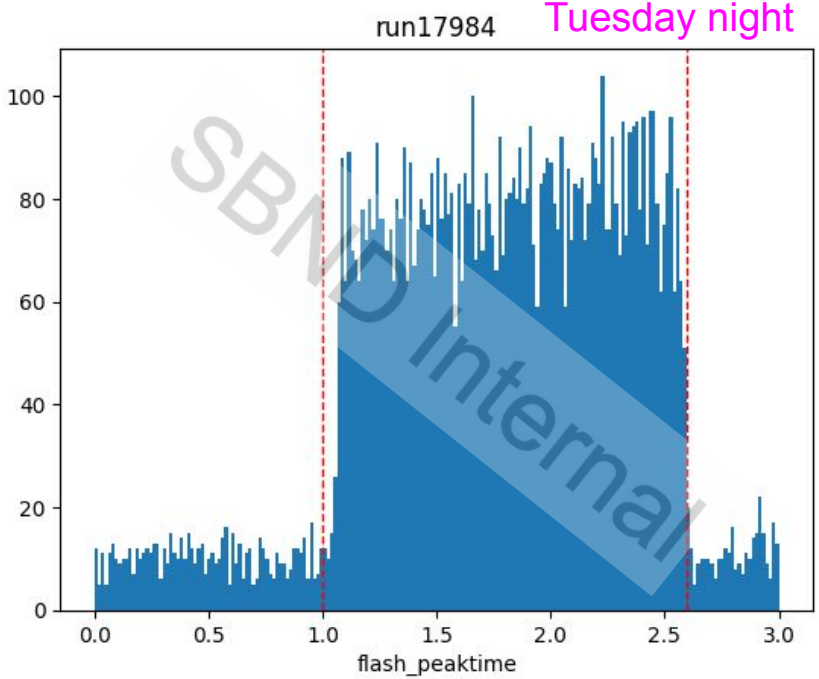




Getting the timing down

- This plot is an intermediate step in tuning our trigger configuration for physics running
- Getting the timing difference between the signals we use for triggers and the beam is essential to set our trigger window
- Using a wide window now (3 us) but could tighten it up once the measurements are done
- Initial looks show beam about 1.55 us wide (so a little less than the 1.6 us we expected)

Beam in the PMTs from Tuesday night



Run Plan: Next ~Month

- Main running mode for beam return: **Zero Bias BNB only, no out-of-time flashes**
  - This is the same as what we ran for July
  - Stable, reliable, will allow for quick turnaround on any studies started/validated with July data
- Special runs upon request
  - Have already fit one or two of these in during “bad beam” time (like the target scan yesterday)
- When DAQ and trigger configurations are validated: **trigger threshold scan configurations**
  - Have planned out ~9 points we’d like to scan using the results of initial studies with cosmics
  - Making and validating of the configurations for the scan already underway
  - Will give us the information we need to set our trigger light thresholds for our nominal physics running