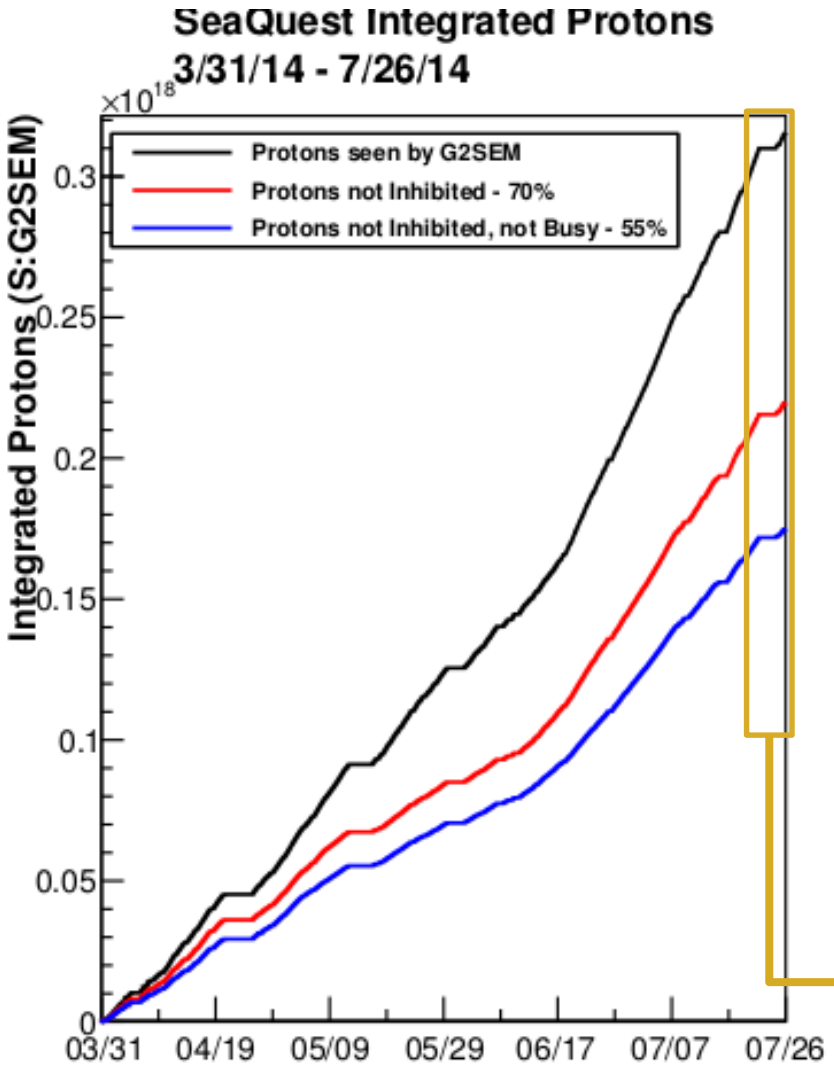
SeaQuest Status
July 21-27, 2014

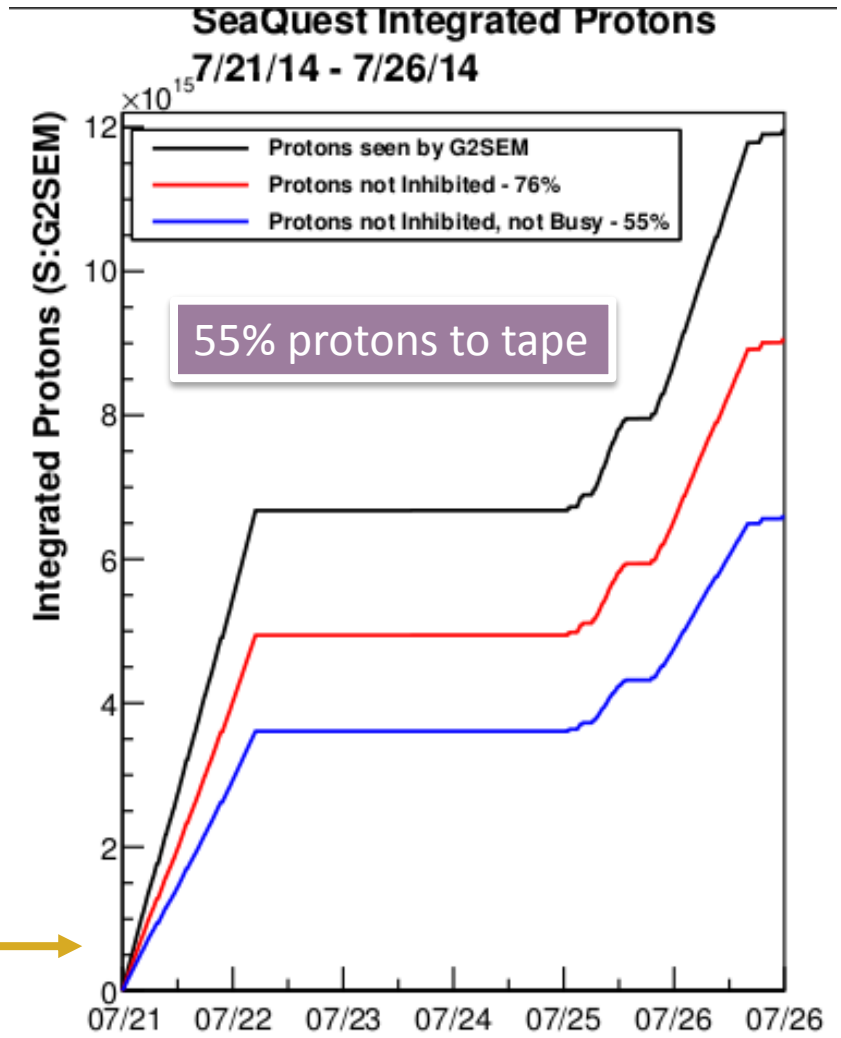
Brian Tice

July 28, 2014

Current Physics Run

Previous Week





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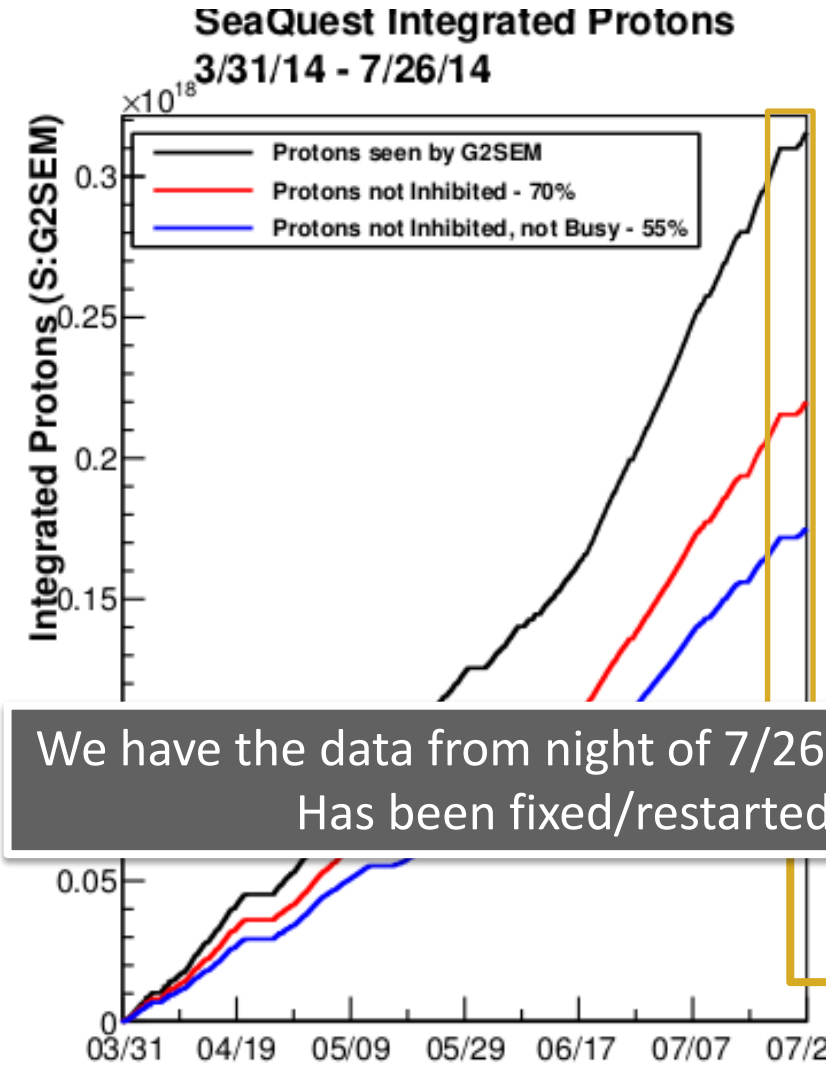

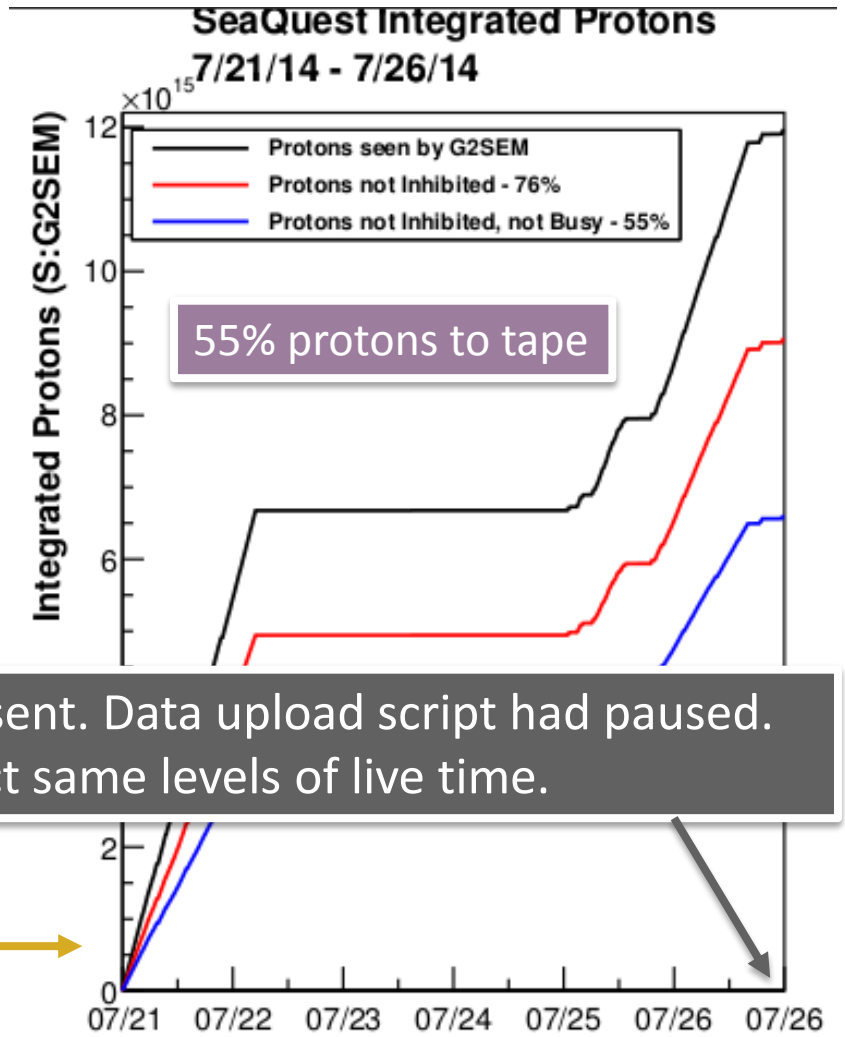

We have the data from night of 7/26 to present. Data upload script had paused. Has been fixed/restarted. Expect same levels of live time.

Detector Status – All systems performing well

- Temperature, humidity, pressure NM4 environment added to datastream
  - Allows us to correlate noisy channels, leak currents, etc with environmental conditions

- **We were not affected by the Saturday night power glitch**
  - Flickering light may have scared shifters

Beam Updates
Ready for 4 turns, Ready to test 45s cycle

- Neutral density filter in beamline Cerenkov monitor filtering more light
  - 25% NDF was replaced with 10% -> Protects from saturation effects.
- Our redundant duty factor measurement using hodoscopes was changed to use lower rate paddles, also protecting from saturation
- **SeaQuest would like turn13=4 to be new standard beam condition**
  - Results of survey of MI52 will show if this condition is OK for beams
  - (this was said last week as well)

- 45s cycle – ready for tests. Target and DAQ experts would like the be present.
- **Advanced notice of this test would be greatly appreciated**

Target Updates
Issues with pressure readout, table motion

- H2 Pressure Readout
  - **Attempt to replace H2 supply pressure sensor went awry**
    - Electronically disconnecting sensor caused system to read high pressure, **vent some H2**
    - Sensor was immediately reconnected
  - Took data on other targets until H2 could be refilled (completed Saturday evening)
  - Replaced a bad silicon control rectifier to maintain stable pressure
    - Target motor controller was dead after this replacement. Installed spare.
  - **Refill and recool of H2 went smoothly. Resumed taking H2 data.**

- Target table motion
  - We were **unable to reliably move target after the SCR and target motor replacement**
  - Behavior consistent with **noise on target position encoder** line
    - Removed an LED encoder position display
    - Improved ground in target area
  - **Target motion now good**. Has been increasingly reliable after this fix
  - Looking to purchase new/spare target encoder

Other Updates

- VESDA electronics moved from East to West side of NM4
  - West side of this part of NM3 has much lower rad levels
  - Expect fewer malfunctions (false positives)
- Glycol/water from last week's magnet drip surveyed and removed from NM4
  - Recall: Magnet cooling line supply side hose cracked was reported at previous AEM
- NIM coincidence unit died and was replaced by spare. This is not critical logic.
- Measured NM3 rad levels in candidate locations of UNSER monitor electronics

Backup

From Josh's report last week…

Turn I3=4 test

- Expected to increase beam intensity by ~1/3 compared to our nominal three-turn injection
- Wednesday afternoon, we received an hour of beam using four-turn injection into booster.
- G2Sem ≈6.3E12 ppp (vs. typical 4.8E12 ppp). *SeaQuest design: 1E13.*
- Accepted triggers/spill increased by ≈25%
- SeaQuest hodoscopes and drift chambers show no reduction in efficiency.
- Onset of saturation in Cherenkov monitor visible in Cherenkov-sum/ G2SEM. Adjusting PMT attenuation this week.

SeaQuest would like this as new nominal running. Waiting to hear about radiation impact on MI52.

SeaQuest AEM Update – Joshua G. Rubin – University of Michigan – July, 21 2014 4/5