E906/SeaQuest AEM Report

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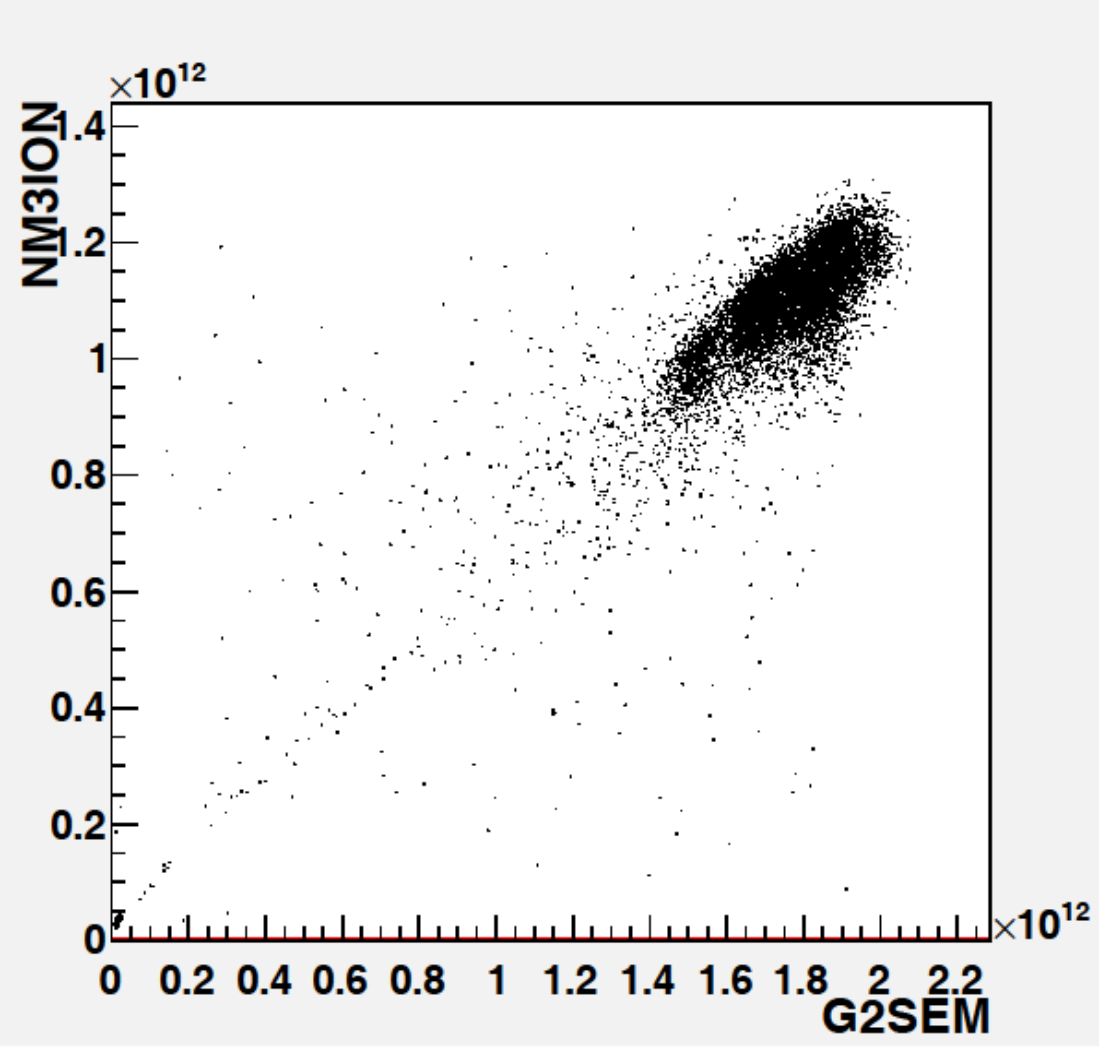
Production data taking starting 2/28/2014

- We are preparing a standard plot for report protons on target.
- Use NM3ION (close to target but sags) or G2SEM (further upstream and does not account for losses downstream)?

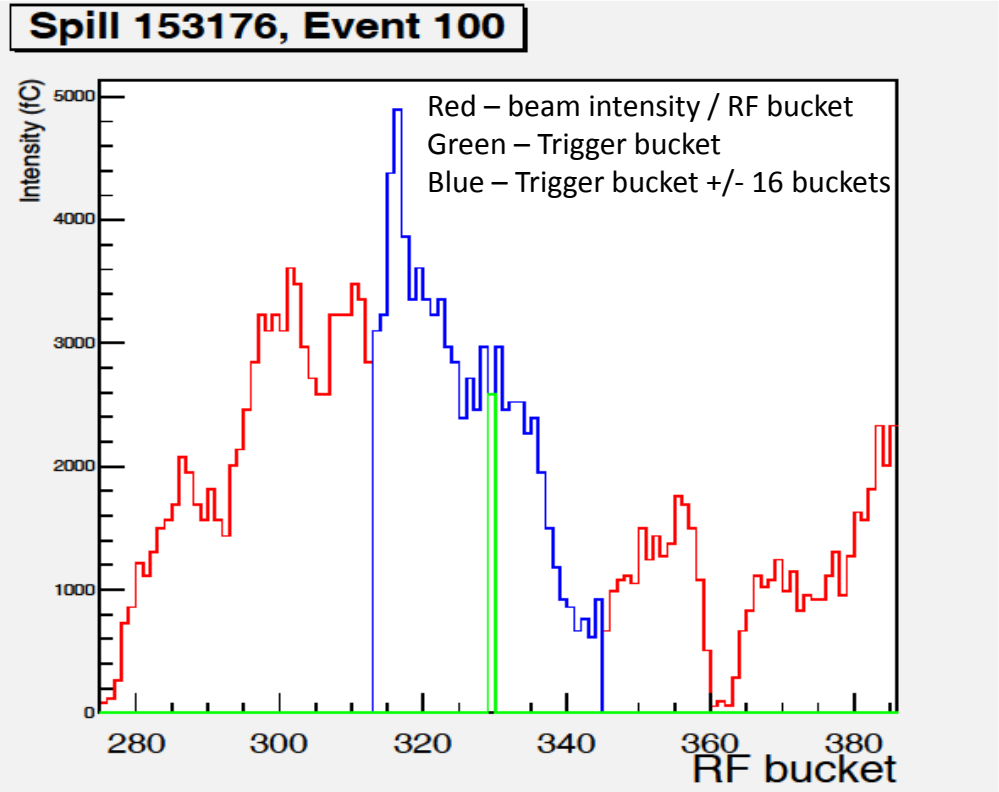
Target	NM3ION	G2SEM
LH2	2.95e+15	4.71e+15
Empty	6.88e+14	1.10e+15
LD2	2.16e+15	3.46e+15
None	2.11e+15	3.37e+15
Fe	2.19e+15	3.51e+15
Sum:	1.01e+16	1.62e+16



Downtime

- Major sources of downtime were:
  - Tuesday Swing: Target table motion stops (interlocked to V100). USB cable connecting computer to motor controller disconnected.
  - Wednesday Owl: DAQ/VME CPU crash. Soft reboot and power cycle do not work. Replaced CPU with spare. Re-flashed crashed CPU with firmware.
  - Thursday Owl: LH_2 flask supply pressure sensor malfunctions. PID loop to regulate flask pressure feeding back on this sensor. Switched to flask vent pressure. The two sensors are redundant.
    - ➔ Target safety committee has been informed, and is being consulted.

- Cerenkov QIE readout board development:
  - ✓ Read beam intensity at 53MHz
  - ✓ Inhibit/veto trigger when RF bucket intensity is above threshold
  - ✓ Record amount of beam inhibited.
  - ✓ Record RF buckets that DAQ deadtime "busied"
  - ✓ Record total beam intensity that DAQ deadtime "busied" but not inhibited.
  - ✓ Get header summary block to readout all sums and duty factors.



DAQ/Trigger

- Deadtime studies on-going. Shorten deadtime by turning off certain diagnostic TDCs.
- Studying effect of “in-time” (in coincidence with trigger RF) window to trigger purity.
- Debugging Level 0 and Level 1 boards recording inconsistent TDC spectra.