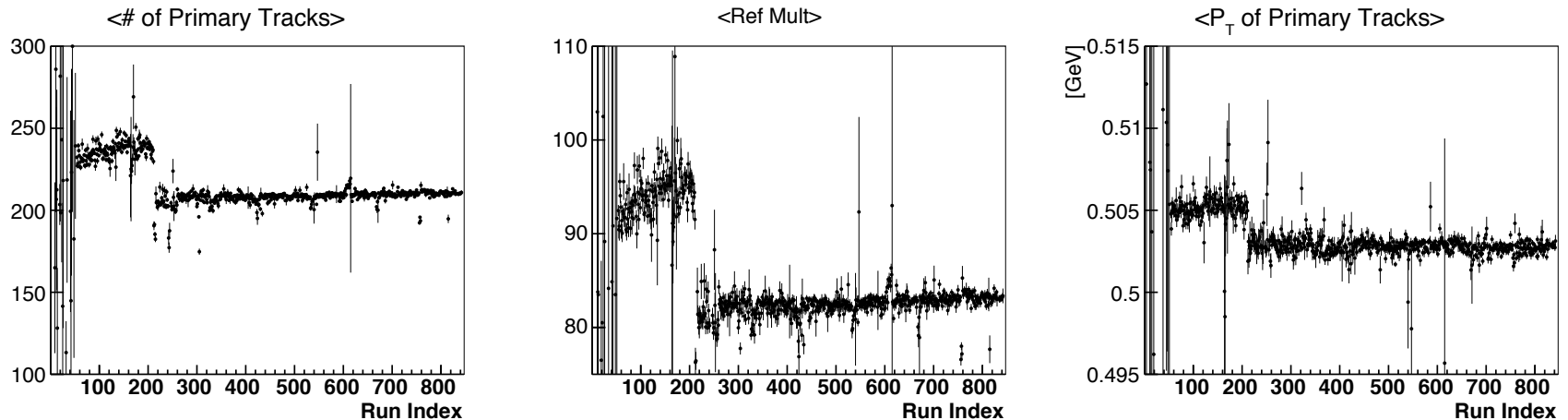


Run14 AuAu15 GeV Run-By-Run QA

- $|vZ| < 70$ [cm], $vR < 1.0$ from (0, -0.89), # Tof-Match-Tracks ≥ 2 , Tracks: $|\eta| < 0.5$
- Event Cuts based on previous BES Energy StRefMultCorr QA



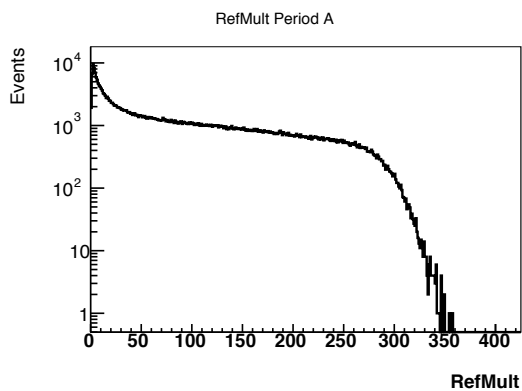
Run-averaged observables show a sharp change at Day 53 (Run 15053000)

Next look at the two periods to determine what changed

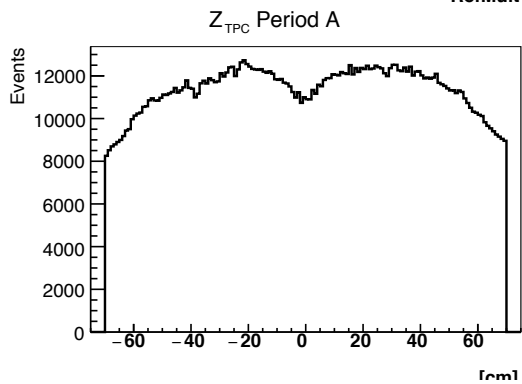
- Period A : After setup but before Day 53 (runs 15048000 – 15052068)
- Period B : Day 53 and after (runs 15053000 – 15070021)

Period A

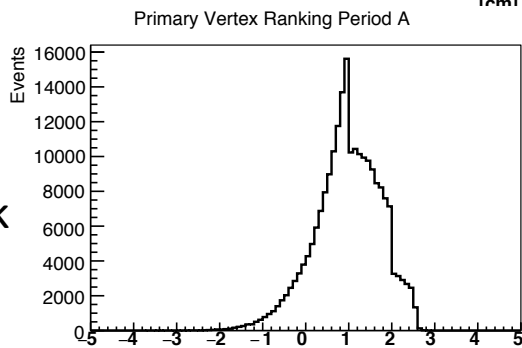
RefMult



Z Vertex

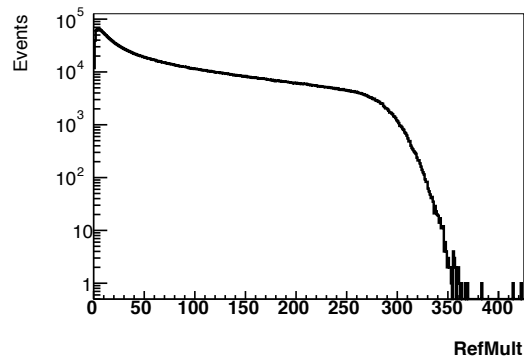


Vertex Rank

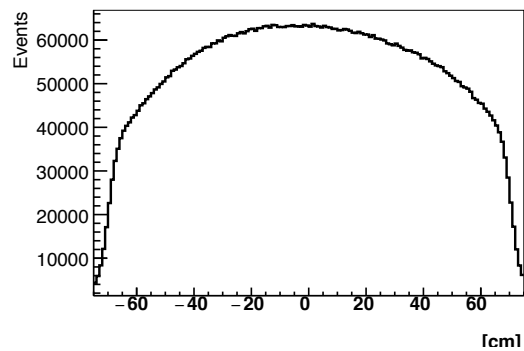


Period B

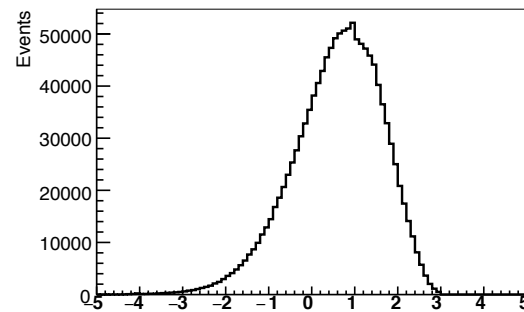
RefMult Period B



Z_{VPD} Period B



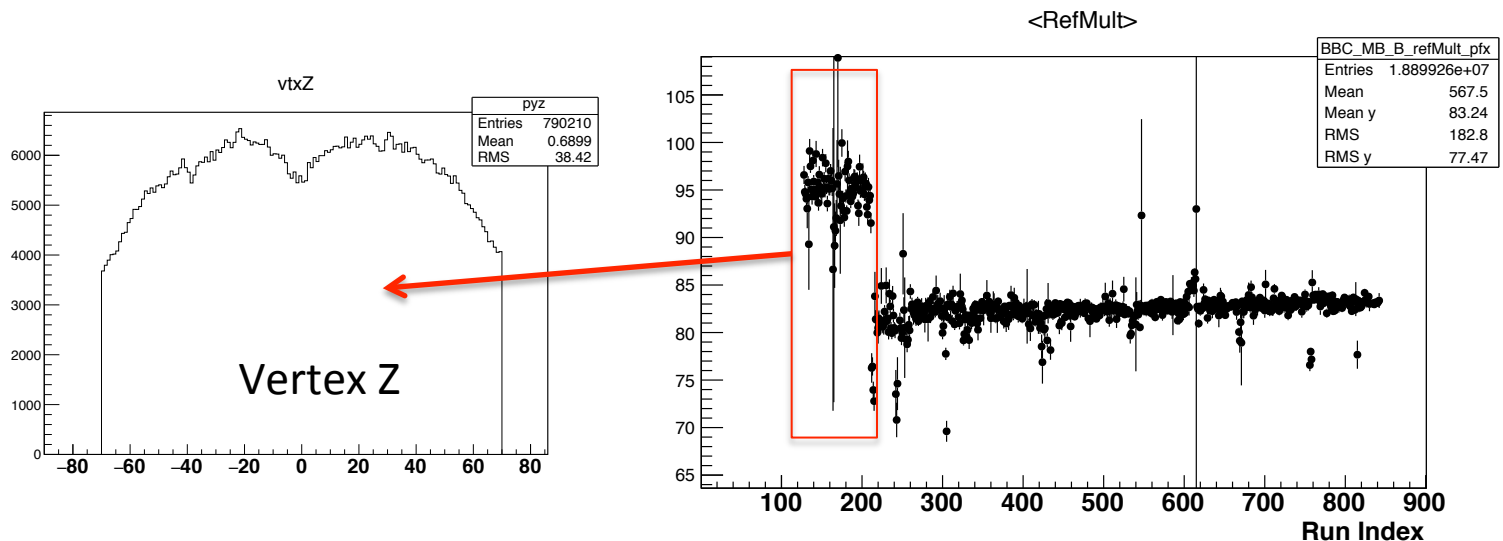
Primary Vertex Ranking Period B



BBC_MB Trigger Change

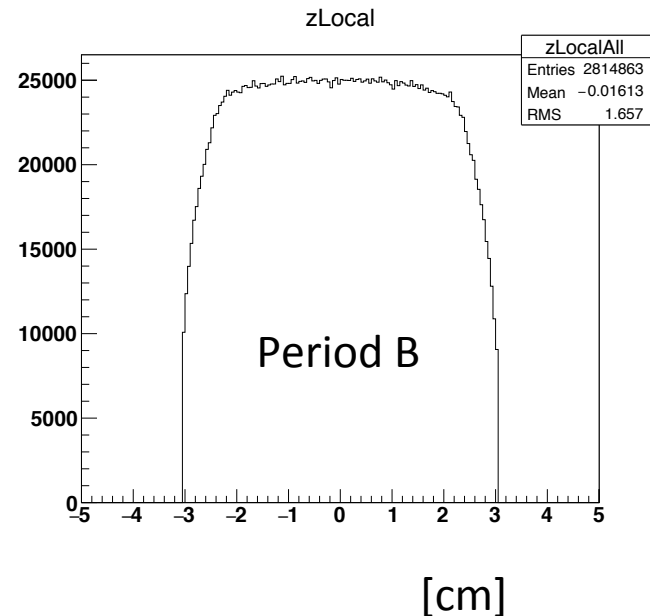
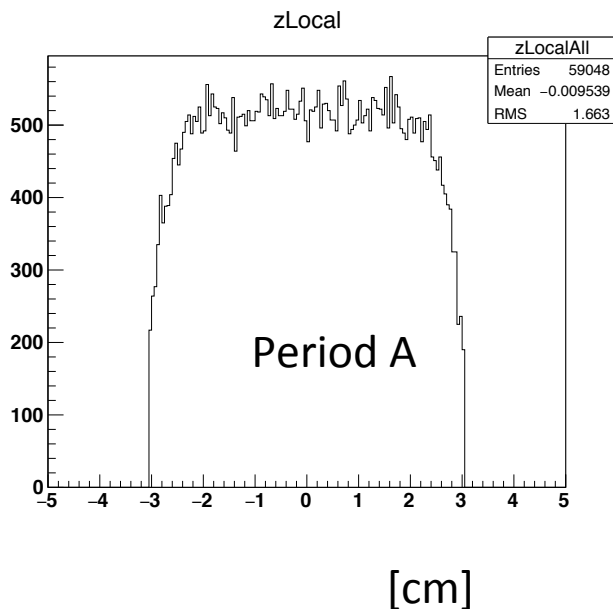
BBC_MB 440005 → BBC_MB 440015

- Look at BBC_MB 440015 only
- No → Jump happens before the change
- 440005 changed to 440015 when the Laser_Protection_bit was enabled



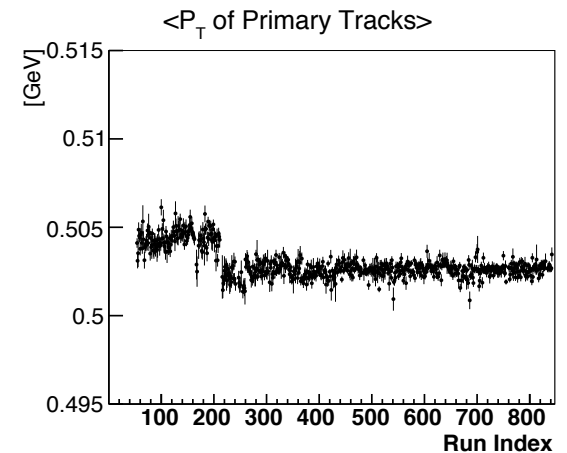
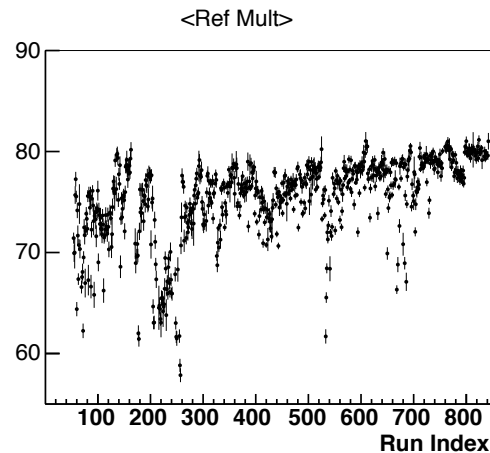
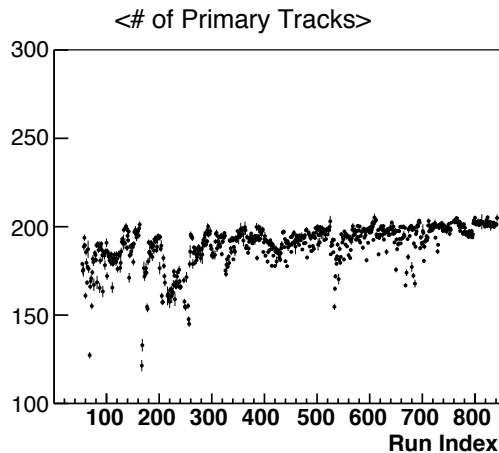
Issue with TPC Gas Drift Velocity

- Split Z could be from an issue with TPC Drift velocity?
 - ToF Geometry alignment is sensitive to mm level issues.
 - Would appear as an asymmetry in TOF zLocal distribution
 - No significant change is visible



Removing #Tof-Matched Tracks Cut

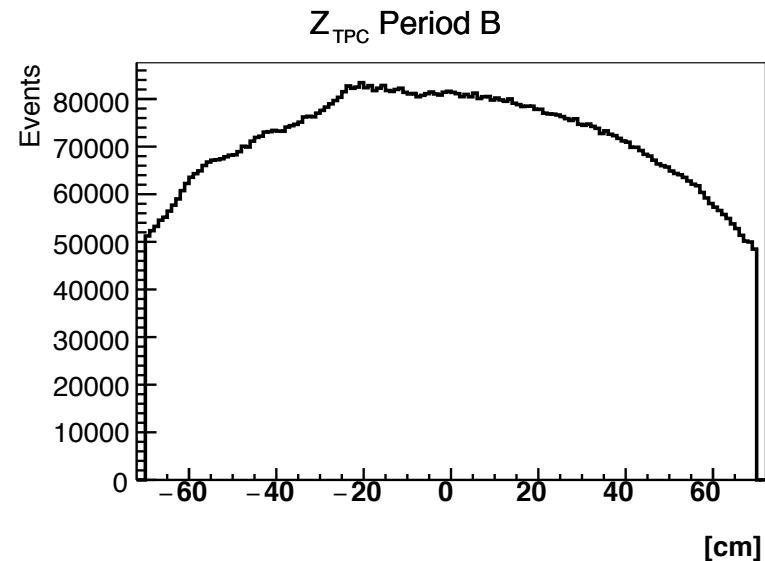
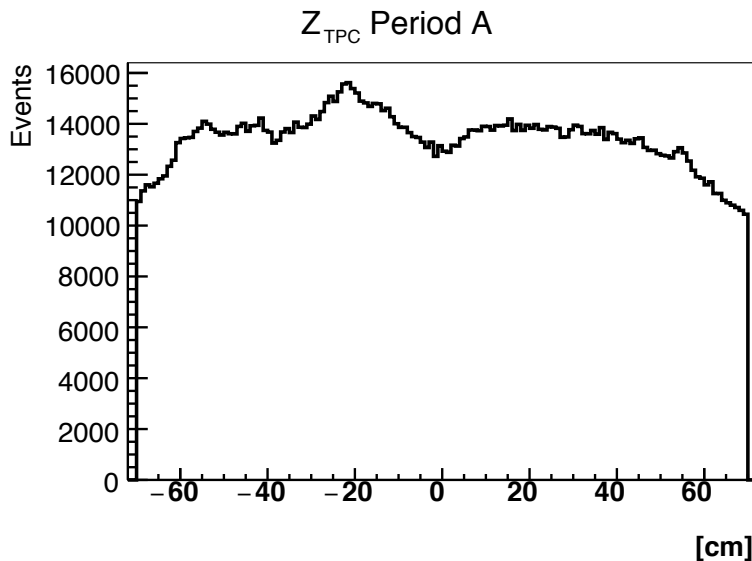
- Remove #Tof-Match Tracks ≥ 2 cut, but keep v_Z , v_R cuts



- RefMult & nPrimary-Tracks are more stable but Primary Track p_T still shows jump

Removing #Tof-Matched Tracks Cut

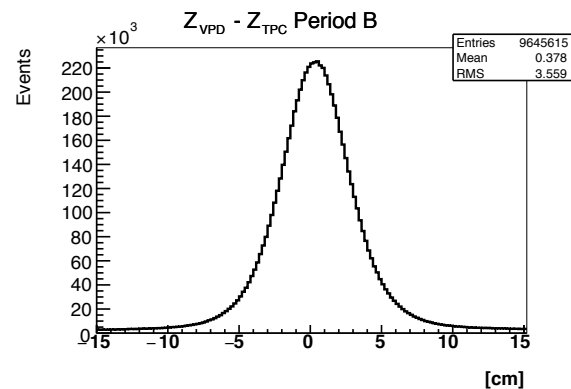
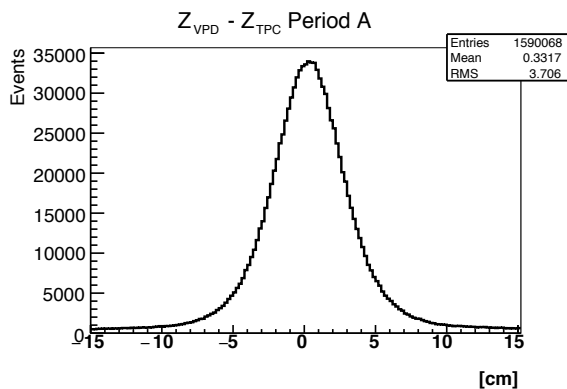
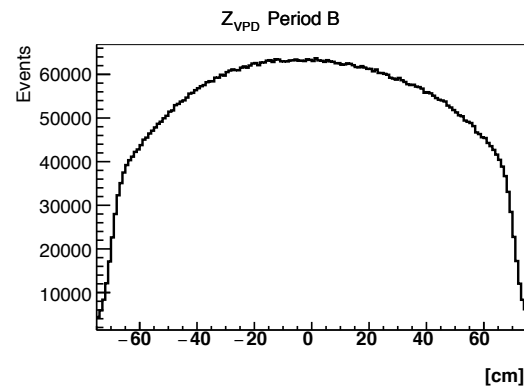
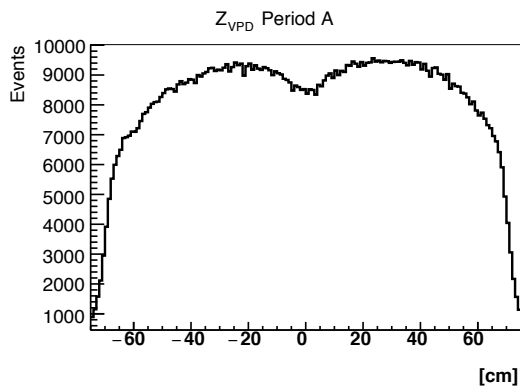
- Remove #Tof-Match Tracks ≥ 2 cut, but keep vZ, vR cuts



- Period A still shows strange dip in Z-vertex
- Additional material is visible around ~ -20 cm

Adding a $|Z_{VPD} - Z_{TPC}|$ Cut

- Cutting on $|Z_{VPD} - Z_{TPC}|$ doesn't help
- VPD Also shows different Z Vertex distribution in Period A vs. Period B



BEMC Database Entries

- BEMC Database entries
 - BEMC Status & Pedestal Tables have no entries before Day 53
 - Updates begin on Day 53 and continue throughout the Run14 AuAu15 period.
 - We are currently investigating if the BEMC is affecting the Vertex Finder differently in Period A vs. Period B

Conclusions

- Still Investigating
- No definite answer has been found
- Small dataset with modified BEMC tables is on its way – This may determine if the BEMC is involved
- StRefMultCorr parameters can be determined for the two periods separately.
- Period A may be marked bad until the changes are understood fully

