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Week in Review: 07/14/03 –07/21/03

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## **Keith Gollwitzer – FNAL**

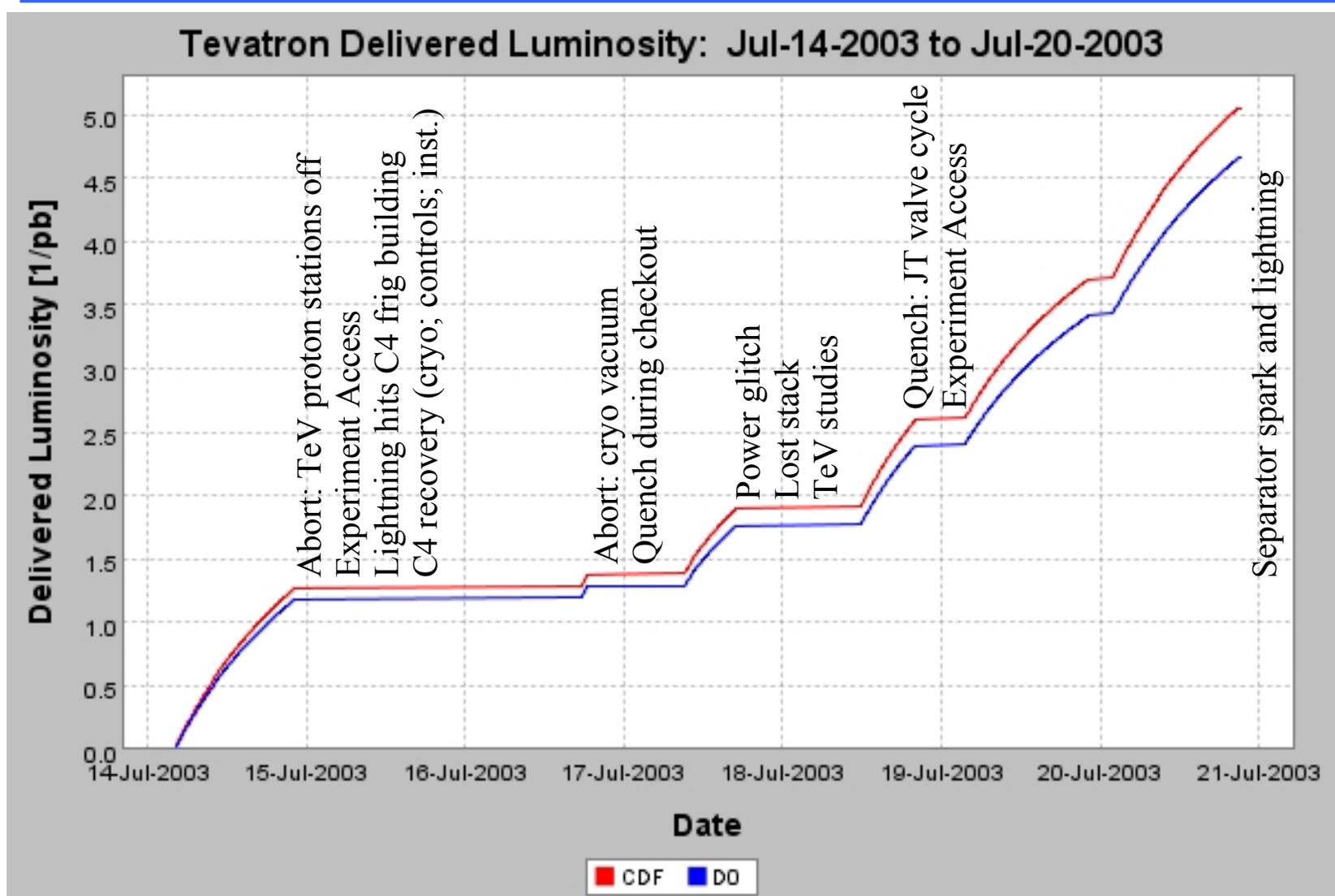
- Stores and Operations Summary
- Standard Plots

# Stores Summary

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Store	Initial Lum. (E30)	Deliv'd Lum. (nb <sup>-1</sup> )	Termination	Time (hr)	Stack Size (mA)	Comments
2786	30.9	1224	Abort	18.2	140	Abort due to TeV proton RF stations
2792	30.6	105	Abort	1.0	158	Aborted due to cryo; bad cryo vacuum
2795	22.9	496	Abort	8.0	109	Aborted due to power glitch (lightning on ComEd Northern Ill. grid)
2800	30.7	670	Abort	8.3	125	Abort due to JT valve cycled (quench)
2801	25.7	1058	Intentional	18.7	122	Two lost pbar transfers: 1 <sup>st</sup> due to MI PSLOOP failure; 2 <sup>nd</sup> unsynchronized sequencers
2803	30.5	1306	Intentional	19.4	149	
2805	8.8	-	Intentional	-	165	Separator spark during lightning

# Integrated Luminosity for the Week

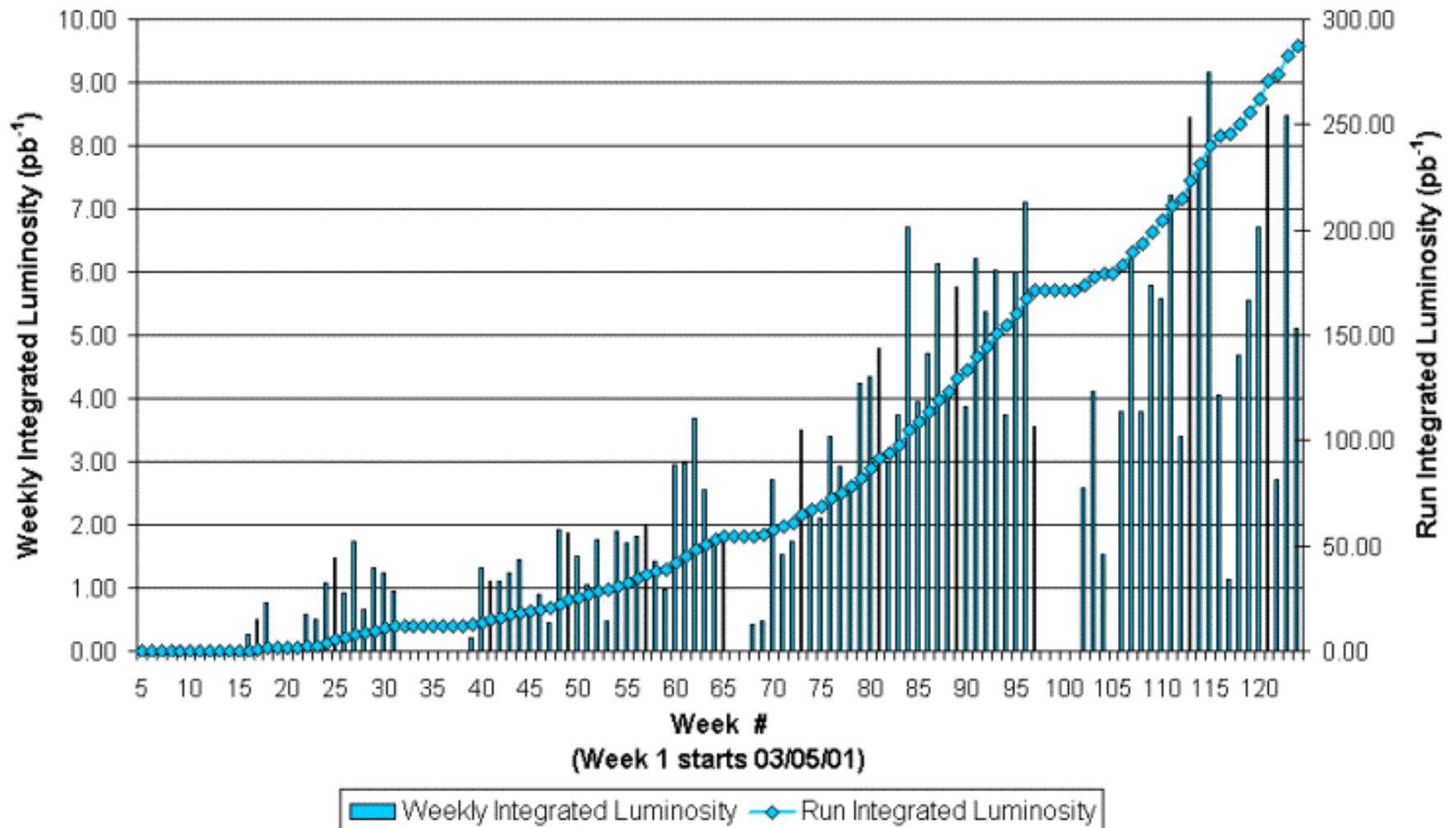


# A Summary

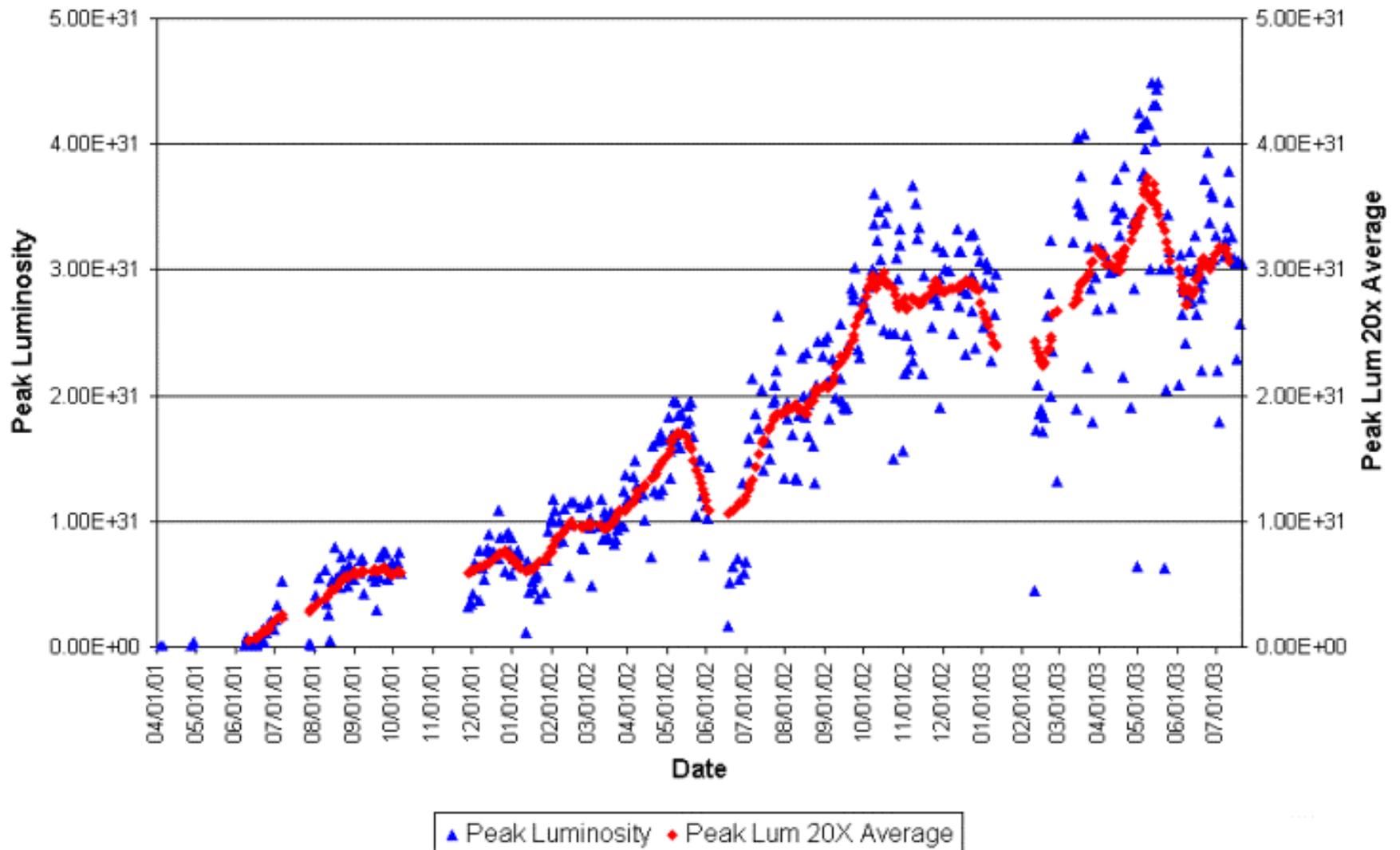
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- Troubles
  - Booster RF vacuum trips, TeV proton RF turning off, A:IKIK, B:Q10, I:Q703 “fire”, lightning strike of C4 frig building, C4 recovery, cryo vacuum, power glitch, pbar instability (lost 60mA), JT valve cycle, lost pbar transfers (MI PSLOOP)
- TeV Beam Maintenance Studies
  - Investigated 150GeV lifetime as a function of chromaticities; lattice measurements; reducing current in S6 feed down circuit and orbit
- Some semi-parasitic studies
  - Slip stacking started accelerating beam
  - SY120 has sent beam to the meson target train
  - MI injection damper commissioning; 2.5MHz acceleration; field reset studies

## Collider Run IIA Integrated Luminosity



# Collider Run IIA Peak Luminosity



# f Shot Setup Operational Improvements

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- Shot Setup Review Group
    - B. Mau, D. Johnson, operation specialists, crew chiefs
  - 30 issues relating to shots and sequencer identified
    - Standardize shot setup
    - Remove ambiguities
    - Remove problematic areas
  - Controls (B. Hendricks) is addressing 7 issues
    - Expanding sequencer capabilities
    - Modifying user interfaces
    - Addressing “bugs” in programs
  - Mau, Dept Head, Run Coord. to address 5 admin problems
  - Sequencer aggregate authors will address 8 issues
    - Features; formatting; style; consistency
  - Operation specialist will handle remaining 10 issues
  - 3 issues resolved. Group is determining best methods for resolving issues and defining standards
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- Increase 150GeV lifetime
  - TeV work has focused on setting pbar chromaticities to optimum values
    - Pbar 150GeV lifetime has improved
    - Differential chromaticity leads to non-ideal proton chromaticities
      - Proton 150GeV lifetime has decreased
  - Studies will be to address/correct differential chromaticity
    - Last week studies identified 6 circuits to investigate
- More protons/bunch at low beta
  - Proton source is running well...HOT
  - Fixing differential chromaticity will improve proton efficiency
- Larger stacks will lead to more pbars to low beta
  - Increase pbar cycle rate
    - Production is running high ( $>18e-6$ pbar/proton on target)
  - Run long stores
    - Mother Nature & Lady Luck

- The week
  - Much down time (lightning & glitch induced problems)
  - Seven stores of which four aborted and one “not real”
  - All initial luminosities  $< 3.1 \times 10^{30} \text{cm}^{-2}\text{s}^{-1}$
  - 74hrs of stores
- FY03 total is  $192.9 \text{pb}^{-1}$ ; 5 weeks to shutdown
  - Need  $6.4 \text{pb}^{-1}/\text{week}$
- Goal for this week
  - Stack and Store