

Welcome and Presentation of Charge

Steve Holmes

Accelerator Advisory Committee

(<http://www-bd.fnal.gov/aac/>)

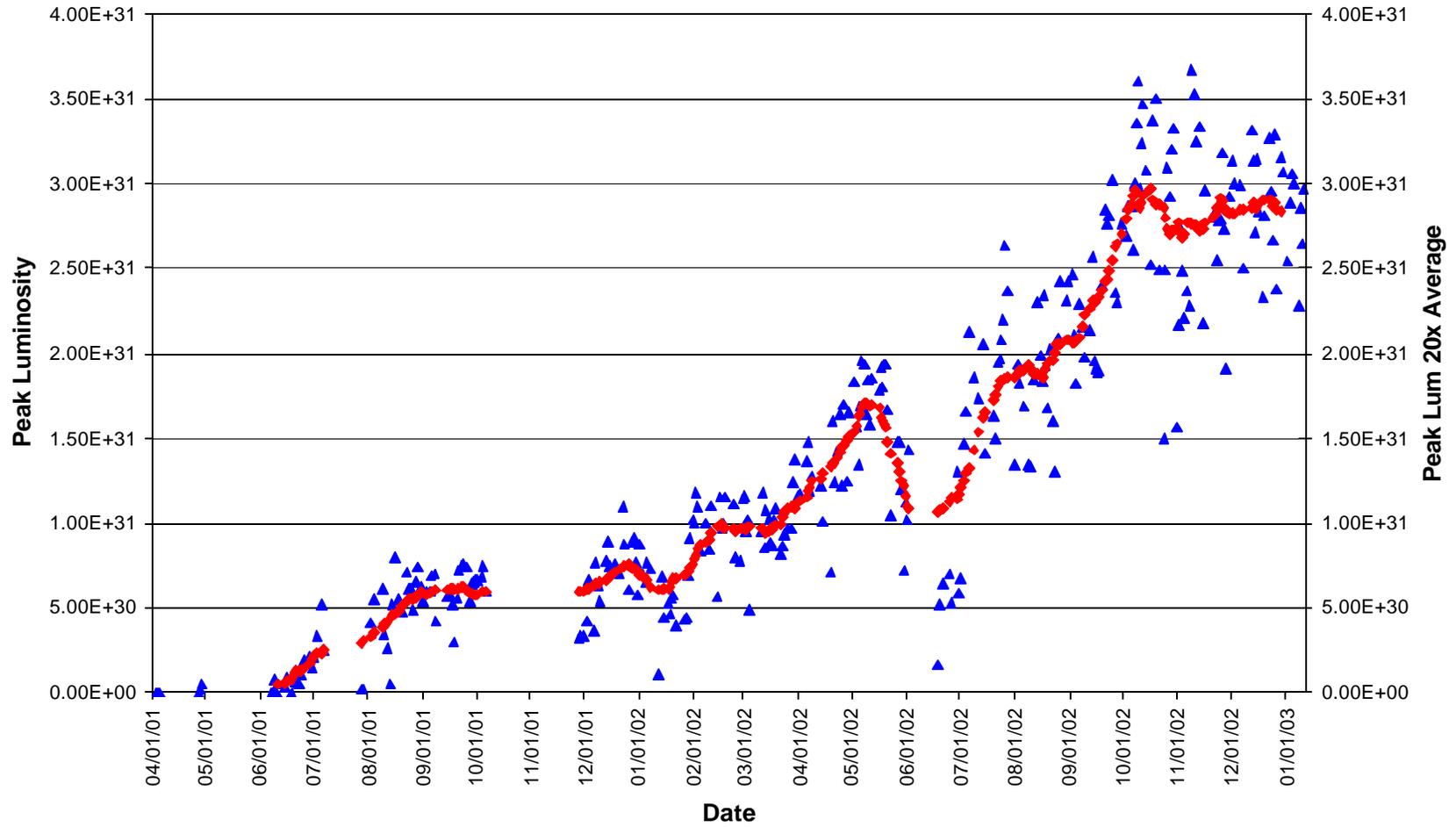
February 4, 2003

The Current Landscape: Update Since May 2002 Meeting

- Factor of four improvement in luminosity over CY2002
- “Base” and “Stretch” goals for FY2003 collider performance transmitted to DOE on September 30, 2002.
- Complete resource loaded schedule for FY2003 developed prior to DOE review.
- DOE review of Run II Performance October 28-30, 2002
 - Fermilab announced intention to eliminate Run II a, II b distinction and manage as an integrated whole (per AAC recommendation).
 - “Base” and “Stretch” goals through 2008 proposed.
- Action item requiring comprehensive, integrated, resource-loaded plan for completing all accelerator upgrades by 9/30/06. Due to DOE 6/1/03. Follow-up review in July.
- New Beams Division Head (Roger Dixon) since January 15.

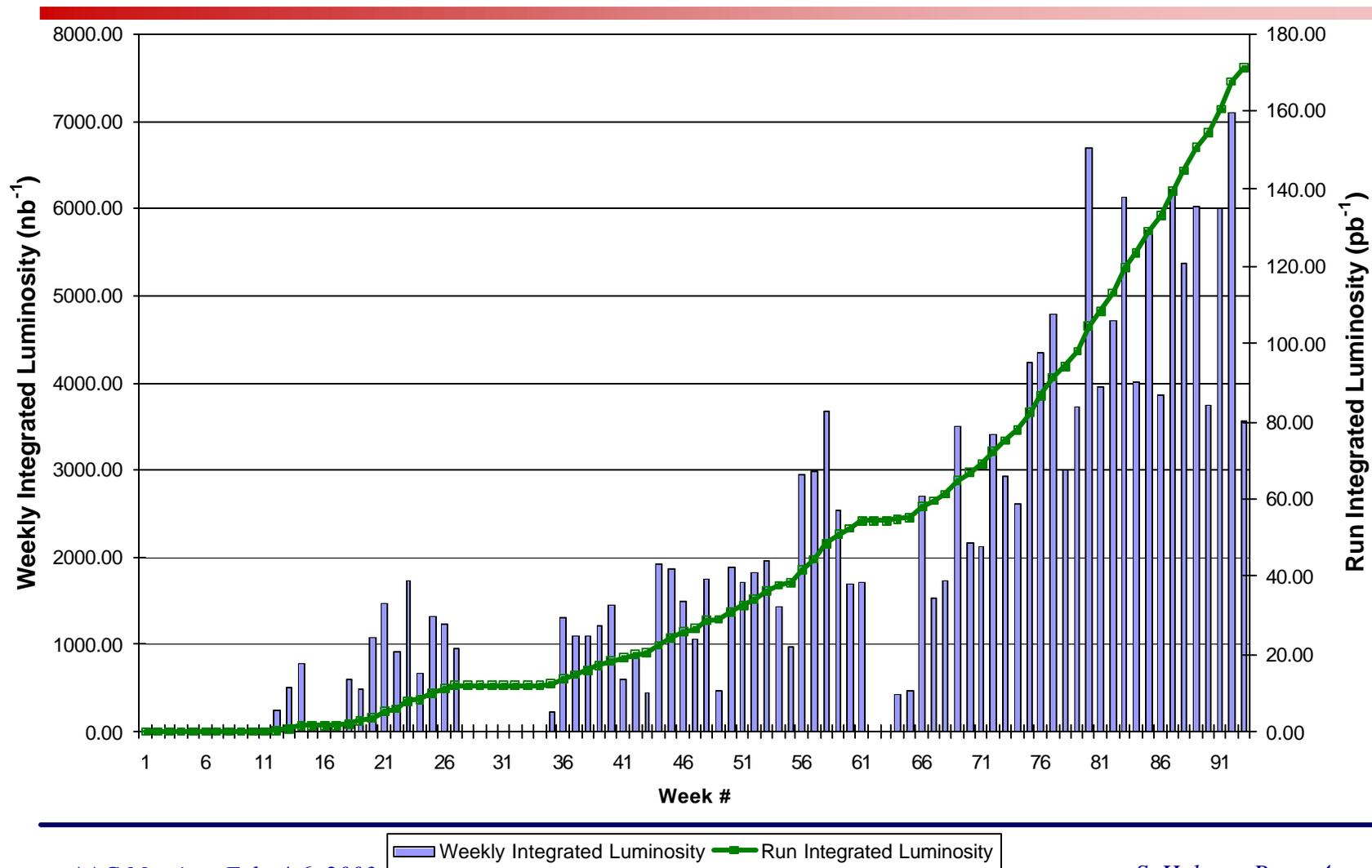
The Current Landscape

Initial Luminosity (through 1/12/03)



The Current Landscape

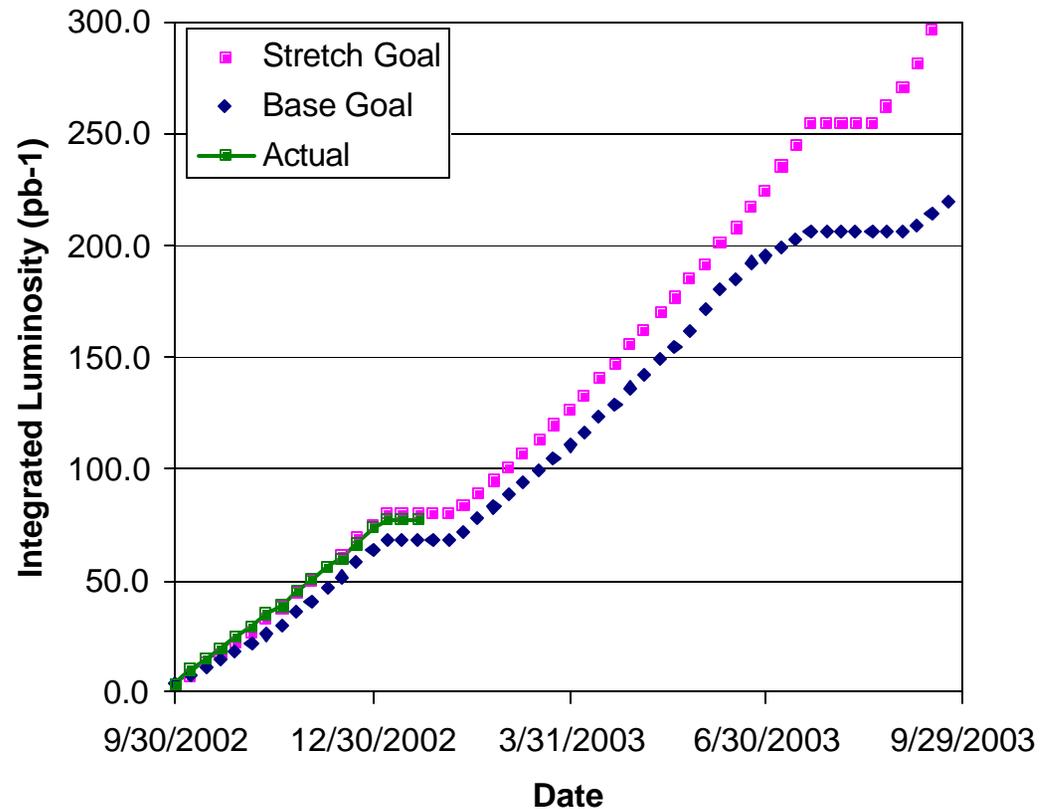
Integrated Luminosity (through 1/12/03)



FY2003 Plan

Base and Stretch Goals

- Comparison of actual delivered luminosity to base and stretch profiles:
 - Base goals:
 - 200 pb⁻¹ for FY03
 - 10 pb⁻¹ /week by the end of the year
 - Stretch goals:
 - 320 pb⁻¹ for FY03
 - 15 pb⁻¹ /week by the end of the year



Run II Beyond 2003

Organizational Approach

Run II is being organized as a single integrated project.

The responsibility for the execution of the Run II Project resides with the Beams Division (Head). He is being assisted by three project coordinators:

- Operations
 - Deputy Division Head, Mike Church
- Reliability and Maintenance
 - Associate Division Head for Engineering, Paul Czarapata
- Accelerator Upgrades
 - Assistant Division Head for Run II, Jeff Spalding

Run II Beyond 2003

Goals (Slide from October DOE Review)

- Intention is to define scope and projectize as a direct follow-on to the FY03 plan, starting after this review.
- A reasonable range of goals based on our current experience would be:

FY02	.08	.08	fb ⁻¹
FY03	0.2	0.32	
FY04	0.4	0.6	
FY05	1.0	1.5	
FY06	1.5	2.5	
FY07	1.5	3.0	
FY08	1.8	3.0	
TOTAL	6.5	11.0	fb⁻¹

• Issues/uncertainties

- Long-range beam-beam
- Recycling
- Funding (FY03 ...)
- Electron cooling
- 132 nsec operations
- NuMI operations

Charge to the Committee

(Rev. 23-Dec-02)

The February 2003 meeting of the Fermilab Accelerator Advisory Committee (AAC) will focus on the status of Tevatron Collider Run II operations and development of plans for maximizing output of the Tevatron Collider in the pre-LHC era. Reference materials for the review will include the plan for FY2003 developed during the fall of 2002 and material supplementary to the Plan for Run IIB released in December 2001.

The committee is asked to review and comment on the recent operational experience and short term plans for Run II with particular emphasis on the following points:

- Assessment of potential impediments to achievement of the luminosity goals established for FY2003, namely a peak luminosity by the end of September 2003 of $5-8 \times 10^{31} \text{ cm}^{-2}\text{sec}^{-1}$ in the Tevatron, and an integrated luminosity of 220-320 pb^{-1} .
- Evaluation of the overall strategic approach to achieving the goal of $8 \times 10^{31} \text{ cm}^{-2}\text{sec}^{-1}$ in the Tevatron by the end of September 2003.
- Evaluation of the key underlying accelerator physics issues and the adequacy of the FY2003 plan in addressing these issues.
- Suggestions for overcoming any identified impediments to FY2003 goals.

Charge to the Committee (cont.)

The committee is further asked to review and comment on the elements of a longer-term plan for maximizing performance of the Tevatron over the period beyond FY2003 and through the initiation of LHC physics. In particular we would appreciate the committee's view on the following:

- Is the strategic approach to increasing luminosity into the range $2-4 \times 10^{32} \text{ cm}^{-2}\text{sec}^{-1}$ sound?
- What are the primary accelerator physics and technology risks associated with this strategy? Can the level of risk be translated into a luminosity performance uncertainty?
- Do opportunities exist for mitigation of these risks through alternative approaches?
- Are operational scenarios developed that appropriately account for the simultaneous needs of fixed target operations?

Any further comments or suggestions the committee would like to make are, as always, welcomed and appreciated. It is requested that a concise report responsive to this charge be forwarded to the Fermilab Director by March 7, 2003.
