

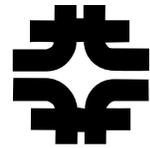
Welcome and Presentation of Charge

Steve Holmes

Accelerator Advisory Committee Meeting
(http://www.fnal.gov/directorate/Fermilab_AAC_mtgs.htm)

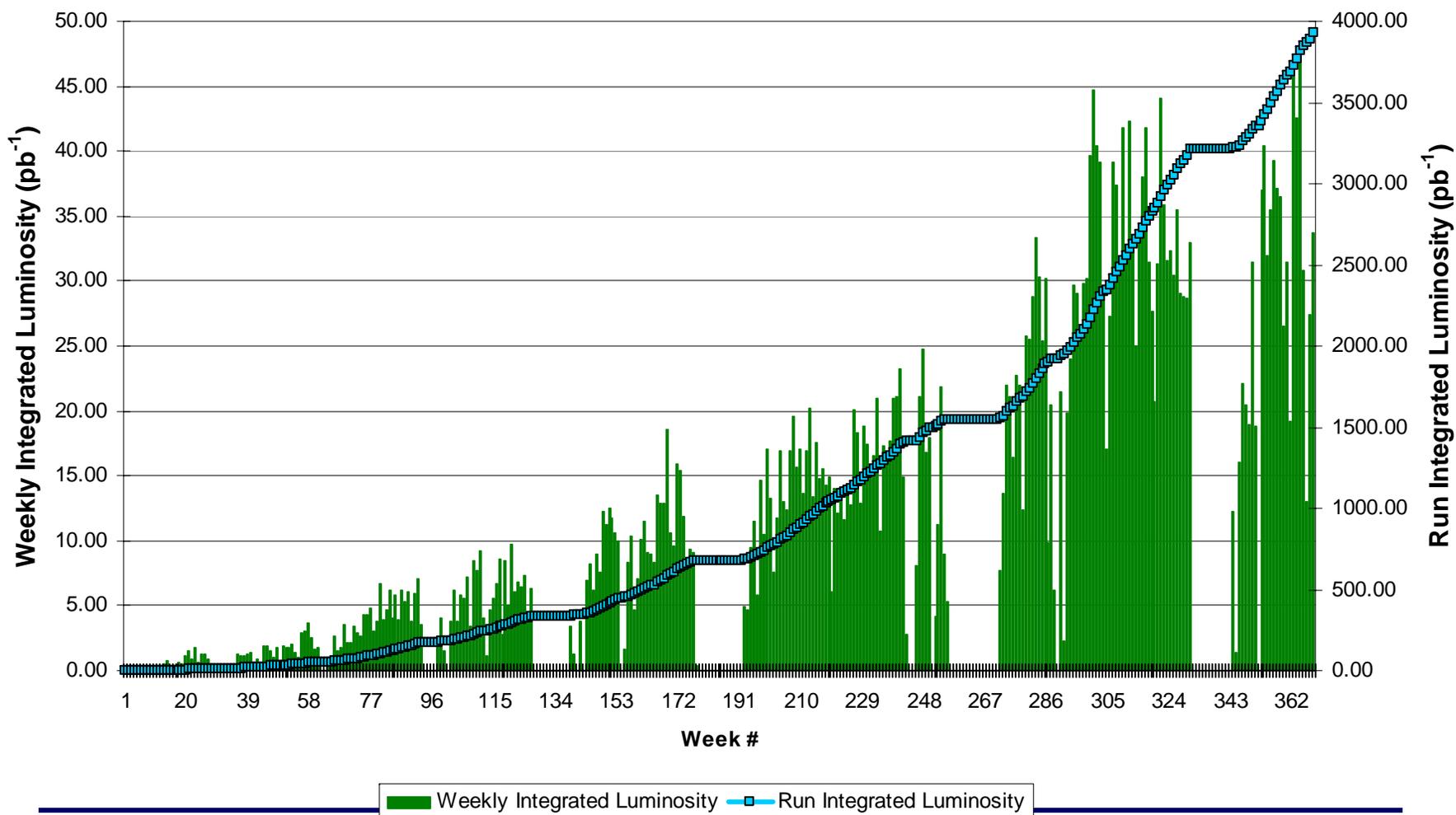
May 6-8, 2008

Update Since August Meeting Shutdown, Run II

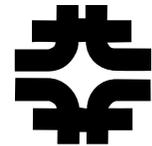


- 2007 shutdown completed on October 15, 2007
 - Installation of 12 new Booster correctors (Proton Plan)
 - Installation of new MI collimation system (Proton Plan)
 - Installation of new 345 KV power poles (vulnerability)
- 0.7 fb⁻¹ delivered to CDF and D0, FY08 to date
 - 3.9 fb⁻¹ delivered Run II to date
 - FY08 shutdown has been delayed to spring 2009
- Record antiproton stacking rate: 25.9×10¹⁰/hour
- Record initial luminosity: 3.16×10³²
- Record weekly luminosity 49 pb⁻¹
- **The current expectation is that operations will continue through 9/30/10**
 - Most likely integrated luminosity through FY2010: 7.3 – 8.7 fb⁻¹

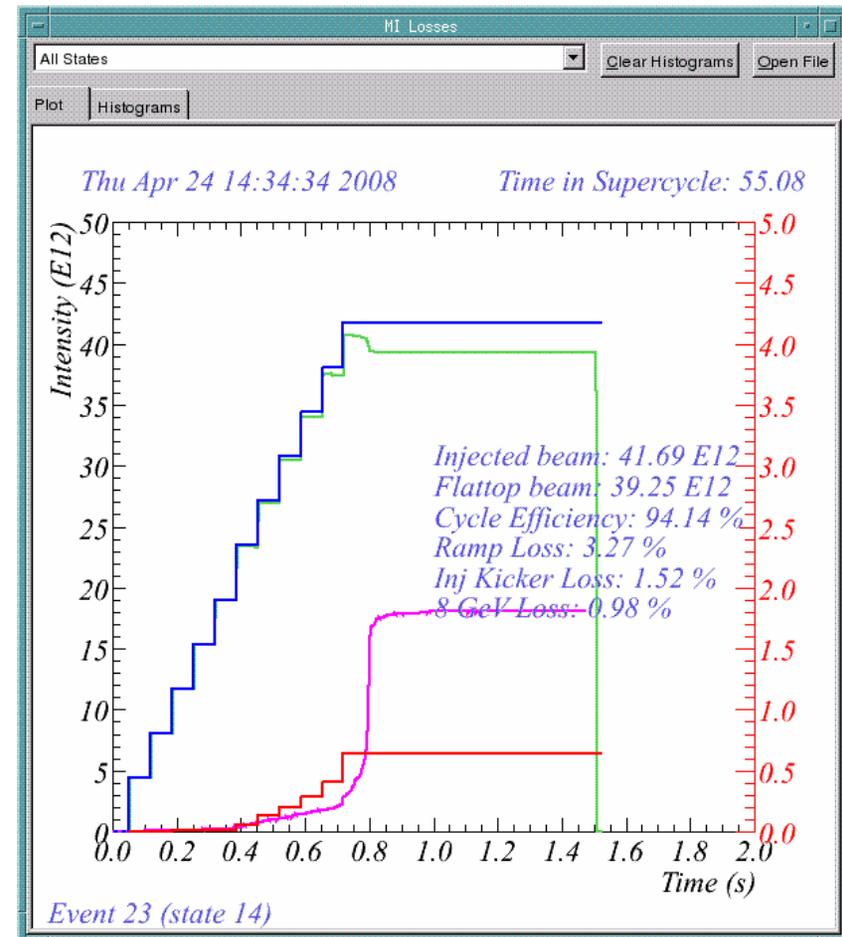
Update Since August Meeting Integrated Luminosity (through 4/27/08)



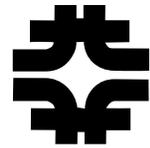
Update Since August Meeting Neutrinos



- 0.9×10^{20} protons to NuMI, FY08 to date
 - Multi-batch slip-stacking operational
 - Design goal is 320 kW on target simultaneous with antiproton production
 - Typically 270 kW simultaneous with antiproton production
 - 1.0×10^{20} protons to Booster Neutrino Beam (BNB), FY07 to date
- ⇒ **Booster throughput at record levels**



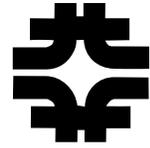
Update Since August Meeting LHC



- Triplet repairs implemented
 - All repaired triplets are in the LHC tunnel
 - 7 (of 8) have passed pressure tests
 - 4 are at 2 K; one more is in process of cooling down
 - 1 (5R) has been ramped successfully to full field
- LHC Accelerator Upgrade plan is under development
 - Expect to establish U.S. deliverables this summer
- LARP continues to support commissioning and develop technologies for future upgrades
 - Successful testing of 1m Nb₃Sn magnets
 - Support for LHC hardware commissioning, preparations for beam commissioning
 - New LARP Leader designated to succeed Steve Peggs: Eric Prebys (August)

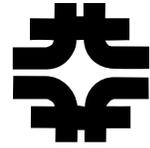
Update Since August Meeting

Strategic Planning



- FY08 Omnibus Budget Bill passed Congress and signed by President in December 2007.
 - \$52M shortfall in the laboratory budget
 - ILC and SRF funding cut by 75%
 - NOvA FY08 construction funds zeroed
 - P5 charged to develop a strategic plan for US HEP
 - Project X RD&D Plan developed and presented to P5 in January 2008
 - Strongly aligns and integrates Project X, ILC, SRF, and HINS programs
 - Goal is to establish a project baseline at the end of 2011, supporting a 2012 construction start
 - P5 report to become public at HEPAP meeting end of May
 - We hope for/expect strong support of Project X from P5
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Charge to the Committee:



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- Review and comment on activities supporting the Fermilab strategic plan
 - Project X
 - ILC
 - Muon Facilities
 - Photoinjector
 - Review and comment on the integration of the above programs

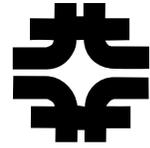
Charge to the Committee

(Rev. 4)



The Fermilab Accelerator Advisory Committee is asked to look at a variety of activities supporting the Fermilab strategic plan for the post-Tevatron era. The primary topics for review and discussion are:

Charge to the Committee (cont.)

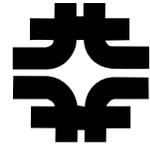


Project X R&D Plan

Fermilab has prepared a Project X R&D Plan aimed at supporting all activities required to complete a technical, cost, and schedule baseline (CD-2 in the language of DOE) by the end of 2011. This plan is integrated with R&D programs running in parallel on ILC, SRF Infrastructure, and High Intensity Neutrino Source (HINS). It is also desirable to develop the design of Project X in a manner that retains the opportunity for future utilization in a muon-based facility (Neutrino Factory or Muon Collider).

The Committee is asked to review and offer comments and recommendations relative to the Project X R&D plan, including the overall strategy, the appropriateness of program goals, timeline, organization, and alignment with the ILC, SRF, HINS, and Muon programs.

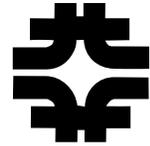
Charge to the Committee (cont.)



Fermilab Muon Program

The Muon Collider initiative is organized through the Muon Collider Task Force (MCTF) at Fermilab. Activities of the Neutrino Factory and Muon Collider Collaboration (NFMCC) and MCTF are closely coordinated, with NFMCC concentrating on Neutrino Factory design and simulation, and experimental efforts on targeting (MERIT) and 4-D cooling (MICE); and the MCTF concentrating on Muon Collider design and simulation, and technology development for 6-D cooling arrangements that would be applicable to a MC.

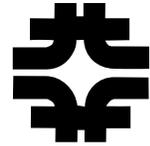
Charge to the Committee (cont.)



Fermilab Muon Program (cont.)

The Committee is asked to review the activities of the MCTF and NFMCC activities at Fermilab, and offer comments on the strategic approach, the appropriateness of program goals (including with respect to timing), and the technical progress towards achieving these goals. The committee should note that the national Muon program will have been reviewed by the Muon Technical Advisory Committee four weeks before the AAC meeting. As such the AAC is specifically asked to concentrate on Fermilab's contributions to these programs. In formulating its comments and recommendations the committee should consider, and offer advice as appropriate, on the interaction between these activities and the broader national and international muon programs.

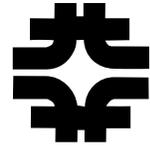
Charge to the Committee (cont.)



Photoinjector Program and Future Directions

The photoinjector program, currently situated in the A0 laboratory, is under consideration for relocation to the New Muon Lab (NML) in support of beam testing of 1.3 GHz cryomodules sometime in the 2012 timeframe. This relocation could offer the opportunity for a new program of advanced accelerator R&D operating in parallel with cryomodule testing. Such a program could be based on the upgraded photoinjector and/or the 750 MeV electron beam that would be made available via the operation of a complete ILC/Project X RF unit at NML. The committee will be presented with an outline of facility characteristics, an overall scientific strategy, and possible AARD program elements.

Charge to the Committee (cont.)

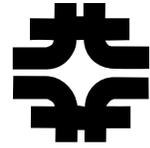


Photoinjector Program and Future Directions (cont.)

The Committee is asked to review the scientific potential for AARD based on the currently configured facility, and possible facilities at NML. We are particularly interested in the Committee's comments and recommendations relative to the following:

- Comment on the competitiveness, nationally and internationally, of potential science programs in each of three scenarios:
 - The current configuration with possible modest upgrades
 - A 50 MeV capability in NML
 - A 200-750 MeV capability in NML
- For each scenario, which program elements seem most compelling?

Charge to the Committee (cont.)



Fine Print

As usual the committee is invited to issue comments or suggestions on any aspect of the programs discussed beyond those specifically included in this charge. It is requested that a concise report responsive to this charge be forwarded to the Fermilab Director by July 1, 2008. Thank you.