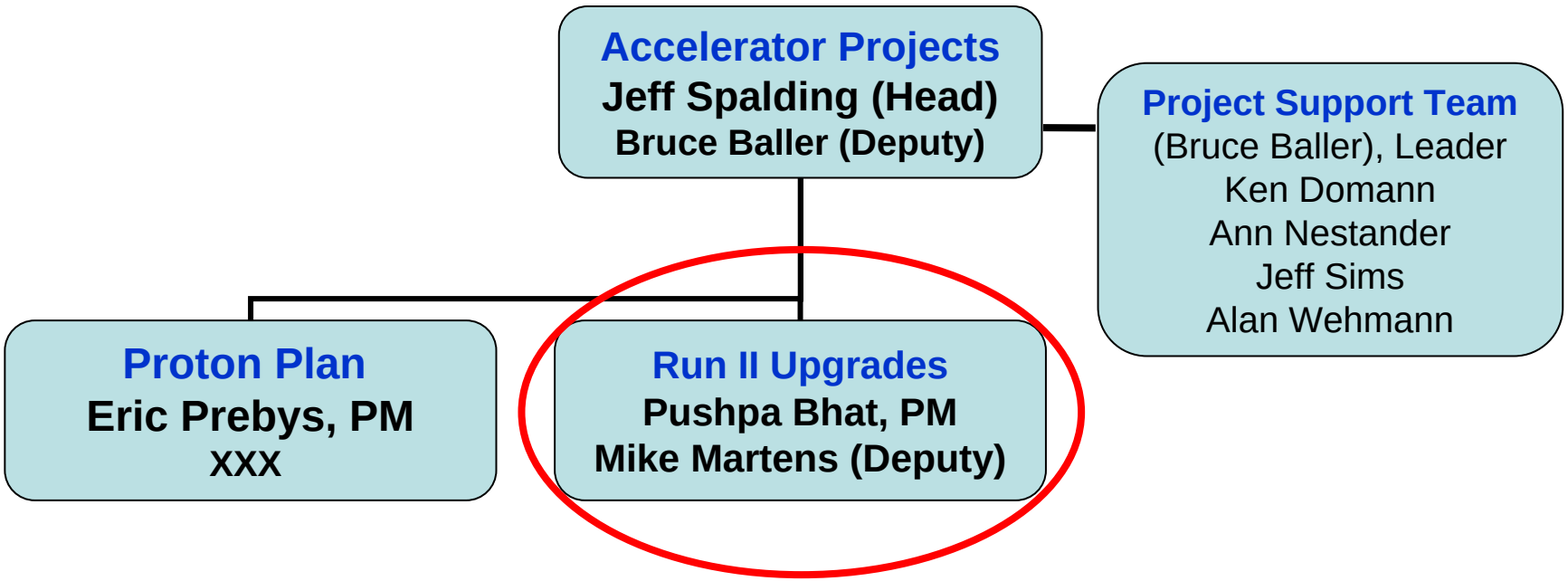
Management Re-organization



- Project support team:
  - Resource-Loaded Schedule (MS Project) – Domann
  - Accounting - Cobra interface to Lab's system - Nestander
  - Project management support – Sims
  - Web and documentation support - Wehmann

Run II Upgrades Status
January 2005 Report

Pushpa Bhat

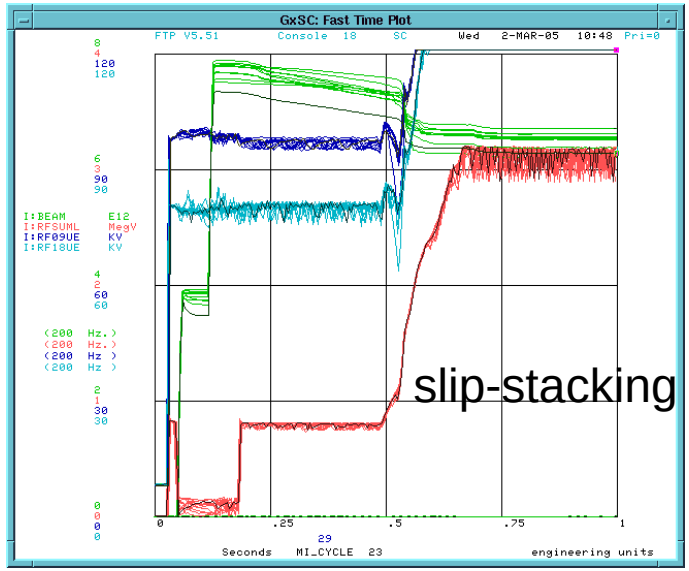
Outline

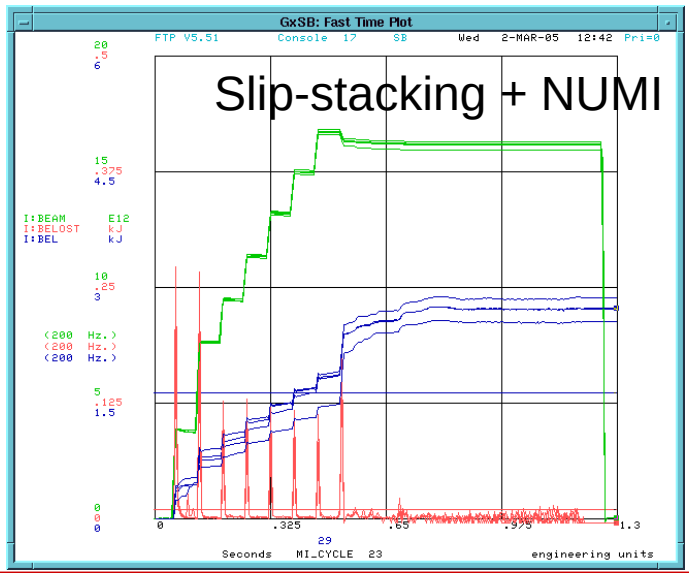
- Technical Highlights/ Progress
- Status Report for January '05
  - Milestones
  - % Complete
  - M&S Costs
  - Effort Report
- Other
  - DOE review March 29-31
  - Shutdown '05 Plan (See Martens' talk)

Technical Highlights

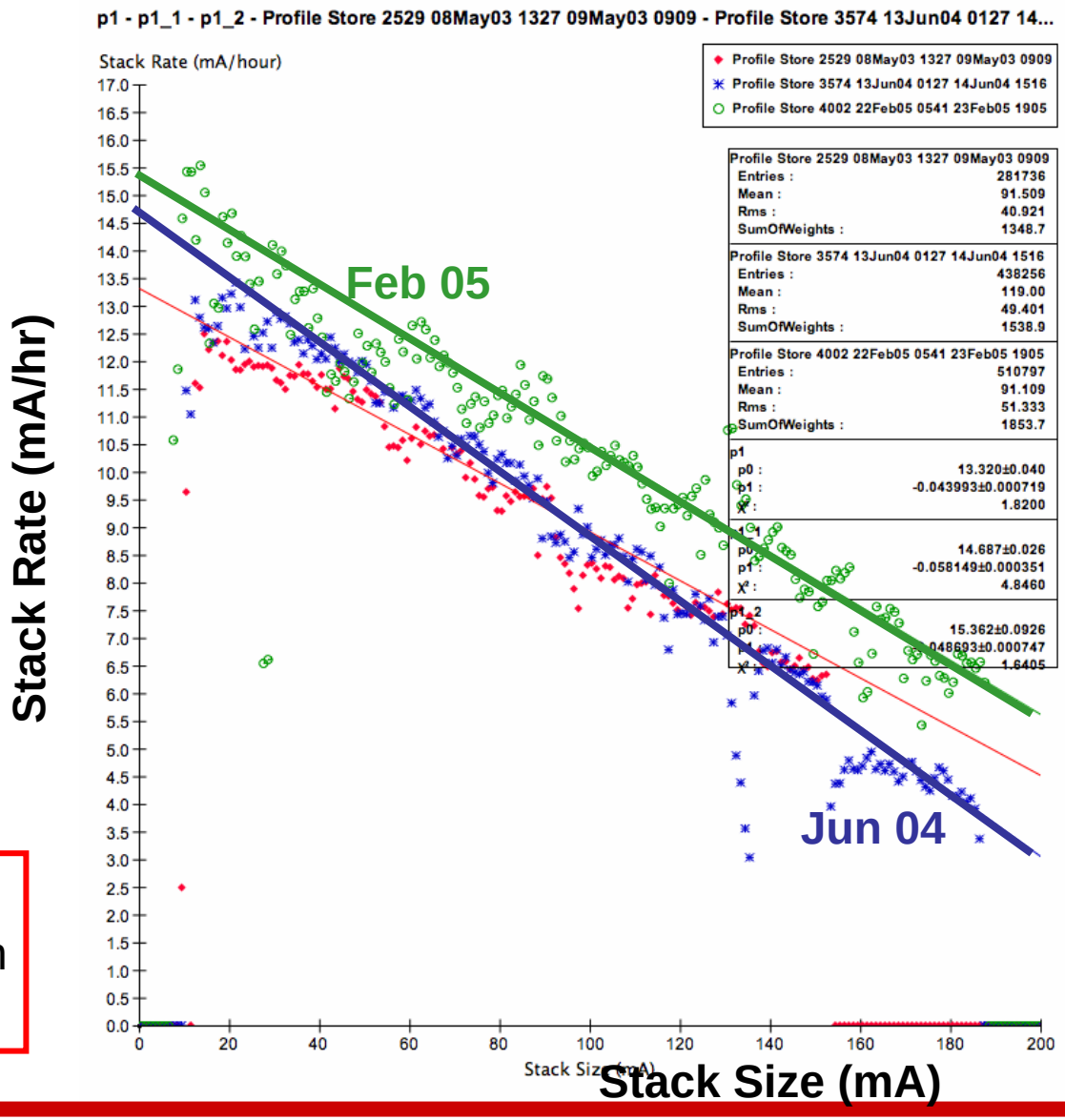
Protons on Target

- Slip-stacking in MI
  - Major upgrade project completed and fully operational:
    Phase 1 → Phase 2
  - Continue to tune to reduce beam-loss and improve intensity
  - Now operating with 6.5-6.8E12 protons/bunch on target
  - Expect to be running at >7E12 soon
  - Installed RF balancers in the Booster to improve bunch rotation at extraction to help reduce beam loss





Antiproton Stack Rate



ZSSR of 16.1 mA/hr on Feb. 28.

P. Derwent

Technical Highlights (contd.)

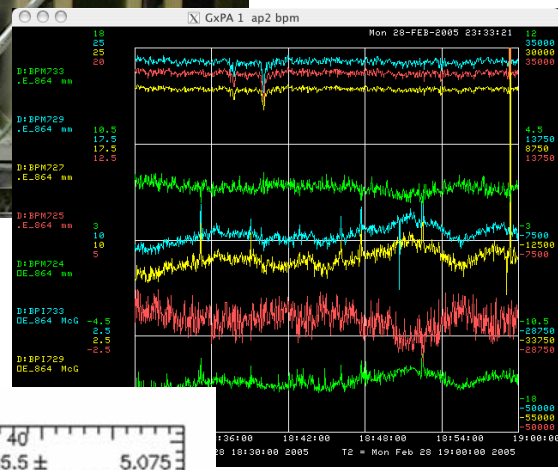
- AP2/DB Acceptance
  - Half of generated local bumps in the DB (using motorized quad stands) verified
  - Procedures to "bump around the Debuncher" during stacking tested.
  - Using DB TBT to work on alignment of AP2; BPMs coming in use
  - Minor mods to DB BPMs being tested to allow readout of 53 MHz
    - Should help readout of DB closed orbit during stacking cycles
  - Chromatic Correction in AP2: Based on studies by LBL collaborators and by Lebedev, gain is expected to be <3% in acceptance. Do not plan on implementation for '05 shutdown.

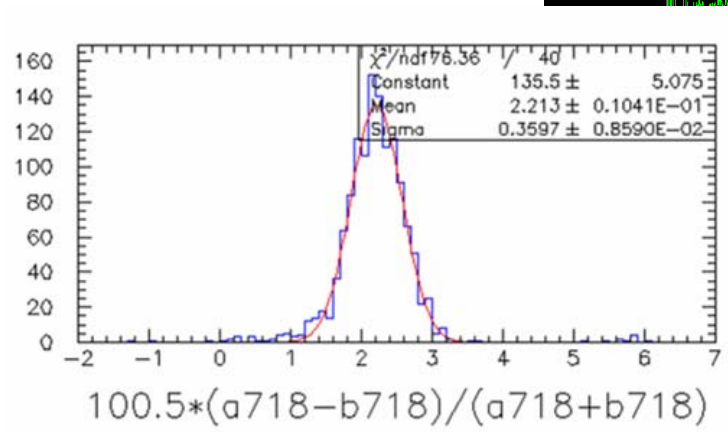
- Rapid transfers project
  - Transferline BPM test crate installation/commissioning in F23 proceeding well
  - AP1 beamline power switchover to single ramped power supplies is also moving ahead.

Technical Highlights (Contd.)

- AP2 BPM Upgrade
  - AP2 BPM DAQ electronics are being installed
    - 10 (out of 30) BPMs complete as of March 1.
    - 7 BPMs in D->A line will also be instrumented
  - Most have position resolutions ~ 0.4 mm; a few have 1-2 mm – assumed fixable.
  - Readout of operational BPMs reveals an orbit difference between $29 and $21 stacking cycles.
  - Will soon be turned over to attempt lattice measurements

@ **AP50**





Technical Highlights (contd.)

- Tevatron
  - BPMs
    - Project completion date has slipped to end of May '05 but project making **very good progress**
    - 3 crates of BPMs have been installed -- A3, B3, C3.

      The crates are working and are collecting turn by turn and closed orbit data. Survey corrections have been applied and comparisons to the old system measurements are being made.
    - The systems are fairly stable and are being included in operations as appropriate
    - Very nice results with good resolution
    - Problems with diagnostics signal being worked on

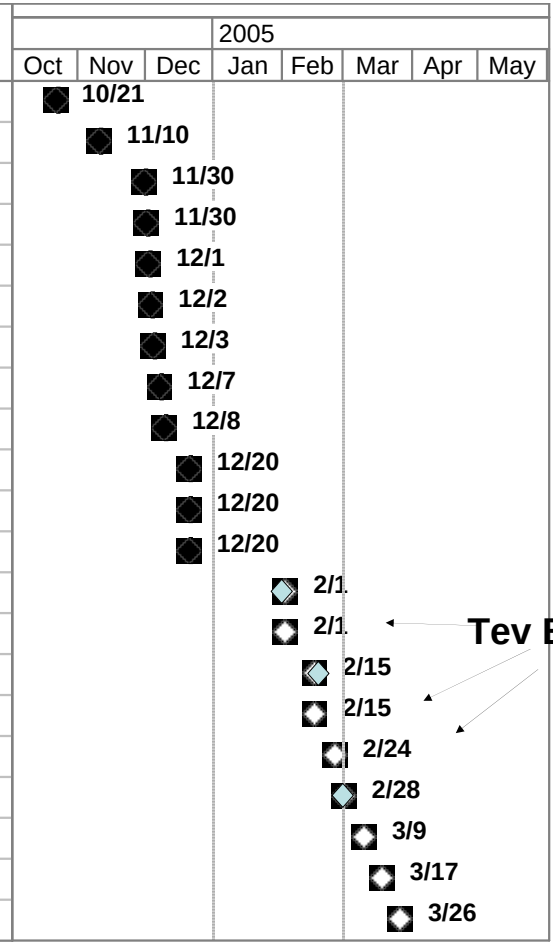
e-cool/Pelletron Commissioning

- Installation Complete Feb. 25, '05
- Commissioning has begun
  - Pulsed the gun @ 100kV on Feb. 25
  - E-cool team still testing power supplies, beamline components, controls
  - HV permit to run at 5 MV still due
- http://www-ecool.fnal.gov/

Status Report

All Milestones (Oct. '04 – Mar. '05)

WBS	Name	MS Class	Finish	Base Fin
1.1.2.2.4.2	Beam Sweeping Ready (redefined)	A	10/21/04	10/21/04
1.4.2.1.1.3	Review TEL R&D	C	11/10/04	10/18/04
1.5.4	Finish Summer 04 Shutdown	C	11/30/04	11/19/04
1.1.1.2.1.24	HLRF Upgrade complete	C	11/30/04	11/1/04
1.4.3.2.6	Polarity switches operational	C	12/1/04	12/30/04
1.4.3.4.3	New standard separators operational	A	12/2/04	12/16/04
1.3.3.1.3.1.2.3	Kicker tank design finalized	C	12/3/04	12/3/04
1.2.2.10	Initial AP2&DB Improvements Complete (Milestone)	A	12/7/04	11/19/04
1.4.5.4.5.1.1	Begin system commissioning	C	12/8/04	12/9/04
1.1.1.4	Slip Stacking Operational	A	12/20/04	12/23/04
1.1.4.4	Booster-MI Cogging Operational	C	12/20/04	8/20/04
1.6.5.4	Start Phase 2 (Milestone)	A	12/20/04	12/23/04
1.3.3.1.3.1.1.7	Pickup tank design finalized	C	2/1/05	1/21/05
1.4.5.4.3.2.3.2	Offline SW code complete	C	2/1/05	12/23/04
1.3.5.5.22	Pelletron Installed at MI-31 (Milestone)	C	2/15/05	2/1/05
1.4.5.4.3.2.2.2	Online SW code complete	C	2/15/05	10/21/04
1.4.5.4.3.2.1.3	Frontend DAQ SW code complete	C	2/24/05	11/29/04
1.2.2.7.4	Decision to proceed with development of chromatic com	C	2/28/05	2/28/05
1.1.1.2.2.6	MLRF upgrade complete	C	3/9/05	3/31/05
1.1.3.3.5	MI 2.5 MHz Acceleration complete	B	3/17/05	1/31/05
1.4.2.1.1.4	Decision on TEL-3	C	3/26/05	3/25/05



* Tev BPM project completion has slipped by several weeks but project making excellent progress

Progress as of January 31, 2005

WBS	Name	Actual %	Planned %	A/P %
0	**Run II**	**62%**	**65%**	**96%**
1	**Luminosity Upgrades**	**64%**	**67%**	**96%**
1.1	Protons on Pbar Target	73%	74%	99%
1.2	Pbar Acceptance	47%	52%	91%
1.3	Pbar Stacking & Cooling	67%	71%	94%
1.4	Tevatron High Luminosity	66%	68%	96%
1.5	Shutdowns	50%	50%	100%
1.6	Project Management	55%	55%	101%
2	**Maintenance & Reliability**	**50%**	**51%**	**99%**

M&S Spending through Jan. '05

M&S Spending through January 2005						Inception	Budget Used	
		Plan Estimate		FY05	FY05	To Date (ITD)	ITD Obl+RIP	YTD Obl+RIP
		FY05	Total	Allocation	Obl+RIP	Obl+RIP	/Total Est	/FY05 Allocation
Run II Upgrades		**5,787**	**18,665**	**5,677**	**2,060**	**12,223**	**65%**	**36%**
1	**Luminosity Upgrades**	**4,124**	**14,162**	**4,232**	**1,306**	**9,622**	**68%**	**31%**
1.1	**Protons on Target**	**401**	**2,154**	**399**	**81**	**1,111**	**52%**	**20%**
1.1.1	Slip Stacking	10	907	10	7	381	42%	65%
1.1.2	Pbar Target and Sweeping	11	93	0	-3	12	13%	
1.1.3	MI Upgrades	311	980	320	0	504	51%	0%
1.1.4	Booster-MI Cogging	0	0	0	0	0		
1.1.5	OTR	69	174	69	77	215	123%	112%
1.2	**pbar Acceptance**	**485**	**1,442**	**336**	**151**	**596**	**41%**	**45%**
1.2.1	LiLens	99	488	102	96	218	45%	94%
1.2.2	AP2 and DB Acceptance	386	954	234	55	378	40%	23%
1.3	**pbar Stacking and Cooling**	**1,971**	**5,133**	**1,721**	**528**	**3,620**	**71%**	**31%**
1.3.1	S&C Task Force	0	0	0	0	0		
1.3.2	Debuncher Cooling	0	0	0	0	0		
1.3.3	Stacktail Upgrade	642	1,491	655	64	756	51%	10%
1.3.4	Recycler Commissioning	227	469	227	35	242	52%	16%
1.3.5	Electron Cooling	795	2,613	521	355	2,237	86%	68%
1.3.6	Rapid Transfers	307	560	318	73	386	69%	23%
1.4	**Tevatron High Luminosity**	**1,267**	**5,342**	**1,322**	**547**	**4,193**	**78%**	**41%**
1.4.1	Beam Studies and Simulation	0	40	0	0	41	101%	
1.4.2	Active BBC	361	1,439	360	129	607	42%	36%
1.4.3	Increased Helix Separation	381	1,038	406	167	972	94%	41%
1.4.4	Luminosity Leveling	0	0	0	0	0		
1.4.5	Improved Controls and Diagnostics	254	2,228	281	212	2,129	96%	75%
1.4.6	Tevatron Vacuum Improvements	80	234	80	4	197	84%	5%
1.4.7	Tevatron Alignment	191	362	195	35	247	68%	18%
1.6	**Management**	**0**	**92**	**454**	**0**	**102**	**111%**	**0%**
2	**Reliability Upgrades**	**1,663**	**4,503**	**1,445**	**753**	**2,601**	**58%**	**52%**
2.1	Vulnerability White Paper	783	2,817	697	652	1,478	52%	94%
2.2	Reliability Upgrades	880	1,686	748	101	1,122	67%	14%

Effort for January 2005

Adjusted FTE January 2005			
		Totals	Plan
Run II Upgrades		116.1	96.3
1	Luminosity Upgrades	110.0	88.7
1.1	Protons on Target	11.0	5.4
1.2	pbar Acceptance	10.4	6.4
1.3	pbar Stacking and Cooling	39.8	32.9
1.4	Tevatron High Luminosity	45.6	40.0
1.6	Management	3.2	4.0
2	Reliability Upgrades	6.2	7.6

DOE Review

- Run II Upgrades review is part of the annual DOE OPS review, March 29-31, 2005
- One plenary presentation and 6 hours of breakout sessions for Run II operations & upgrades
- For Run II upgrades review
  - Plan to use January status (presented here)
  - Also cover
    - Technical status since last review
    - Scope of work FY05 –end of project
    - Performance projections (v3, unchanged from mini-review)
    - Risk Analysis
    - M&S and labor profiles, requirements
  - We are working on
    - Scorecard responses (Jeff)
    - Breakout session agenda (Mike)

Shutdown '05

- Needs to be 13-14 weeks as per DØ (?)
- Start date to be impacted by e-cool performance
  - Would want to have e-cooling demonstrated
- Exploring scenarios of partial shutdown of the complex
  - Full N week shutdown for the Tevatron
  - Shutdown for n<<N weeks for other machines
    - Perform upgrades related studies
    - Bring them back up sooner than the Tevatron
  - See Mike Martens' talk for details