

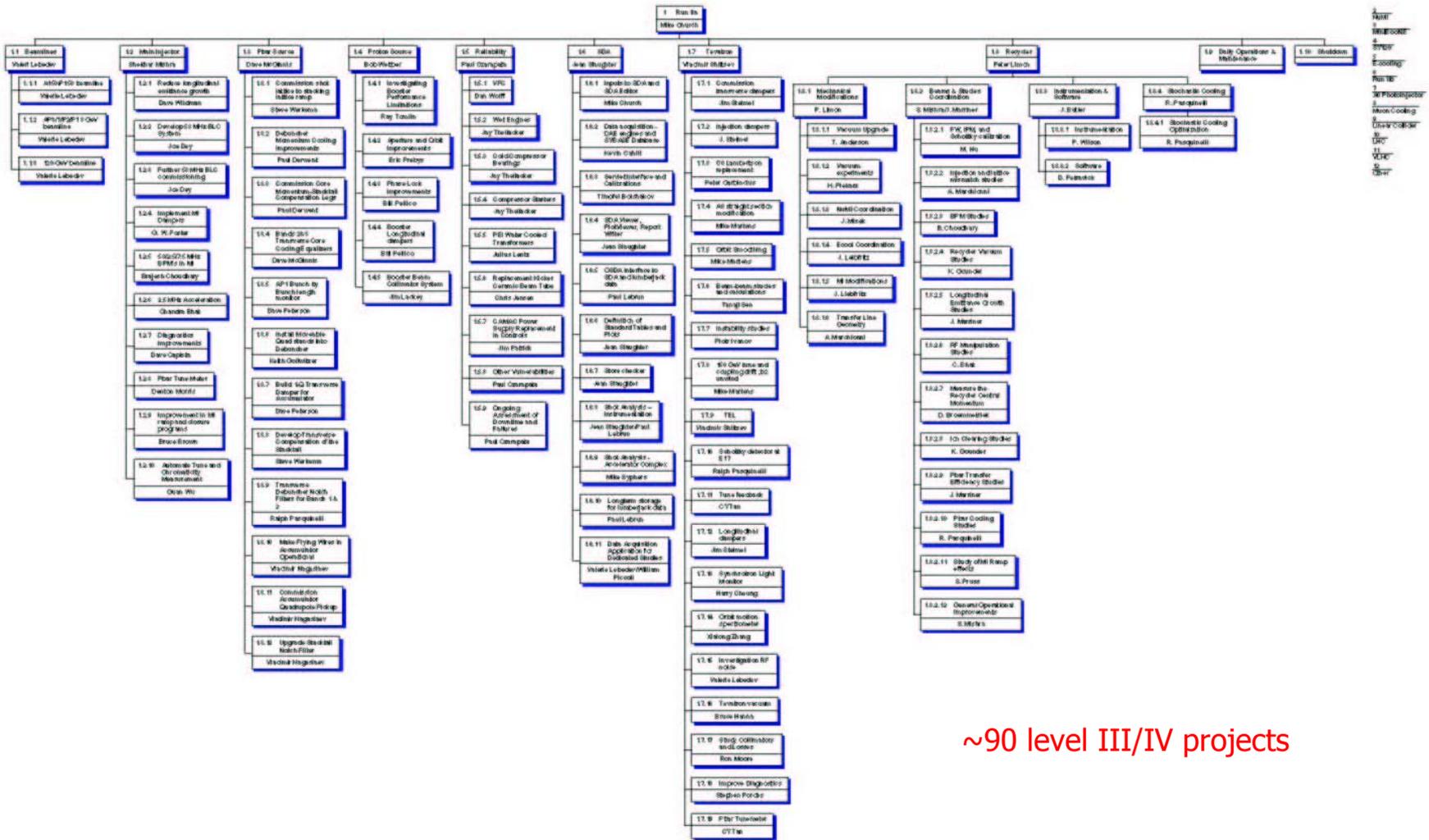
FY03 Run IIa Plan

Mike Church

**DOE Run II Review
Oct. 28-31, 2002**



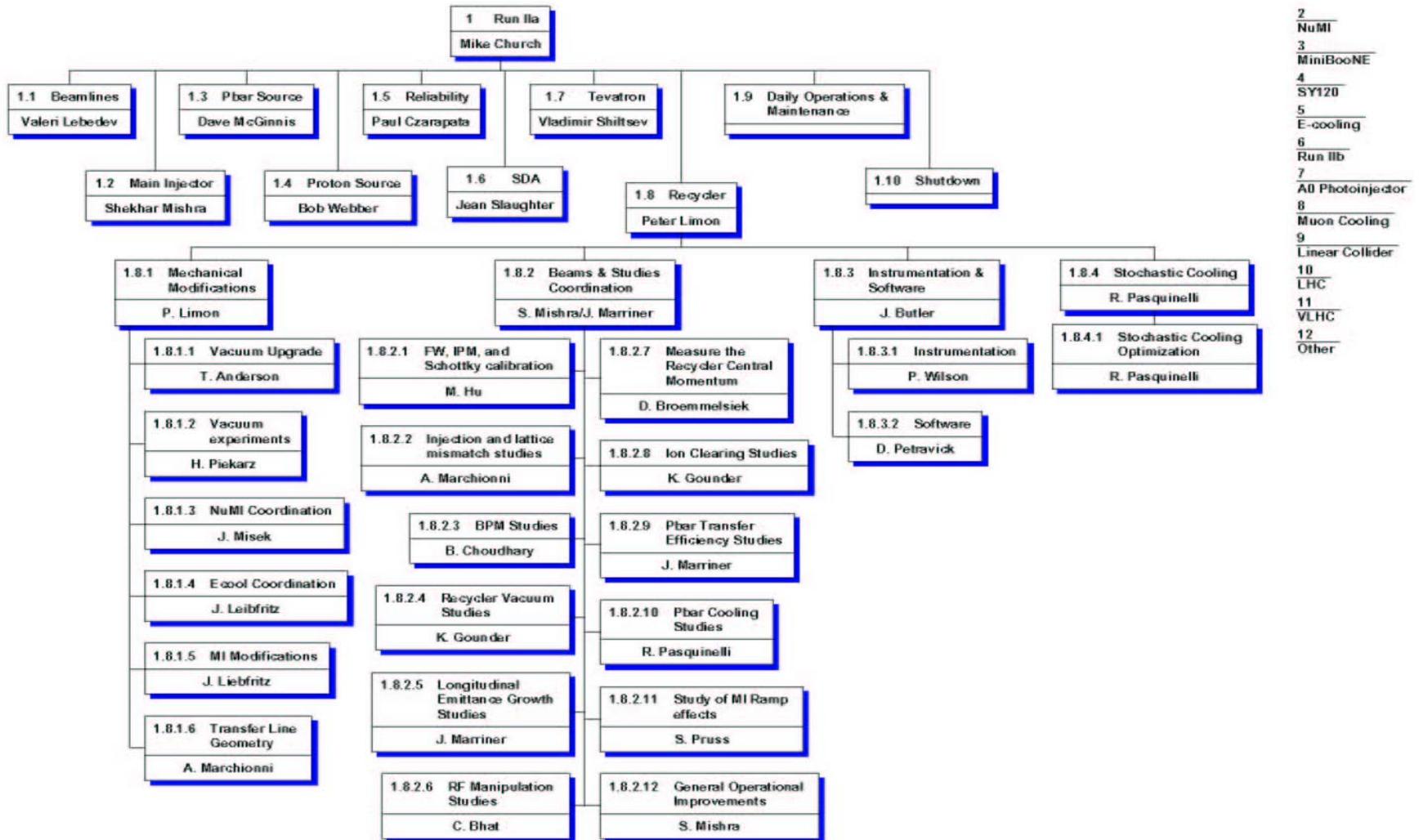
FY03 Run IIa Map



~90 level III/IV projects



FY03 Recycler Map



- 2 NuMI
- 3 MiniBooNE
- 4 SY120
- 5 E-cooling
- 6 Run IIb
- 7 A0 Photoinjector
- 8 Muon Cooling
- 9 Linear Collider
- 10 LHC
- 11 VLHC
- 12 Other



Methodology

- **Run IIa project divided into 8 level II projects with leaders: Tevatron (Shiltsev), Pbar Source (McGinnis), Proton Source (Webber), MI (Mishra), Beamlines (Lebedev), SDA (Slaughter), Reliability (Czarapata), RRR (Limon/Mishra)**
- **Level II project leaders identify critical projects (level III) and leaders (RRR has additional level of management and level IV projects)**
- **Tasks are identified for each project and resources assigned to each task; start date and duration are estimated and dependence on other tasks are determined; priority is assigned**
- **Resources are: personnel (named or generic); \$\$'s; Tevatron, Pbar, Recycler, and MI study shifts; alignment crews**
- **Reexamine, renegotiate, reprioritize tasks and resources**
- **Use MS Project to understand overall schedule and resource allocation -- adjust schedules and resources to make it work, at least on paper (resource leveling)**



Sample Level III Project

Project 1.3.9: Transverse Debuncher Notch Filters for Bands 1&2

<u>Project Leader:</u>	Ralph Pasquinelli
<u>Status:</u>	Not started
<u>Motivation:</u>	Removal of longitudinal lines will allow larger transverse cooling gain, which will allow shorter stacking cycle times
<u>Uncertainties:</u>	Bad mixing at band edges due to phase slope of notch
<u>1.3.9.1:</u>	Begin procurement of BAWs
Resources:	E. Cullerton – 20%; 50K\$
Start Date:	10/1/02
Duration:	1 month
<u>1.3.9.2:</u>	Begin system design
Resources:	E. Cullerton – 60%; 50K\$
Start Date:	linked to task 1
Duration:	6 months
<u>1.3.9.3:</u>	Fabricate and assemble filters
Resources:	W. Mueller – 35%
Start Date:	linked to task 2
Duration:	3 months
<u>1.3.9.4:</u>	Installation
Resources:	W. Mueller – 20%; P. Seifrid – 20%; R. Pasquinelli – 10%; 5 pbar shifts
Start Date:	linked to task 3
Duration:	1 month
<u>1.3.9.5:</u>	Commission and phase system
Resources:	D. McGinnis – 20%; R. Pasquinelli – 20%; 4 pbar shifts
Start Date:	linked to task 4
Duration:	1 month



Timeline for Critical Projects

WBS	Name	Project Manager	2003												2004				
			Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	
1	Run IIa	Mike Church	[Thick black bar spanning the entire timeline from Oct 2003 to Jan 2004]																
1.1	Beamlines	Valeri Lebedev	[Thick black bar spanning from Oct 2003 to Jul 2003]																
1.1.1	A150/P150 beamline	Valerie Lebedev	[Blue bar spanning from Oct 2003 to Apr 2003]																
1.1.2	AP3/1/P2/P1 8 GeV beamline	Valerie Lebedev	[Blue bar spanning from Oct 2003 to May 2003]																
1.2	Main Injector	Shekhar Mishra	[Thick black bar spanning from Oct 2003 to Dec 2003]																
1.2.1	Reduce longitudinal emittance growth	Dave Wildman	[Blue bar spanning from Oct 2003 to May 2003]																
1.2.4	Implement MI Dampers	G. W. Foster	[Blue bar spanning from Oct 2003 to Jun 2003]																
1.3	Pbar Source	Dave McGinnis	[Thick black bar spanning from Oct 2003 to Dec 2003]																
1.3.2	Debuncher Momentum Cooling Improvements	Paul Derwent	[Blue bar spanning from Nov 2003 to Feb 2004]																
1.3.3	Commission Core Momentum-Stacktail Compensation	Paul Derwent	[Blue bar spanning from Nov 2003 to Feb 2004]																
1.3.4	Bands 2&3 Transverse Core Cooling Equalizers	Dave McGinnis	[Blue bar spanning from Feb 2004 to Apr 2004]																
1.3.8	Develop Transverse Compensation of the Stacktail	Steve Werkema	[Blue bar spanning from Apr 2004 to Sep 2004]																
1.3.9	Transverse Debuncher Notch Filters for Bands 1 & 2	Ralph Pasquinelli	[Blue bar spanning from Oct 2003 to Sep 2003]																
1.3.12	Upgrade Stacktail Notch Filter	Vladimir Nagaslaev	[Blue bar spanning from Oct 2003 to Nov 2003]																
1.7	Tevatron	Vladimir Shiltsev	[Thick black bar spanning the entire timeline from Oct 2003 to Jan 2004]																
1.7.1	Commission transverse dampers	Jim Steimel	[Blue bar spanning from Oct 2003 to Dec 2003]																
1.7.3	C0 Lambertson replacement	Peter Garbincius	[Blue bar spanning from Oct 2003 to Feb 2004]																



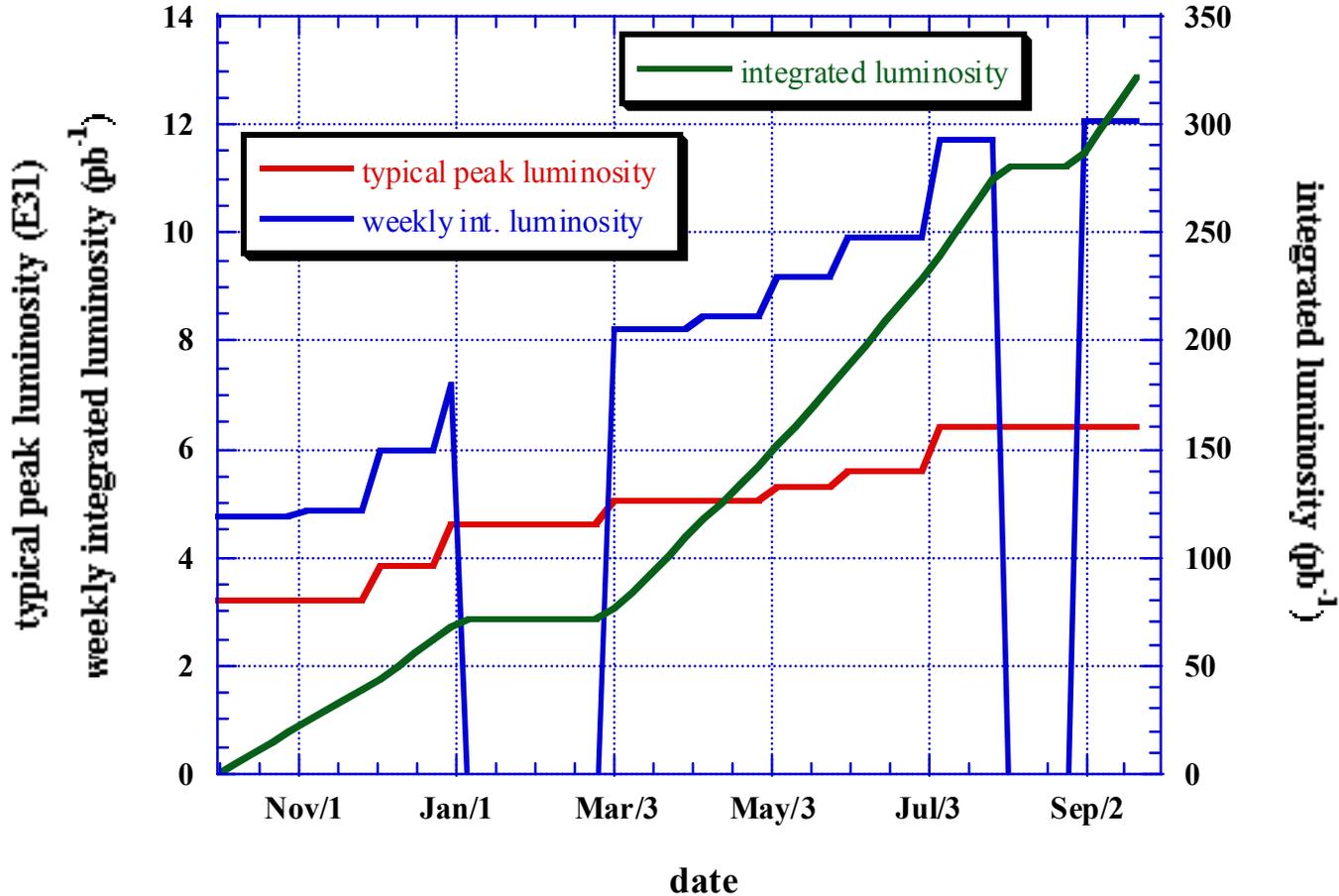
Estimated Luminosity Gain for Critical Projects

- **1.1.1 – A150/P150 beamlines – 20% in peak luminosity by 12/1/02**
- **1.7.1 – Tevatron transverse dampers – 20% in peak luminosity by 1/1/03**
- **1.7.3 – C0 Lambertson replacement – 10% in peak luminosity by 3/1/03**
- **1.3.4 – Accumulator bands 2&3 equalizers – 5% in peak luminosity by 5/1/03**
- **1.1.2 – AP3 beamline – 5% in peak luminosity by 6/1/03**
- **1.2.4 – MI longitudinal dampers – 15% in peak luminosity by 7/1/03**

- **1.5 – Reliability – 1.5%/month in integrated luminosity (9 months)**
- **1.3 – Stacking upgrades – 1.5%/month in integrated luminosity (9 months)**



"Stretch" Luminosity profile



The above profiles are consistent with current project completion dates



Resources

- **\$\$ -- M&S items ~>10K\$**

3.3 M\$ required to implement the current FY03 project schedule.

- **We assume 5 dedicated Tevatron shifts/2 weeks; 5 dedicated Pbar shifts/2 weeks; 15 Recycler shifts/week; 15 MI shifts/week**
- **We assume 6 week shutdown starting 1/6/03**
- **We assume no luminosity delivered for 2 weeks after the shutdown; we assume no luminosity delivered for a 2-4 week period in the summer for Recycler integration**
- **The Shutdown Project is maintained by BD Mechanical Support Department. Where they overlap, Run IIa Project resources have been reconciled with the Shutdown Project, and resources have been “rolled up.”**



More on Resources

- **We account for all BD personnel in one of the following categories:**

Run IIa, Operations/Administration, Maintenance, Run IIb, NUMI, MiniBooNE, SY120, E-cooling, muon cooling R&D, linear collider R&D, A0 photoinjector; LHC, VLHC, "other"

39% of BD personnel resources committed to Ops/Maint
35% of BD personnel available for Run IIa projects = **74% on Run IIa**

20% of BD personnel resources committed to non-Run IIa projects

6% of BD personnel resources for Admin/infrastructure

These numbers are based on input from BD department heads and analysis of monthly and weekly timesheets for special projects. They represent only a "snapshot" in September. There is some uncertainty in separating Run II "operations" and Run II "projects".

- **We are accounting for non-BD personnel contributions**

~24 FTEs so far

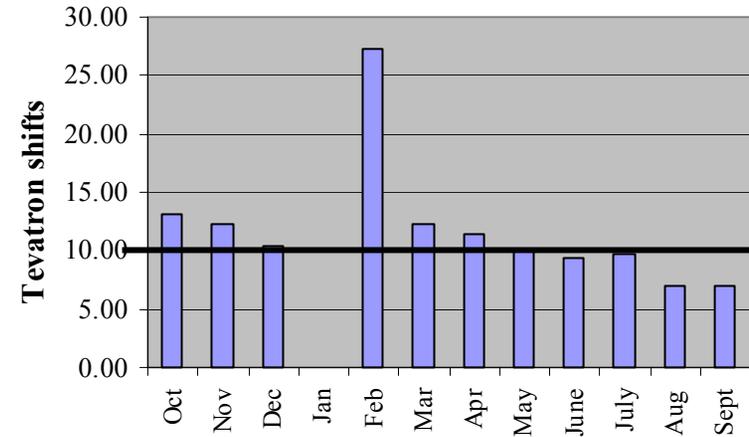
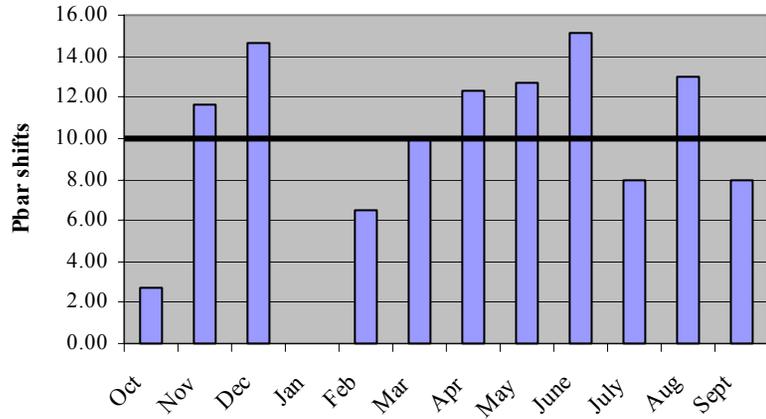
(does not include large influx of mechanical techs for shutdown work in January)

- **Overall increase of ~55 FTEs working on Run IIa since ~1 year ago**

~30% increase

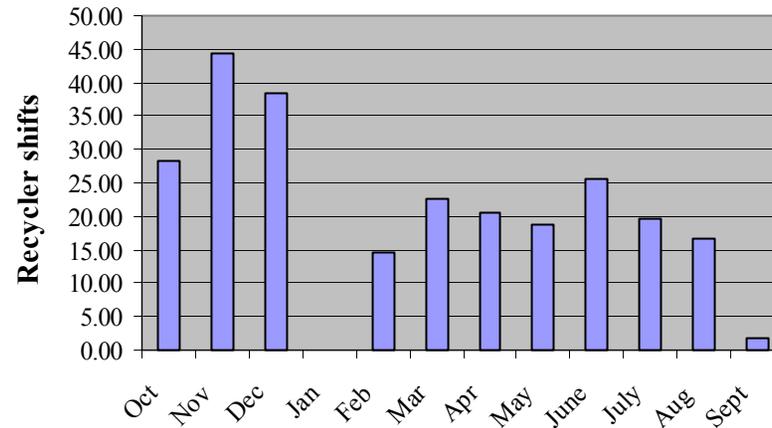


Study Shifts



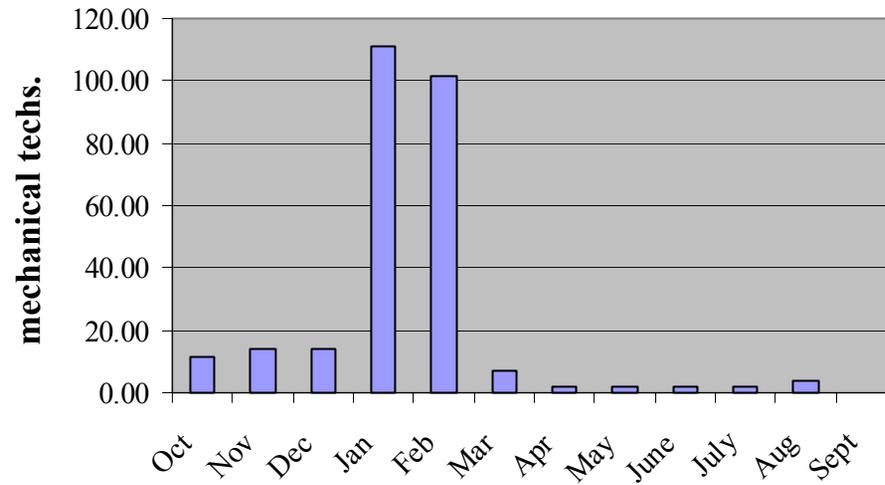
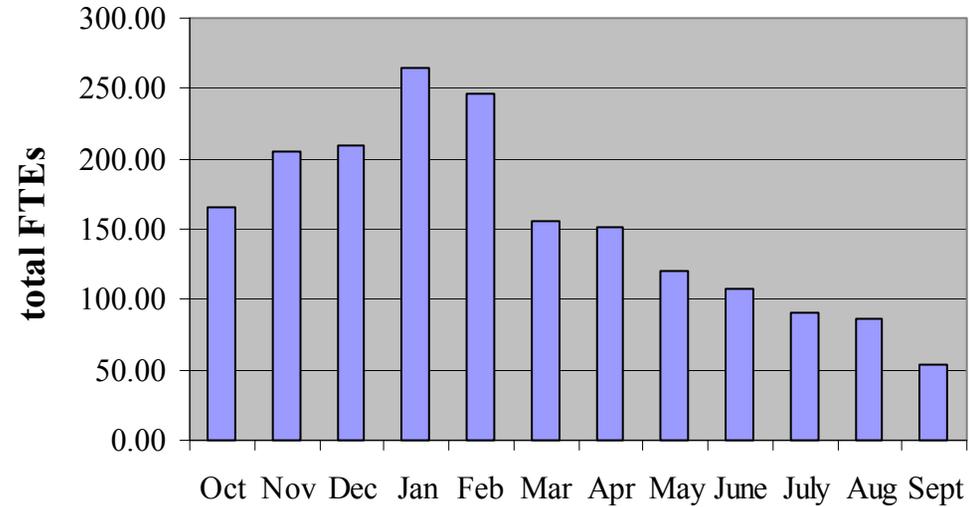
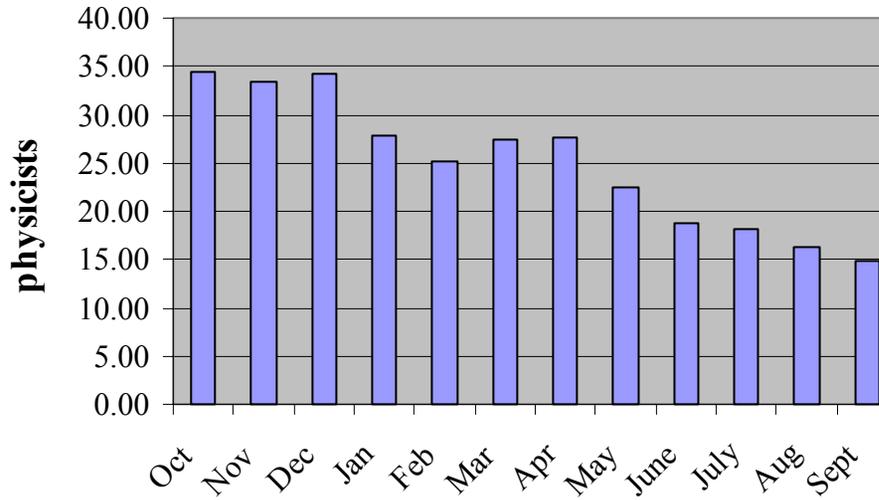
Notes: No shifts in January due to shutdown.

Tevatron spike in Feb. is for recommissioning lattice.





Labor Resources





Comments on Completeness and Uncertainties

- **FY03 budget considerations may necessitate changing the Run IIa Project schedule**
- **For BD personnel the distinction between “Ops/Maint” and “Projects” is being re-examined.**
- **Scheduling and resource allocation for some projects is highly uncertain – eg., “Investigation of Tevatron Instabilities” – our understanding of the problem is incomplete, therefore the solution and future actions are unknown.**
- **Estimating luminosity gain from project completion is also uncertain.**
- **Recycler “integration” plan is not yet fully defined.**
- **January shutdown may move.**
- **Projects that “end” on 10/1/03 don’t really end. (They are ongoing.)**



Project Tracking/Management

- **It is intended that this project management structure will be extended for the duration of Run II, not just FY03**
- **Project management by M. Church (90%) for FY03 + Level II managers + J. Spalding (Run IIb manager) + D. Hoffer (MSProject) + Run Coordinator**
- **Day-to-day priorities are set by Run Coordinator (4 month appointment)**
- **Weekly priorities are set by “steering committee” – Holmes, Church, most level II managers,**
- **Monthly priorities are set by Director’s “strategy committee”**
- **Larger projects will be formally reviewed at the discretion of Holmes, Church, or level II managers**