

Run II Upgrade

Monthly Report for October

- Milestones and Reviews
- % complete summary (still reported against v1.0)
- Notes

Preview of v2.0

- Major milestones
- Shutdowns

Milestones

milestones <Feb review ordered by v1.0 baseline date (V1.0 estimates ~May)

v1.0 Oct update ← didn't get a chance to update the dates

ID	WBS	Name	Baseline St	Start	2004													
					Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr				
670	1.3.4.8.1	Review Tevatron Alignment Plans	8/1/03	8/1/03	✓	◇	8/1/03											
123	1.3.1.3.3.2	Review MI 2.5 MHz Acceleration (Milestone)	8/1/03	10/2/03	✓	◇			◆	10/2/03								
631	1.3.4.4.5.3	Decision on separators/magnets	9/1/03	8/26/03	✓		◆	8/26/03										
62	1.3.1.1.6	Design Review (Milestone)	9/22/03	8/28/03	✓		◆	8/28/03										
589	1.3.4.3.2.3	Decision to proceed with wire station prototype	9/29/03	10/6/03	✓				◆	10/6/03								
712	1.3.6.2.1	Review: Tevatron Upgrade Plan (Milestone)	9/29/03	10/6/03	✓				◆	10/6/03								
386	1.3.3.4.8.1	FY03 plan includes vacuum work in FY03	10/1/03	11/17/03	✓				◇									
391	1.3.3.4.9.1.1	FY03 handover is installation in FY03	10/1/03	11/17/03	✓				◇									
370	1.3.3.4.2	Commissioning Parameters Defined	10/1/03	10/31/03	✓				◇									
645	1.3.4.6.4.2	Tev BPM: Review (Milestone)	10/1/03	11/26/03	✓				◇									
652	1.3.4.6.5.3	Tev IPM Design Review, decision to proceed	10/1/03	10/1/03	✓				◇	10/1/03								
664	1.3.4.7.1	FY03 plan includes FY03 shutdown (Milestone)	10/17/03	11/17/03	✓				◇									
372	1.3.3.4.4	Commissioning Plan Evaluation (Milestone)	11/14/03	1/30/04														
350	1.3.3.3.2.1.2	Review System Design: stacktail betatron	11/28/03	2/18/04	✓													
713	1.3.6.2.2	Review: RR and Electron Cooling Commissioning	12/16/03	3/2/04														
86	1.3.1.2.1.4.3	New Target in Operation (Milestone)	12/30/03	12/30/03														
407	1.3.3.5.2.1	Pelletron extension parts received (Milestone)	1/1/04	2/2/04														
324	1.3.3.3.1.1.5	Review System Design: stacktail momentum	1/5/04	2/18/04														
110	1.3.1.2.2.4.2	Beam Sweeping Operational (Milestone)	1/21/04	8/23/04														
66	1.3.1.1.10	Start Slip Stacking Assembly (Milestone)	2/9/04	2/9/04														

03 shutdown

Temple review?

internal review for commissioning & integration Recycler & e-Cool

◇ stretched - see Oct PMG

◇ 2/9/04

% Complete

Cummulative Perf/Sched: Aug Sep Oct Nov

86 85 77 73%

WBS	Name	TEC	Schd / TEC	Perf / TEC	Aug	Sep	Oct	Nov						
1	Run II - Jeff Spalding	\$42,318,244	11%	10%	14%	12%	19%	15%	23%	17%	86%	85%	77%	73%
1.2	Maintenance and Reliability - Paul Czarapata	\$5,686,356	3%	3%	8%	8%	12%	12%	15%	15%	92%	100%	100%	100%
1.3	Luminosity Upgrades	\$36,631,888	13%	11%	15%	13%	20%	15%	24%	17%	86%	84%	75%	70%
1.3.1	Protons on Pbar Target - Ioanis Kourbanis	\$4,160,962	12%	9%	14%	9%	30%	24%	32%	25%	74%	65%	80%	76%
1.3.1.1	Slip Stacking	\$1,542,046	23%	18%	23%	19%	61%	56%	61%	56%	80%	82%	92%	92%
1.3.1.2	Pbar Target and Sweeping	\$242,779	44%	38%	53%	39%	63%	43%	46%	46%	85%	72%	68%	100%
1.3.1.3	MI Upgrades	\$2,304,246	1%	0%	3%	0%	5%	0%	7%	0%	0%	0%	0%	0%
1.3.1.4	Booster-MI Cogging	\$71,891	36%	16%	54%	0%	67%	54%	81%	54%	45%	0%	80%	67%
1.3.2	Pbar Acceptance - Steve Werkema	\$5,391,732	11%	9%	13%	11%	15%	11%	17%	12%	78%	80%	73%	68%
1.3.2.1	Lithium Lens Upgrades	\$1,377,763	24%	18%	26%	20%	27%	20%	29%	22%	76%	76%	75%	75%
1.3.2.2	AP2 and Debuncher Acceptance	\$4,013,969	7%	6%	9%	7%	11%	8%	13%	8%	81%	84%	71%	63% ??
1.3.3	Pbar Stacking and Cooling - Paul Derwent	\$7,891,787	8%	6%	10%	8%	15%	9%	20%	11%	69%	73%	59%	56%
1.3.3.1	Stacking and Cooling Integration	\$609,580	19%	19%	22%	22%	25%	25%	28%	25%	102%	102%	101%	90% not real
1.3.3.2	Debuncher Cooling	\$28,248	100%	63%	100%	63%	100%	63%	100%	63%	63%	63%	63%	63%
1.3.3.3	Stacktail Cooling	\$2,382,129	1%	0%	1%	0%	2%	1%	2%	1%	33%	34%	39%	47%
1.3.3.4	Recycler Stacking and Cooling	\$1,073,283	3%	3%	4%	4%	9%	4%	14%	5%	94%	96%	48%	33% no update
1.3.3.5	Electron Cooling	\$2,100,761	19%	12%	24%	17%	38%	22%	51%	30%	65%	72%	58%	58%
1.3.3.6	Rapid Transfers	\$1,697,786	3%	1%	4%	1%	5%	1%	7%	1%	41%	32%	26%	19% ??
1.3.4	Tevatron High Luminosity - Vladimir Shiltsev	\$16,371,987	14%	13%	17%	15%	21%	16%	27%	18%	91%	88%	75%	69%
1.3.4.1	Tevatron Task Force	\$2,599,926	16%	16%	18%	18%	20%	20%	22%	20%	102%	102%	101%	92%
1.3.4.2	Beam-beam Limitations	\$639,969	16%	16%	18%	18%	20%	20%	22%	20%	101%	101%	101%	92%
1.3.4.3	Active Beam-Beam Compensation	\$3,593,262	17%	8%	19%	8%	21%	8%	24%	8%	48%	43%	38%	34%
1.3.4.4	Increased Helix Separation	\$3,748,975	7%	7%	7%	7%	8%	7%	14%	12%	104%	99%	91%	88%
1.3.4.5	Luminosity Leveling	\$18,335	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1.3.4.6	Improved Control and Diagnostics	\$4,106,489	17%	18%	21%	21%	32%	24%	42%	25%	102%	101%	76%	59% Tev BPM/IP
1.3.4.7	Tevatron Vacuum Improvements	\$125,725	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
1.3.4.8	Tevatron Alignment	\$1,539,307	13%	18%	26%	28%	32%	28%	37%	37%	138%	108%	86%	102%
1.3.6	Project Management - Jeff Spalding	\$2,815,419	19%	19%	21%	21%	23%	23%	26%	26%	102%	101%	101%	101%

Probably last time for comparing to v1.0(~May) - need baseline update

Notes (since last PMG)

- Recycler progress: vacuum heating / pbar lifetime, transfer efficiencies → commissioning plan (review Jan-Feb @ Temple?)
 - to satisfy parameter table for commissioning e-cooling
 - to operate with LARGE stacks
 - investigate interim use of Recycler [fall-back]
- AP2+DB Aperture Beam Studies
 - good progress during Tevatron repair
 - measurement last week $H=24.3\pi$, $V=17.9\pi$
(20 & 12 @ July rev, 32 used in design lum projection)
- Tev BPM Review...
- Cost codes established and agreement with TD (many subprojects) and CD (Tev BPM)

Tev BPM Review

Prep for v2.0

- First pass collected from all subprojects
 - Workplan logic and schedule estimates
 - Resources not yet fully loaded
- "Preview" in following slides is first look at working draft
- Goal is still to have complete internal draft by January 1 (likely miss by one week)
- Updated long range shutdown schedule

• Internal completion v2.0	Dec 31
• Internal Review	Jan 20-22
• Send to DOE	Jan 30
• DOE Review	Feb 24-26

Documents

- Executive summary
- Intro
 - Remind: the subprojects, operating phases and major milestones
- Organization
 - Remind: Run II in AD Organization, subproject structure...
 - Decision process and reporting: Reviews, AD Mgnt Team, PMG...
 - Scope change control
- Technical progress since July review, current status of subprojects
- Compare v2.0 to v1.0
 - Scope changes (technical reviews), new shutdown schedule
 - Schedule summary (major milestones)
 - Cost summary
- Luminosity projection v2.0
- Appendix: Recycler status and commissioning plan

Preview v2.0

WBS	Milestone Name	v1.1	draft preview
1.3.1.2.1.4.3	New Target in Operation	12/30/03	Jan-04
1.3.1.2.2.4.2	Beam Sweeping Operational	8/23/04	Aug-04
1.3.1.1.13	Slip Stacking Operational	12/14/04	Dec-04
1.3.6.2.4	Start Phase 2	12/14/04	Dec-04
1.3.3.5.12	Electron Cooling Operational *	2/8/05	May-05
1.3.6.2.5	Start Phase 3	3/8/05	May-05
1.3.2.1.4	New Lens Operational	5/17/05	Jun-05
1.3.3.6.7	Rapid Transfers Operational	6/7/05	Aug-05
1.3.3.3.1.9	Stacktail Momentum Operational	11/17/05	Dec-05
1.3.6.2.6	Start Phase 4	11/17/05	Dec-05
1.3.4.4.3.11	Increased BB separation operational **	3/22/07	Sep-06
1.3.4.3.1.11	TEL System Operational	5/23/07	Dec-06
1.3.6.2.7	Start Phase 5	5/23/07	Dec-06

* tech progress good: demo props e-beam @wideband slipped 2 wks to Apr 1 + delay due to new estimate for disassembly → reassembly @MI31 (incl shutdown) will add [lower &] top level milestone for Recycler: ready for e-Cool (May?), ready for operational role in phase 3, ready for phase 4 (large stacks)

** new plan: develop higher voltage separator operation (by end cal. 2004), if not build new mini-separators to install summer 2006

Preview v2.0

Major Shutdown Work (draft preview)		
	Earliest Start	Duration (wks)
Summer 04		
e-Cooling		
beamline installation in Recycler	Jun-04	16 (13)
Recycler		
upgrades for large stacks (RF...?)	?	
AP2&DB Acceptance		
D4Q4 replacement (2 quads)	Jun-04	
Large aperture Toroid	Jun-04	
Motorized stand Inj Septum	Jun-04	
Rebuild Inj Septum in common vacuum	Jun-04	
New Band 4 Cooling Tanks	Aug-04	
Move DRF2 cavity to low dispersion	Aug-04	
Install 20 more motorized quad stands	Sep-04	
Tevatron		
Install 5 additional separators (& move 1)	May-04	
IPM installation	Aug-04	
Low-beta level system	Jul-04	
Summer 05		
AP2&DB Acceptance		
Replace DB extraction kicker	?	
Install motorized extraction kicker stand	Feb-05	
Stacktail Upgrade		
Install 4-8 GHz Band	Aug-05	6
Summer 06		
Tevatron		
Mini separators	May-06	

Summer 04

- length: e-Cooling
- earliest start: AP2&DB readiness (plan not yet fully developed)

← need to coord plan w/ TD

Summer 05

- length: "standard"
- Earliest start: stacktail

Summer 06

- length: "standard"
- mini separators?