
Run II Upgrades Status September Report

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Outline

- Technical Highlights/ Shutdown Progress
- Status Report for September
 - Milestones
 - % Complete
 - Effort Report
 - M&S Costs (FY04)
- Other
 - Change Requests
 - Contingency

Technical Highlights / Shutdown Progress

- Main Injector
 - Slip-stacking/ Beam-loading Compensation
 - Work on remaining 6 stations expected to complete within the next few days
 - BPMs
 - EchoTek boards ordered (would be long-lead so tag onto Tevatron order)
- e-cooling Installation
 - We were ahead of schedule, with recent issues (vacuum and alignment) now back on track for 13 wk shutdown schedule
 - Magnetic measurements will take place next two weeks
 - Uncertainty will remain 'till final bake-out

E-cool Installation in the Recycler



Technical Highlights / Shutdown Progress (contd.)

- AP2/DB Acceptance
 - Installation of 20 motorized quad stands in the Debuncher
 - All stands have been installed; testing of new stands in progress; most quads need power and water reconnect.
 - DB Injection region
 - New septum and stand are in place
 - Motorized Debuncher injection kicker stand in place
 - LQBs are installed and aligned. New power supply is installed.
 - DRF2 cavity moved to low dispersion region
 - Large aperture toroid delayed - but OK for shutdown?
- Rapid Transfers
 - AP1 ramping - cards being installed
 - New ramping PS D:H926 in APO
 - Long-lead BPM order placed (EchoTek boards)

Technical Highlights / Shutdown Progress (contd.)

- Tevatron

- Separators

- Two newly installed at D17 tested with power supplies
 - One draws large currents at 125 KV in one polarity - needs more conditioning?

- BPMs

- 104 of 150 boards delivered by EchoTek, testing in progress
 - Timing and filter board orders out for bids
 - 547 pairs (out of 600) of filters have arrived and have been spot-tested.
 - Installing rails, cables, panels and some crates in shutdown.

- IPMs

- Magnets and Vacuum chambers installed this week
 - Detector delayed, still expected to fit in the shutdown

Technical Highlights / Shutdown Progress (contd.)

- Tevatron:

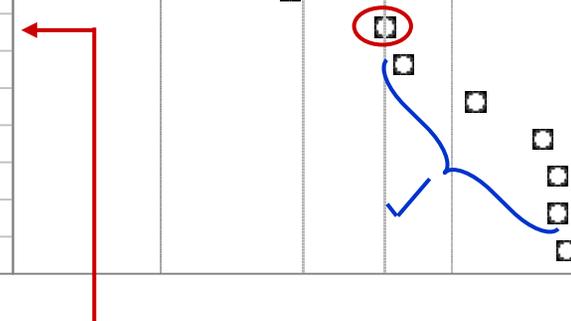
- Alignment

- D0 separator support girder alignment completed.
 - Level runs done at B0 and D0 collision halls for low beta quads - magnets will be re aligned in the next two weeks
 - Shimming of smart bolts at 75%; with additional 84
 - $328+84=412$ this shutdown, and 118 prior = 530 of 774 dipoles
 - HLS (from BINP) installation has begun at B0: precision water levels to monitor low beta quads relative to the detectors. A similar installation will take place at D0 next week.
 - B and E sector have less precise and cheaper HLS systems up and running - need to be interfaced to ACNET

Status Report

All Milestones (Sept. - Nov. '04)

WBS	Name	MS Class	Finish	Base Fin				
					August	September	October	November
1.4.5.4.4.1.3	First production quality crate Installation Begins	C	8/23/04	6/15/04	■			
1.5.3	Start Summer 04 Shutdown	C	8/23/04	8/23/04	■			
1.3.3.1.3.2.1	Pickup array design finalized	C	8/31/04	8/31/04		■		
1.3.3.1.3.2.2	Kicker array design finalized	C	8/31/04	8/31/04		■		
2.2.4.2.11.2	Decision on 6U Crate	C	8/31/04	10/12/04		■		
1.2.1.1.2.1	Decision on long lithium lens (Milestone)	C	9/15/04	9/15/04			■	
1.4.5.4.3.1.1	Core electronics 1st production board available	C	9/27/04	10/19/04			■	
1.4.2.1.1.3	Review TEL R&D	C	10/18/04	10/18/04				■
1.1.2.2.4.2	Beam Sweeping Ready (redefined)	A	10/21/04	10/21/04				■
1.1.1.2.1.24	HLRF Upgrade complete	C	11/5/04	11/1/04				■
1.1.1.2.2.6	MLRF upgrade complete	C	11/19/04	10/22/04				■
1.2.2.10	Initial AP2&DB Improvements Complete (Milestone)	A	11/22/04	11/19/04				■
1.5.4	Finish Summer 04 Shutdown	C	11/22/04	11/19/04				■
1.4.5.4.3.2.1	Frontend DAQ SW code complete	C	11/24/04	11/29/04				■



Scheduled for Nov 9

Progress as of September 30, '04

WBS	Name	Planned %Complete (P%C)	Actual % Complete (A%C)	A%C/P%C
0	Run II	49%	47%	94%
1	Luminosity Upgrades	52%	49%	94%
1.1	Protons on Pbar Target	58%	54%	93%
1.2	Pbar Acceptance	45%	39%	86%
1.3	Pbar Stacking & Cooling	61%	58%	96%
1.4	Tevatron High Luminosity	48%	44%	93%
1.6	Project Management	50%	50%	100%
2	Maintenance & Reliability	36%	36%	98%
2.1	2003 White Paper/Vulnerability Report	30%	30%	101%
2.2	Maintenance Improvements	48%	45%	95%

simplistic model for studies work at shutdown start

Effort for September '04

WBS	WBS Name	Actual FTE	v3 Proj
	Total	137.3	128.3
1.1	Protons on Target	16.4	7.2
1.2	Pbar Acceptance	20.3	15.3
1.3	Pbar Stacking and Cooling	35.5	37.5
1.4	Tevatron High Luminosity	61.9	63.1
1.6	Mgmt	3.2	5.2
2	Reliability & Maint. Upgrades	7.9	13.4

M&S Costs: end of FY04

M&S Spending through September 2004		Estimate	FY04	FY04	FY04	Obl+RIP
		FY04	Actual	Obligations	Obl+RIP	/FY04 Est
Run II Upgrades		11,596	7,472	10,163	10,396	90%
1 Luminosity Upgrades		10,075	6,155	8,316	8,544	85%
1.1 Protons on Target		654	1,044	1,030	1,030	158%
1.1.1	Slip Stacking	416	893	374	374	90%
1.1.2	Pbar Target and Sweeping	43	24	15	15	34%
1.1.3	MI Upgrades	26	0	504	504	1938%
1.1.4	Booster-MI Cogging	0	0	0	0	
1.1.5	OTR	169	128	137	137	81%
1.2 pbar Acceptance		502	435	445	445	89%
1.2.1	LiLens	133	125	122	122	92%
1.2.2	AP2 and DB Acceptance	369	310	323	323	88%
1.3 pbar Stacking and Cooling		3,311	2,209	3,092	3,133	95%
1.3.1	S&C Task Force	0	0	0	0	
1.3.2	Debuncher Cooling	0	0	0	0	
1.3.3	Stacktail Upgrade	933	314	692	692	74%
1.3.4	Recycler Commissioning	257	129	206	206	80%
1.3.5	Electron Cooling	1,796	1,714	1,881	1,901	106%
	AIP	1,622	1,282		1,565	96%
	Non AIP	174	432		336	193%
1.3.6	Rapid Transfers	325	52	312	334	103%
1.4 Tevatron High Luminosity		3,522	2,364	3,646	3,833	109%
1.4.1	Beam Studies and Simulation	38	42	41	41	107%
1.4.2	Active BBC	365	365	478	478	131%
1.4.3	Increased Helix Separation	740	645	805	877	119%
1.4.4	Luminosity Leveling	0	0	0	0	
1.4.5	Improved Controls and Diagnostics	2,112	911	1,918	2,032	96%
1.4.6	Tevatron Vacuum Improvements	154	191	193	193	125%
1.4.7	Tevatron Alignment	113	211	211	211	187%
1.6 Management		2,086	102	102	102	5%
2 Reliability Upgrades		1,521	1,317	1,847	1,851	122%
2.1	Vulnerability White Paper	798	621	826	830	104%
2.2	Reliability Upgrades	723	696	1,021	1,021	141%

Incl RIPs

BPM buy ahead \$504K

* overspent

Over-run at Wide-band CR

TEL Expenses FY03 → FY04

BLMs \$200K ahead in spending
Gen. Alignment \$100K ahead

Change Requests

Four change requests coming

- Past
 - \$200K M&S: Electron Cooling work at Wide Band
 - \$300K M&S: accounting error in v2 (delivery in mini-separators)
- as reported at the July PMG
 - Now
 - \$266K M&S increase in estimate for TD work in FY05
- Total: \$766K M&S in 3 CRs**
- Underestimated labor for Tev Alignment work including Shimming and HLS → \$200K labor for this shutdown

Future (not yet finalized)

- Recycler transverse damper: 2 phases
 - Medium-band → \$105K M&S + labor?
 - Broad-band → Final design/estimate in January
- Prototype tank for stacktail upgrade to measure pickup performance ~\$50K? → no CR
- Electron cooling commissioning through 05

Contingency

Non-AIP M&S Contingency Use		
	\$K	Comment
FY04 Allocation	3,700	
Change Requests	-800	version 2 to version 3
Transfer to AIP contingency	-546	expect AIP to use most of this
End FY04	2,354	
FY05 Allocation	1,200	
New change requests	-766	200 WBL overrun, 300 accounting error,
	2,788	266K for TD new estimate