Shutdown Activites and Status

The shutdown was completed over this period and we are now in the accelerator startup phase.

- All scheduled shutdown activities were completed with the exception of installation of two prototype wide aperture rf cavities in the Booster.
- The Booster cavities are undergoing final certification and will be installedinstall at the first opportunity (approximately 3 shifts are required for installation).

Circulating beam was established in the Tevatron at 02:30 on November 17—the planned date established prior to the start of the shutdown.

- Over the last week we had to overcome a number of power interruptions—one due to an on-site feeder failure, one due to an off-site equipment failure, and one due to an on-site static line that broke during a severe wind storm.
- If not for the power interruptions, we would have introduced beam into the Tevatron several days ahead of schedule.
- Beam has also been established in all other accelerators in the complex.

Overall the shutdown was extremely well planned and executed.

Machine/Activity	Goal	Status
Linac		
New 400 MeV Lambertson	Reduce losses in 400 MeV line	Complete
Booster		
Collimators	Control losses and allow increased cycle rate to MiniBoone.	Complete
L3 area reconfiguration	Reduce losses during Booster acceleration cycle	Complete
New (upstream) 8 GeV line dipoles	Reduce losses during Booster extraction	Complete
Prototype large aperture rf cavities (two)	Reduce losses during Booster acceleration cycle	Removed from the shutdown scope of work. Will complete when opportunity arises.
Antiproton Source		
Debuncher motorized stands	Increase antiproton production yield	Complete
Debuncher filter improvements	Increase stacking rate (decrease cycle time)	Complete
Main Injector		
MI-60 instrumentation rearrangement	Accommodate NuMI extraction	Complete
Longitudinal damper cavities	Improved proton longitudinal emittance	Complete
Recycler		
Heater tape replacement	Improved field quality	Complete
Vacuum bakeout	Improved vacuum (lifetime and emittance growth rate)	Complete; vacuum pressure and emittance growth improved

Machine/Activity	Goal	Status
Linac		
MI-31 breakthrough	For connection of the electron cooling beamline to the Pelletron in FY05	Complete
Tevatron		
F0 Lambertson liners	Reduce Tevatron transverse impedance	Complete
Cold mass (dumb bolt) shimming	Re-center cold masses (reduce global coupling)	Complete; much smaller corrections needed to remove coupling
New Tevatron alignment network	Establish new network that will substantially improve capabilities on future alignments.	Complete
Measure rolls on all magnets	Update knowledge of Tevatron alignment	Complete
New A-48 collimator	Reduce losses at CDF	Complete
Repair cold leaks (3 houses)	Improve operability	Complete
NuMI		
MI Lambertson magnets	NuMI extraction	Complete
Extraction line magnets	NuMI extraction	Complete
NuMI stub installation	NuMI extraction	Complete
Infrastructure Maintenance		
Electrical distribution	Preventative maintenance	Complete
LCW heat exchanger cleaning	Preventative maintenance	Complete