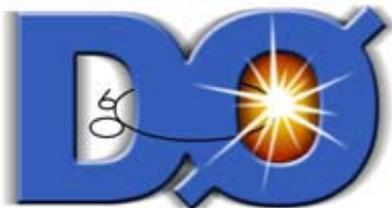




2006 Shutdown Update

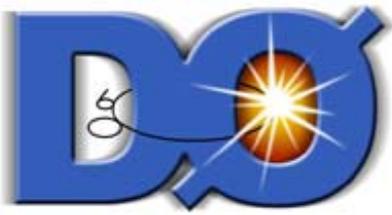
George Ginther
University of Rochester
for the DØ Collaboration

22 May 2006

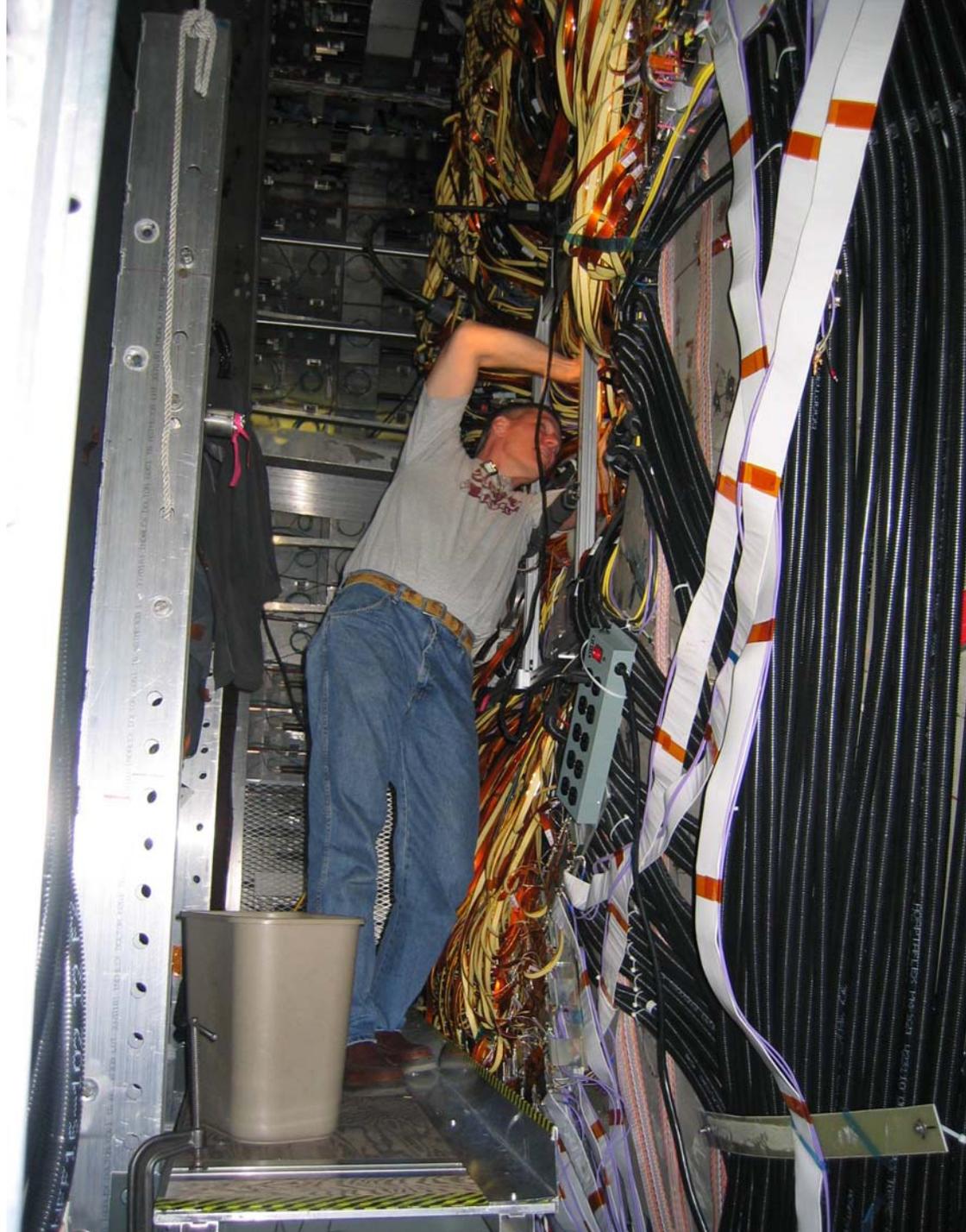


Upgraded SMT Related Activities

- Re-cable of inner H disks and connect up cooling lines
- Complete evaluation of Layer 0 readout performance
 - All SVX4 chips have been successfully readout with the sensors biased
- Connect spool pieces and leak check joints
 - Verify inner H disk readout
 - More inner H disks channels appear to be functional now than when disks were dismantled in March (due to the hard work of the installation & readout teams)
- Install beam pipe support
- Make spool to EC beam pipe joint
- Insulate ends of solenoid bore
- Install tedlar membranes
- Dry and cool silicon
- Turn on entire upgraded SMT
- Checkout Layer 0 noise with the rest of the SMT powered
- Attempt recovery of Run IIa SMT HDIs
- Readout testing and verification for entire upgraded SMT readout
 - Currently in better condition than before shutdown
- Cosmic ray tests of upgraded SMT readout in progress
 - Upgraded Level 1 Central Track Trigger is serving as trigger in cosmic ray tests
- Noise tests of upgraded SMT readout performed (once entire beampipe connected)

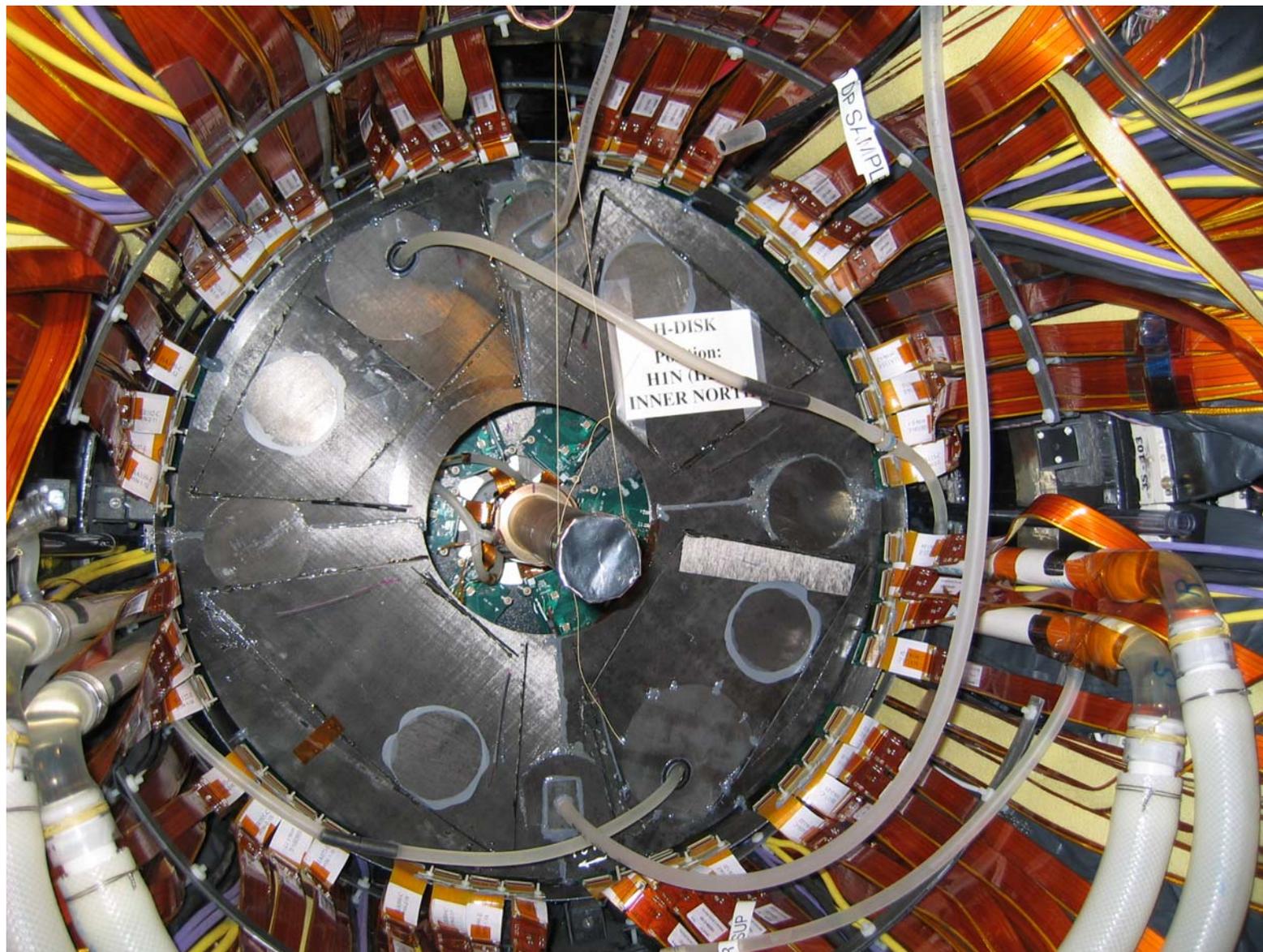


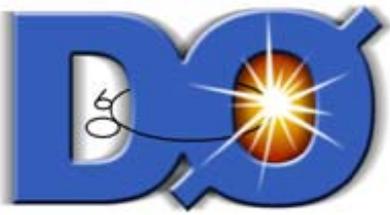
- Dave Butler installing cables on the North Inner H disk



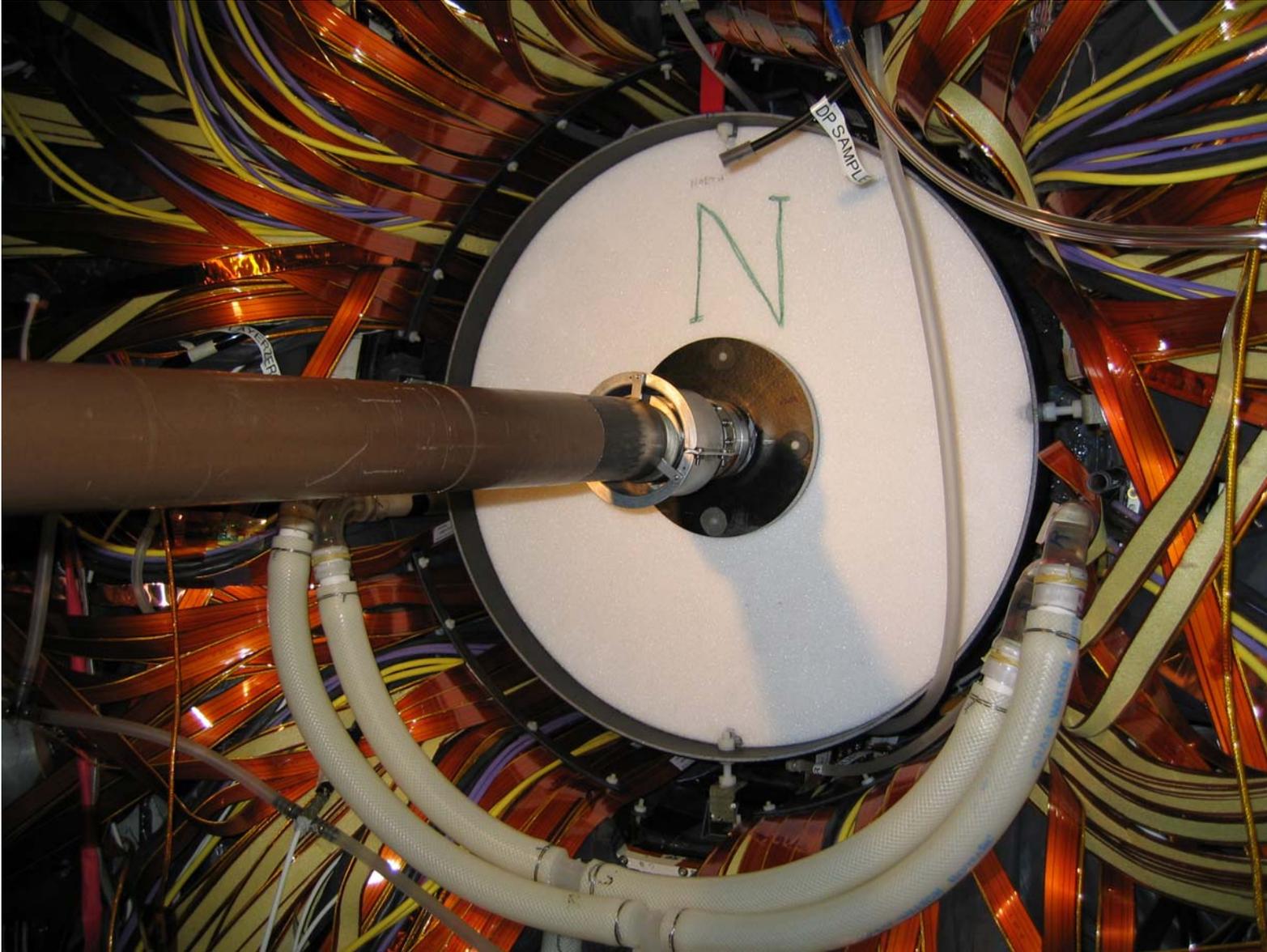


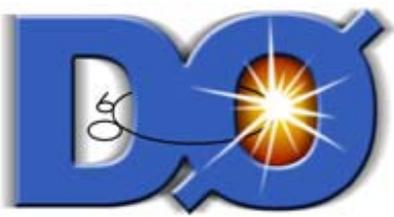
North inner H disk cabled (again)



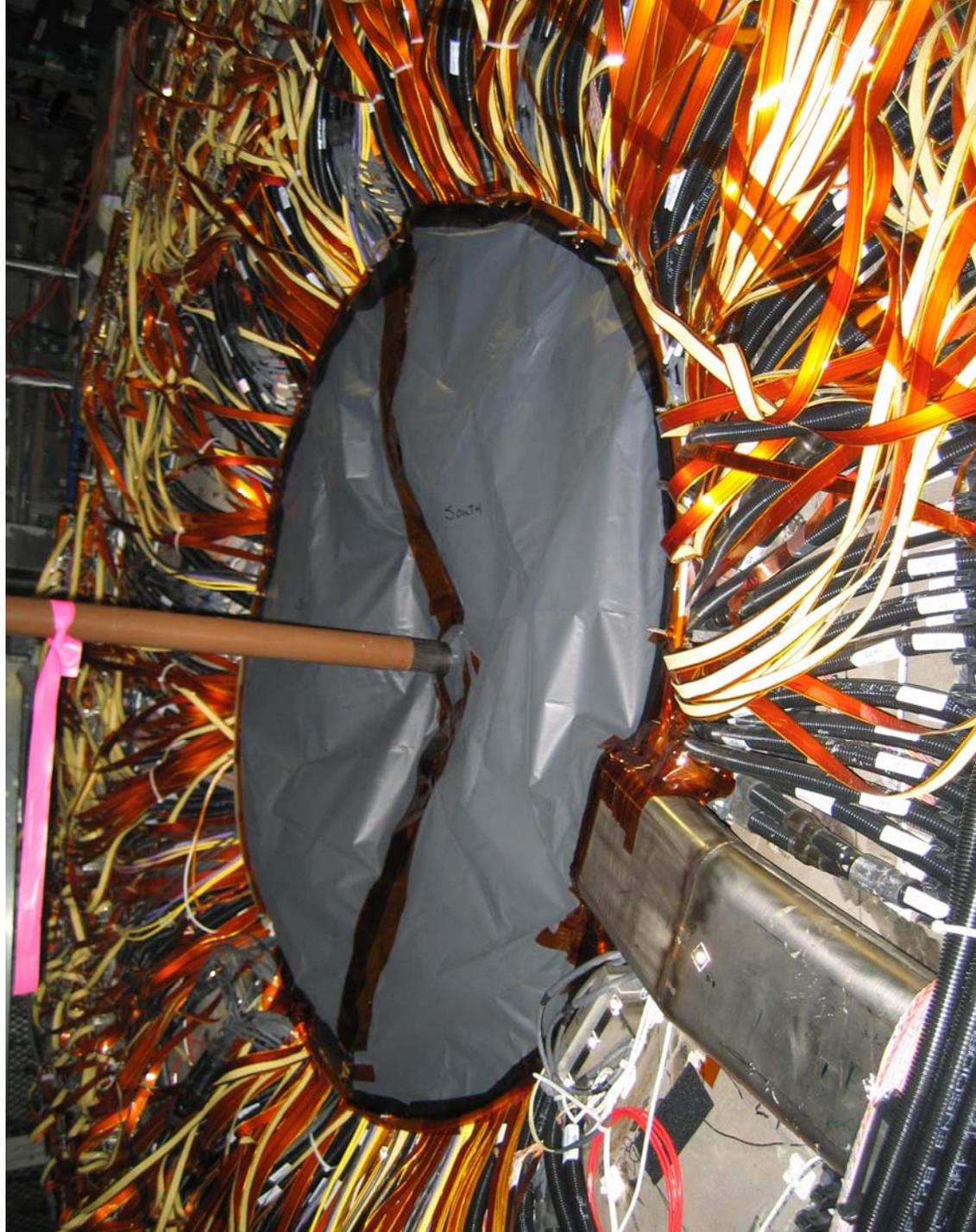


Beam pipe support installed





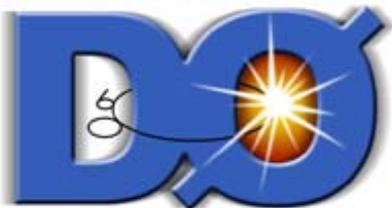
- View of south end of Central Cryostat with tedlar membrane in place





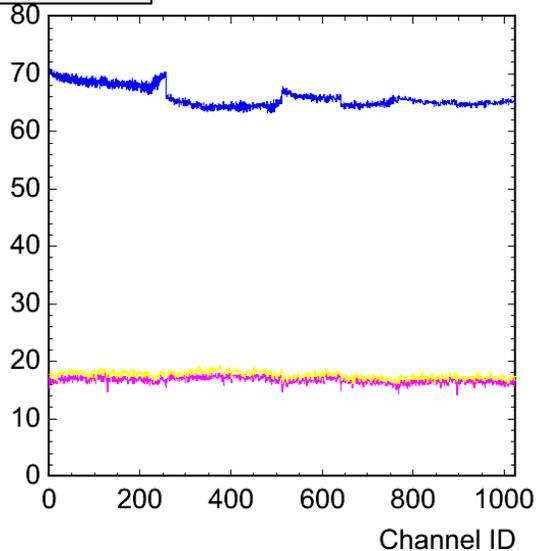
Layer 0 Performance at DØ

- All 96 SVX4 chips reading out
 - The chip which caused trouble at SiDet was also initially reluctant to perform at DØ, but has been behaving well lately
 - Readout is error free
 - ~15 to 20 bad channels (out of total of 12,288 channels)
 - Signal to noise is ~15 to 1 (or better)
- Bias currents are low
 - One pinhole developed during biasing at DØ
- No significant coherent noise detected
 - Tested before and after connection of Tevatron beampipe

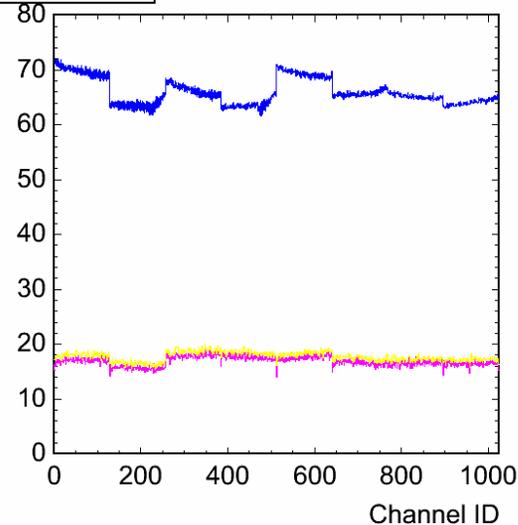


Pedestal and (10x) Noise Distributions

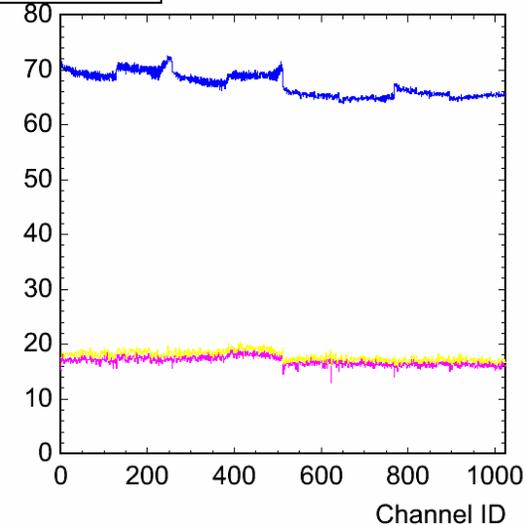
North, Sector 1



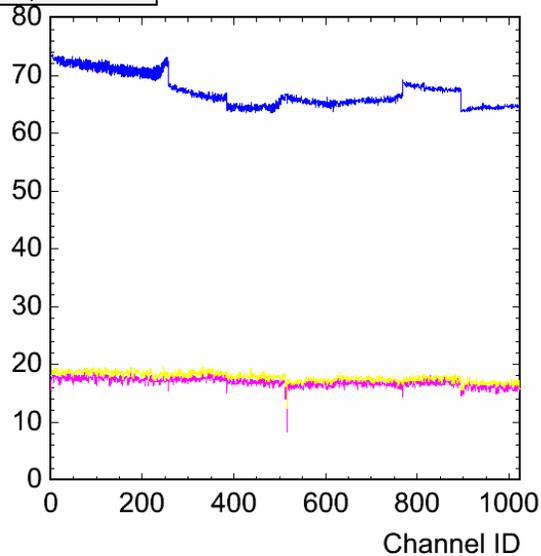
North, Sector 2



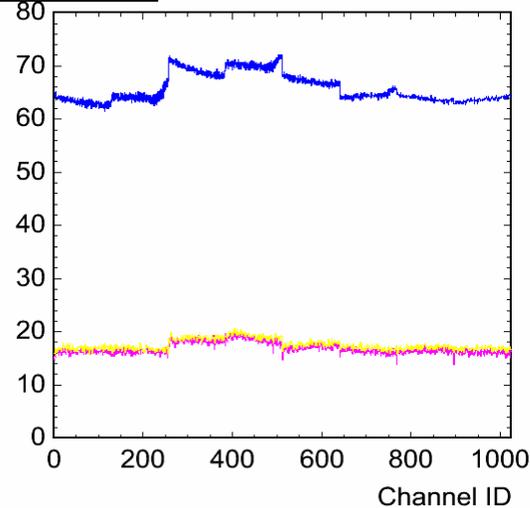
North, Sector 3



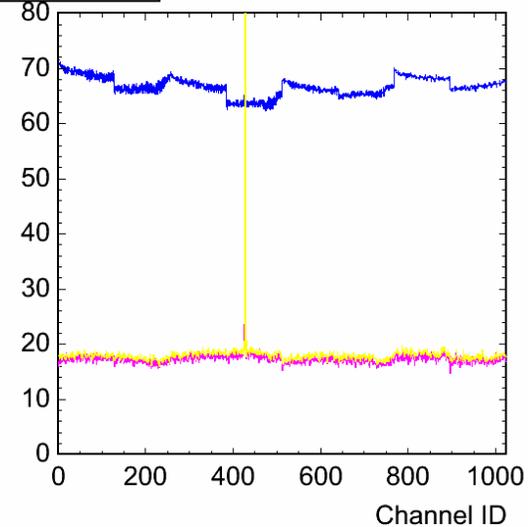
North, Sector 5

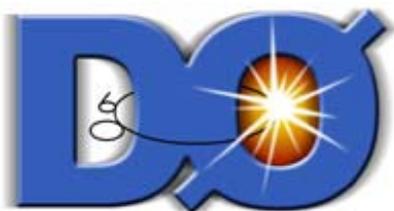


North, Sector 4



North, Sector 6





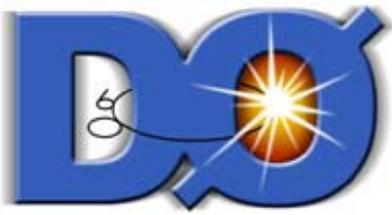
Layer 0 Installation Milestones

ID	TASK NAME	Actual	Current Forecast	Pre-Shutdown Forecast	Milestone Dates
2	Beginning of RunIIb Tevatron Shutdown	2/23/06		2/27/06	2/27/06
28	Detector Open, Ready for Access	3/1/06		3/2/06	3/07/06
34	RunIIa Be Beam Pipe Disconnected	3/3/06		3/7/06	3/9/06
47	H Disks Removed	3/15/06		3/17/06	3/23/06
56	RunIIa Be Beam Pipe Removed	3/21/06		3/27/06	3/31/06
75	Layer 0 Tooling and Mounts Ready	4/5/06		4/10/06	4/17/06
79	Layer 0 Installed (including junction card mounts)	4/7/06		4/12/06	4/19/06
91	RunIIb Be Pipe Connected, Layer 0 Cabled	4/26/06		4/26/06	5/03/06
94	Inner H Disks Re-Installed (including cabling)	5/4/06		5/2/06	5/9/06
99	Silicon Cold and Ready for Technical Commissioning	5/9/06		5/5/06	5/12/06
103	Complete Technical Commissioning of Silicon	5/12/06		5/11/06	5/18/06
118	Detector Closed for Tevatron Resumption		5/31/06	6/02/06	6/4/06

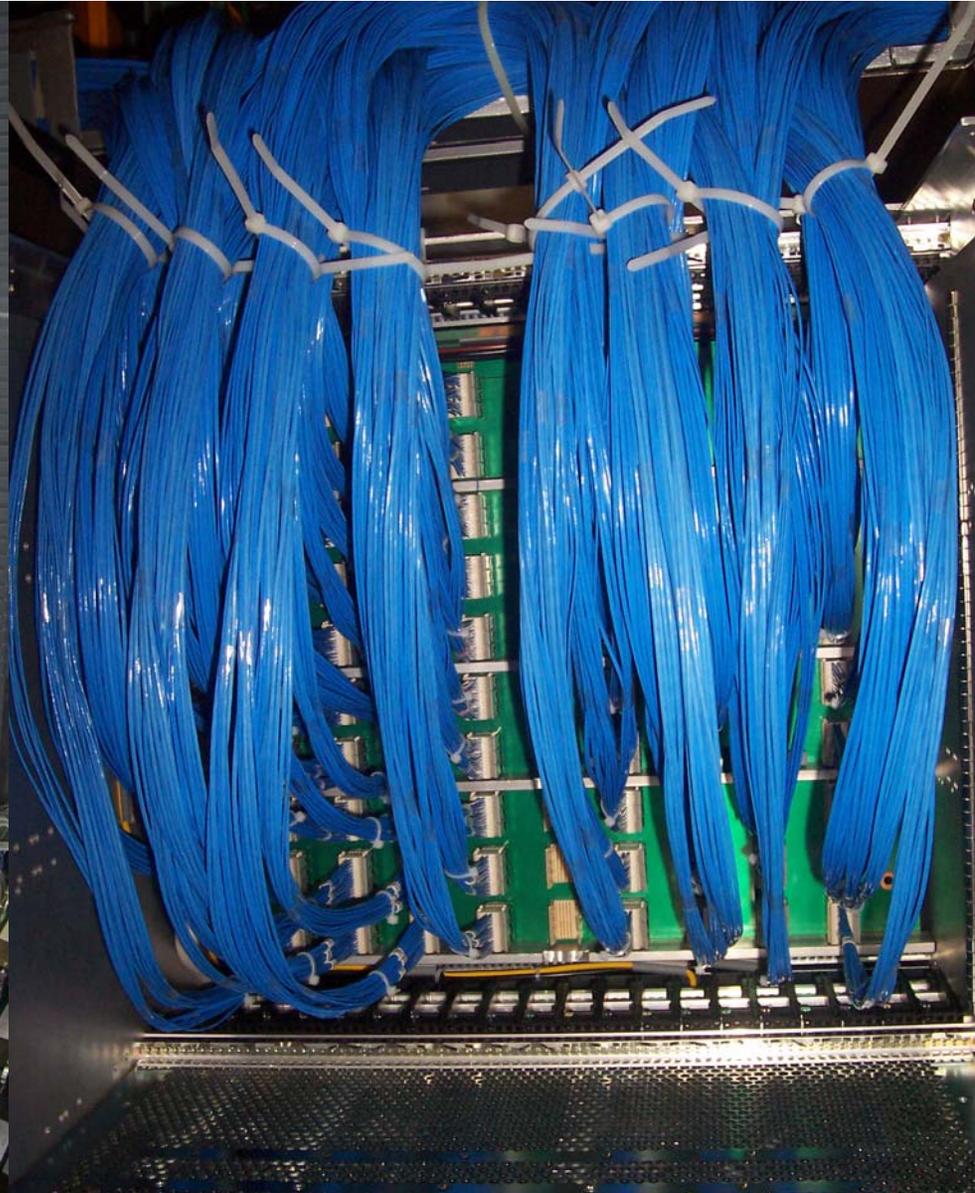
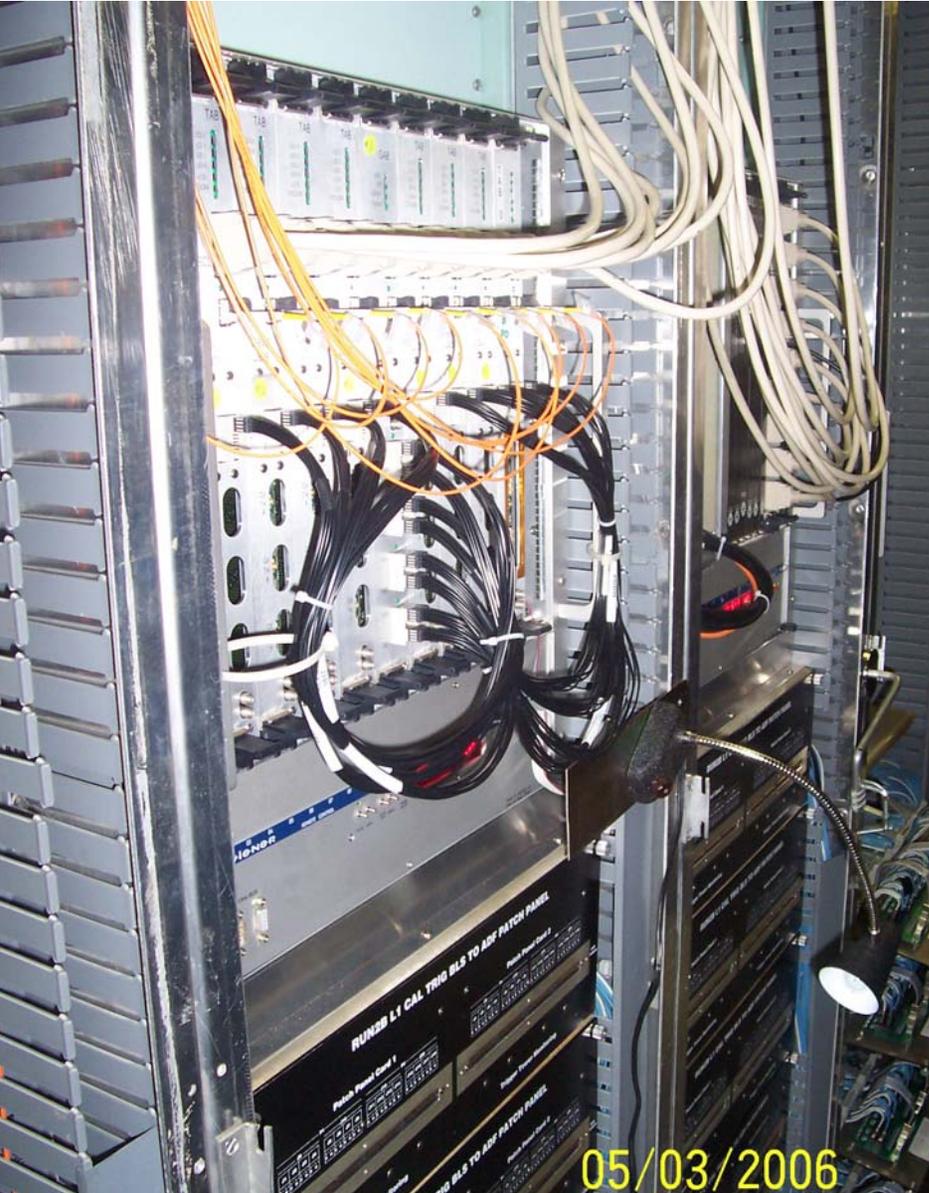


Level 1 Trigger Upgrade Installation

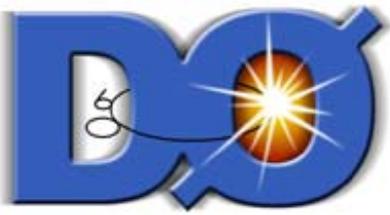
- Level 1 Calorimeter Trigger
 - Complete LVDS cable installation
 - Wrap-up transmission tests from ADF to TAB
 - Complete pleated foil cable installation
 - Test transmission of pulser signals throughout the system
 - Attempt recovery of individual trigger input channels
 - Continue firmware debugging/development/verification
- Level 1 Central Track Trigger
 - Finish connecting outputs to L1CalTrk and L1Muon
 - Testing of L1Muon and L1 Cal Track outputs
 - Continue refining monitoring tools and exercising trigger system
- Preparations for trigger latency change continue
 - TFW firmware mods for latency shift (3×132 nsec delay)
 - Complete muon PDT COBO modifications
 - Firmware development/testing for other subsystems



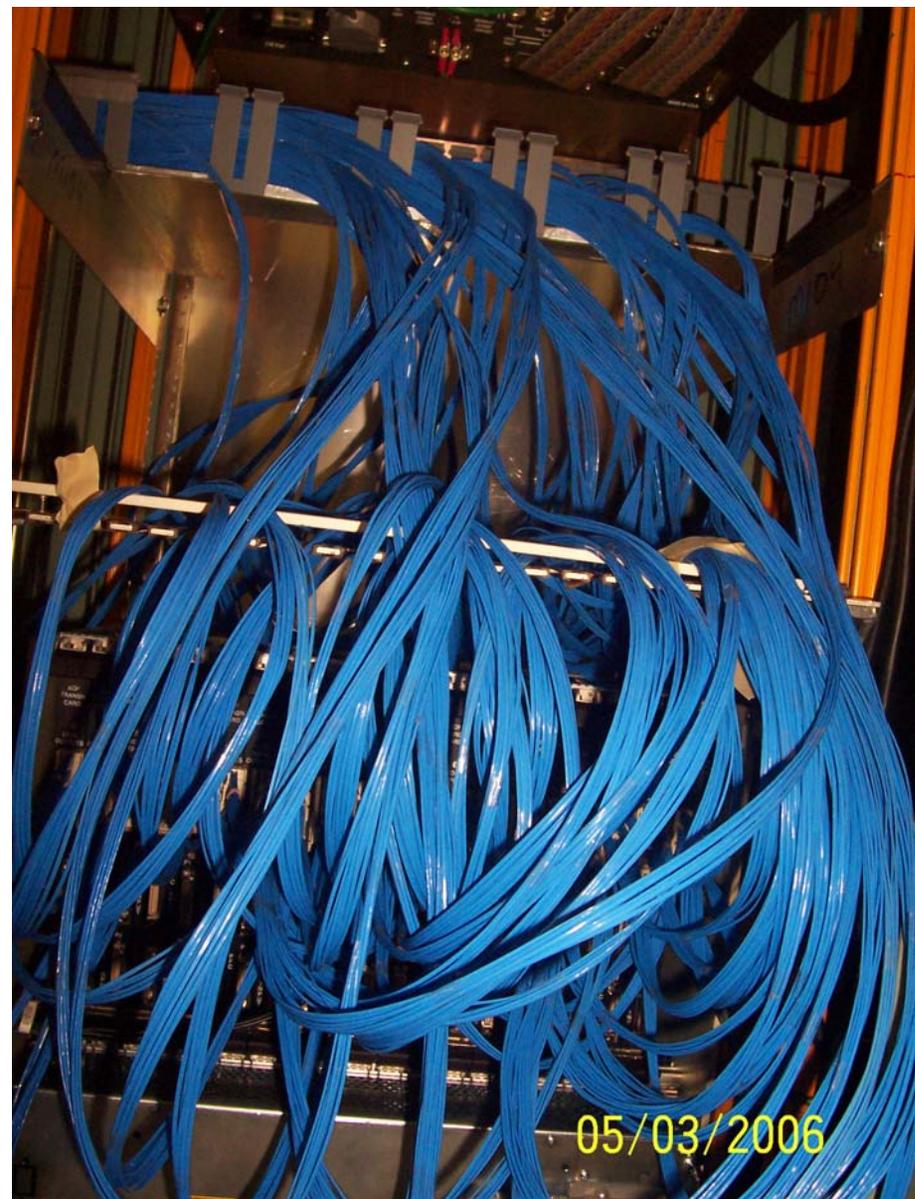
L1 Cal Trigger (TAB/GAB crate)



05/03/2006

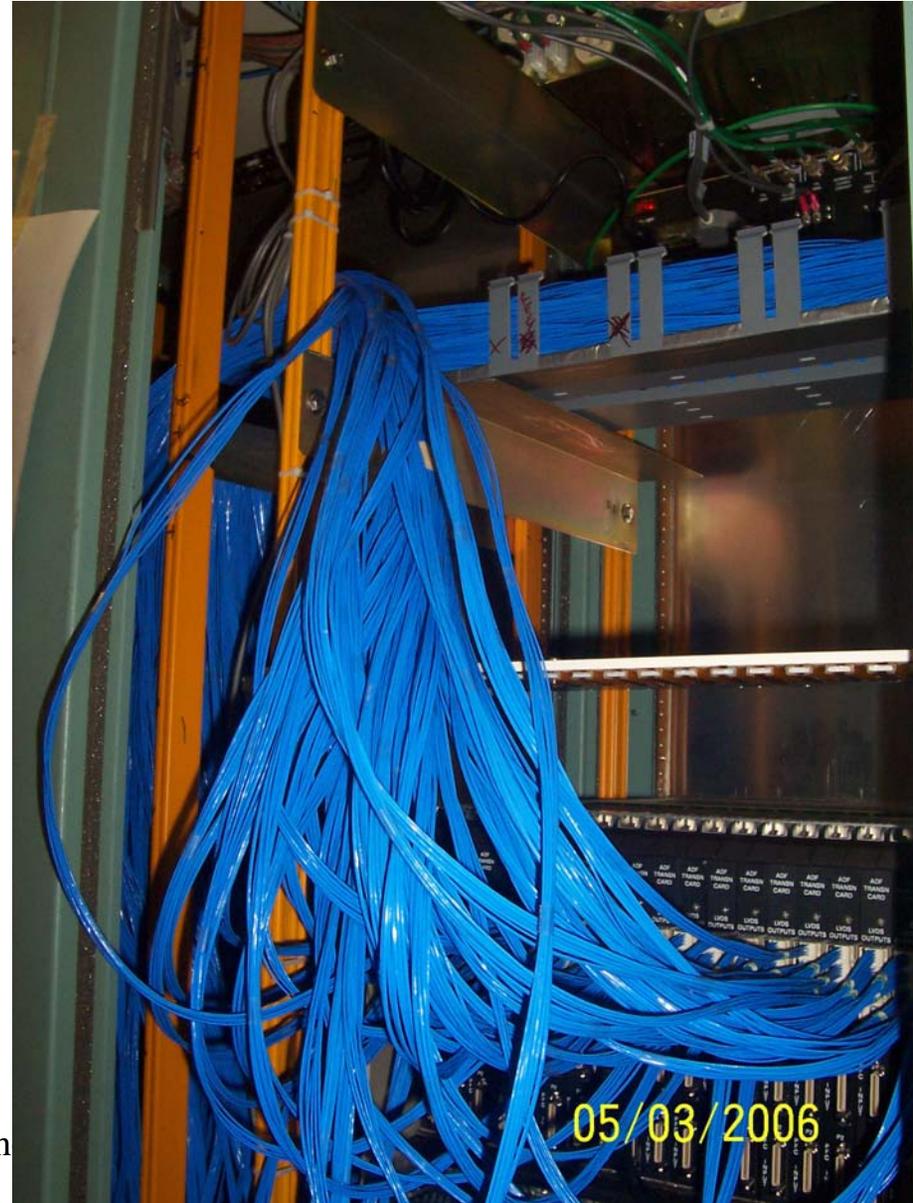


L1 Cal Trigger (ADF Crates)



05/03/2006

Ginth



05/03/2006



L1 Cal and L1 CTT Installations

ID	TASK NAME	Actual	Current Forecast	Pre-Shutdown Forecast
2	Beginning of RunIIb Tevatron Shutdown	2/23/06		2/27/06
	Level 1 Calorimeter Trigger Upgrade			
158	Retire Run IIa L1 Cal Trigger Electronics	3/6/06		3/6/06
172	Complete Clean-out of L1 Cal Trigger Racks	3/9/06		3/29/06
180	L1 Cal Trigger Racks Ready for Trigger Installation	3/20/06		4/13/06
189	L1 Cal Trigger Ready for Technical Commissioning	5/10/06		5/10/06
	Level 1 Central Track Trigger Upgrade			
206	DFEA Crates Extracted	3/13/06		3/13/06
213	DFEA2 Installation Complete	4/25/06		4/4/06
217	L1 CTT Technical Commissioning Complete		5/26/06	5/17/06

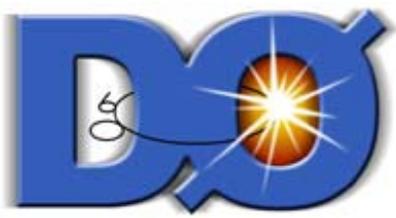
Switched order of some installation and verification operations to optimize cable access

Ongoing recovery of a few individual output channels to L1 Muon and L1 Cal Track

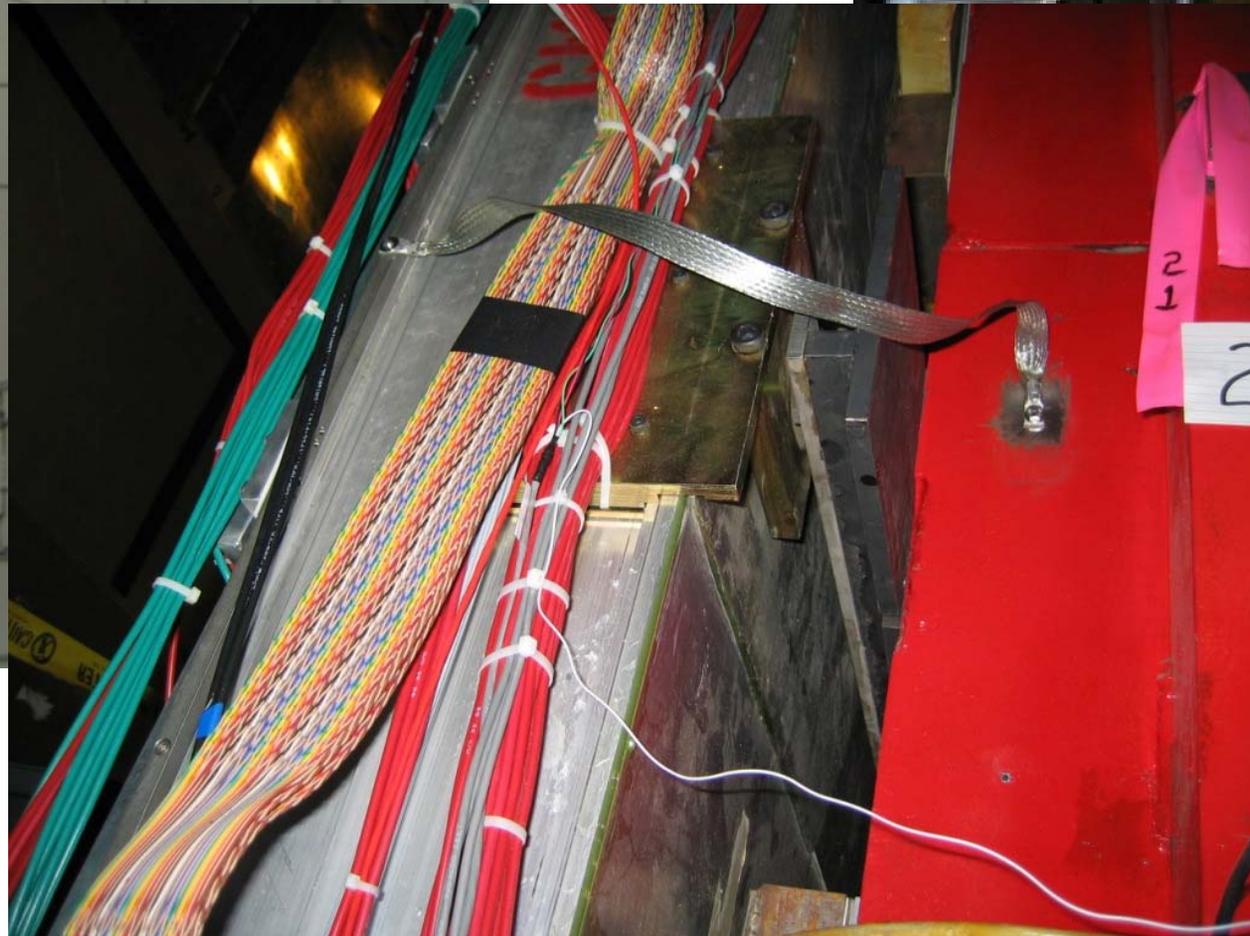
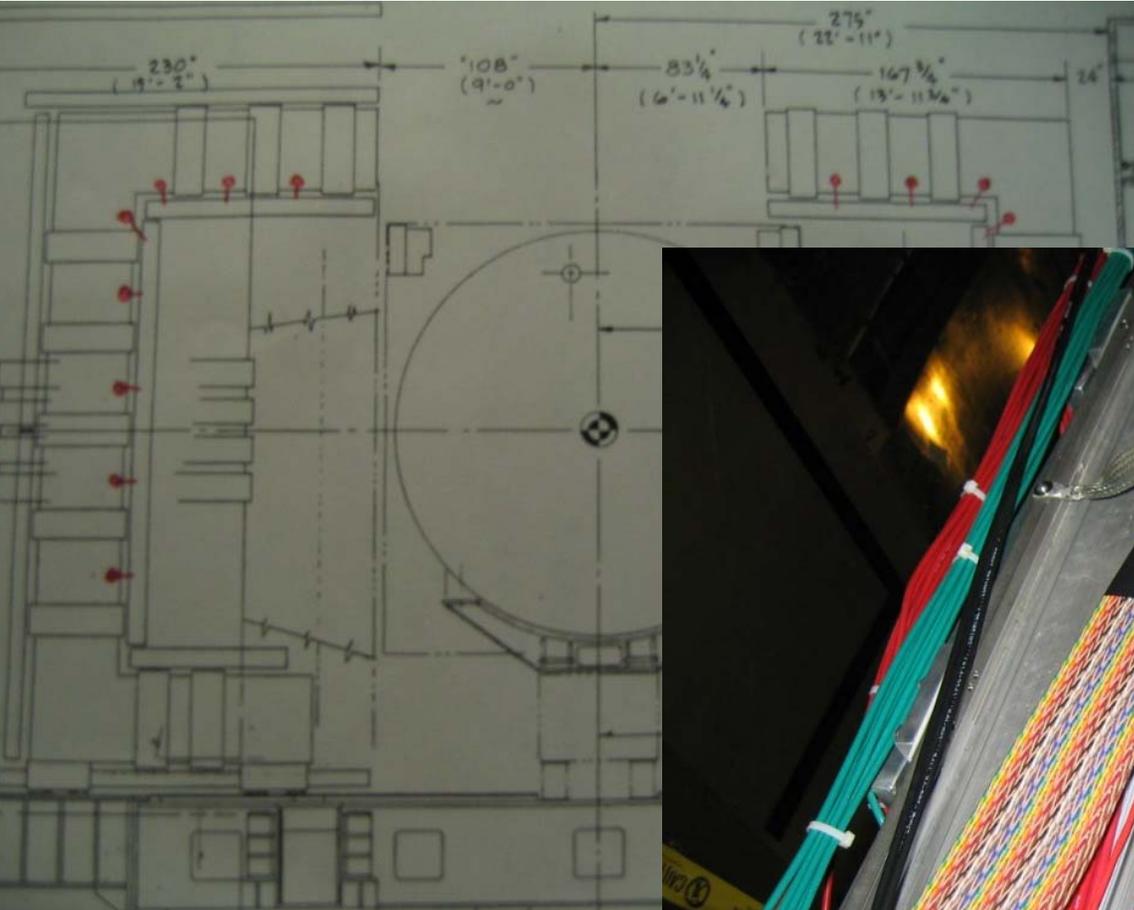


Some Other Activities

- Initial online test of Level 2 splitting/ORing
- Preparations for Central Fiber Tracker Upgrade (AFEII)
 - Delivery of 100 bare production boards to assembly house
- Detector Maintenance
 - Install and test SAM upgrade
 - Improve grounding of A Layer PDTs (requires scaffolding installation)
 - Selected replacement of ICD PMTs in the west cathedral
- Detector Reconfiguration
 - Reconfigure detector in preparation for beam pipe installation
 - Install SNEG beam pipes
 - Leak check beam pipes
 - Activate SNEGs (currently in progress)
 - Open EFs to resume cathedral access (and install BLMs)



Improving A Layer PDT Grounds



22 May 2006

		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 2	14-May		Remove gap hardware Close ECs, EFs	Repair two PDT wires Install SNEGs and begin pumpdown SMT cosmics	100 AFEII bare boards delivered Extract wire from PDT Leak check SMT noise studies SMT cosmics?	Extract wire from PDT Install heat tape on SNEGs Activate SNEGs Open EFs Install BLMs	South side A Layer PDT grounding Activate SNEGs ICD maintenance CAL preamp PS maintenance	
1 3	21-May	Begin detect or verification	Tevatron cooldown begins Survey EC ICD maintenance Detector checkout Resume captain coverage on evening shifts	ICD maintenance Detector checkout	TFW unavailable for installation of new latency? Close East CF and monitor for noise Close pit access door Detector checkout	Tevatron cold AFEII bare board production complete Close West CF and EF's Detector checkout	L1CTT Technical Commissioning Complete Install scaffolding in SW corner for PDT 232 Remove SNEG heaters Install veto counters Close clamshells Test new latency? Survey Detector Centerbeam Detector checkout	Disable wire in PDT 232
1 4	28-May		lab holiday	Take down scaffolding in SW corner? Survey Detector CenterBeam Search and secure collision hall AD safety system tests Detector checkout Test magnet power supplies	StickMic Survey Detector checkout Supervised Access Ends	Collision Hall Secure		
1 5	4-Jun	shutdown ends						
1 6	11-Jun			First stuffed AFEII boards delivered				first store



Approaching End of Shutdown

- Monday May 22
 - Detector checkout
 - Survey End Calorimeters after closing (AMG support-5169)
- Tuesday May 23
 - Detector checkout
 - Prepare for closing
- Wednesday May 24
 - Close east CF and monitor for calorimeter noise
- Thursday May 25
 - Close west CF and EFs
- Friday May 26
 - Rollout nose pieces and close clam shells
 - VStar Survey detector centerbeam (AMG support-5318)
- Tuesday May 30
 - VStar Survey detector centerbeam (AMG support-5318)
 - Search and secure collision hall during early evening for safety system tests and power on tests of solenoid and toroid (AD ops support)
- Wednesday May 31
 - Closing EF, CF stick mic survey (AMG support-5317)



Summary

- Shutdown involves substantial parallel efforts to install Run IIb upgrades of the DØ detector and make a smooth transition to commissioning and operations
- Need to complete the shutdown activities in a safe and timely manner
 - 63 weekdays days into 69 weekday shutdown (91% complete)
 - Most major shutdown activities wrapping up or completed
 - No major upgrade related surprises detected (yet)
 - Tevatron beampipe pumpdown in progress
 - Upgraded SMT status
 - Layer 0 is installed and reading out
 - Run IIa SMT currently believed to be in better condition than before shutdown
 - Cosmic ray tests in progress
 - Upgraded Level 1 CTT is serving as trigger in cosmic ray tests
 - Level 1 Cal trigger installation complete and in the technical commissioning phase
 - Collaborators continue to make important contributions
 - Second shift support and activities have been very valuable in maintaining schedule
 - Lab is providing significant support for these activities
 - Thanks to AD, CD, PPD & TD for their important contributions to this effort