

# *Beams Week in Review*



- Report Covers 2 weeks (77 & 78) of Collider Operation from 8/26 thru 9/8
- Accelerator Performance
  - Week 78 integrated Luminosity Record:  $4.2\text{pb}^{-1}$
- Accelerator Studies and Access (week 77)
- The 7 Stores (week 78):
  - Good Stores / Bad Stores

# *Beams Week in Review*



- Several Issues Resolved
  - He concentration in D0 Collision Hall
  - A0 Abort Kicker trigger module
  - TEL repaired
  - Re-smoothed orbit through low beta squeeze
    - Partly responsible for low initial luminosity in stores 1728 and 1730.

# Beams Week in Review



## Store Summary Week 77

<u>Store #</u>	<u>Initial Luminosity</u>	<u>Duration</u>	<u>Termination</u>	<u>comments</u>
1691	2.43 E31	6.8 hours	Quench BBU VFC	no known changes
1711	2.31 E31	18.9 hours	intentional	TRF6 tripped, during store
1713	1.55 E31	2.1 Hours	Tev RF	TRF6 tripped, TEL erratic

# Beams Week in Review



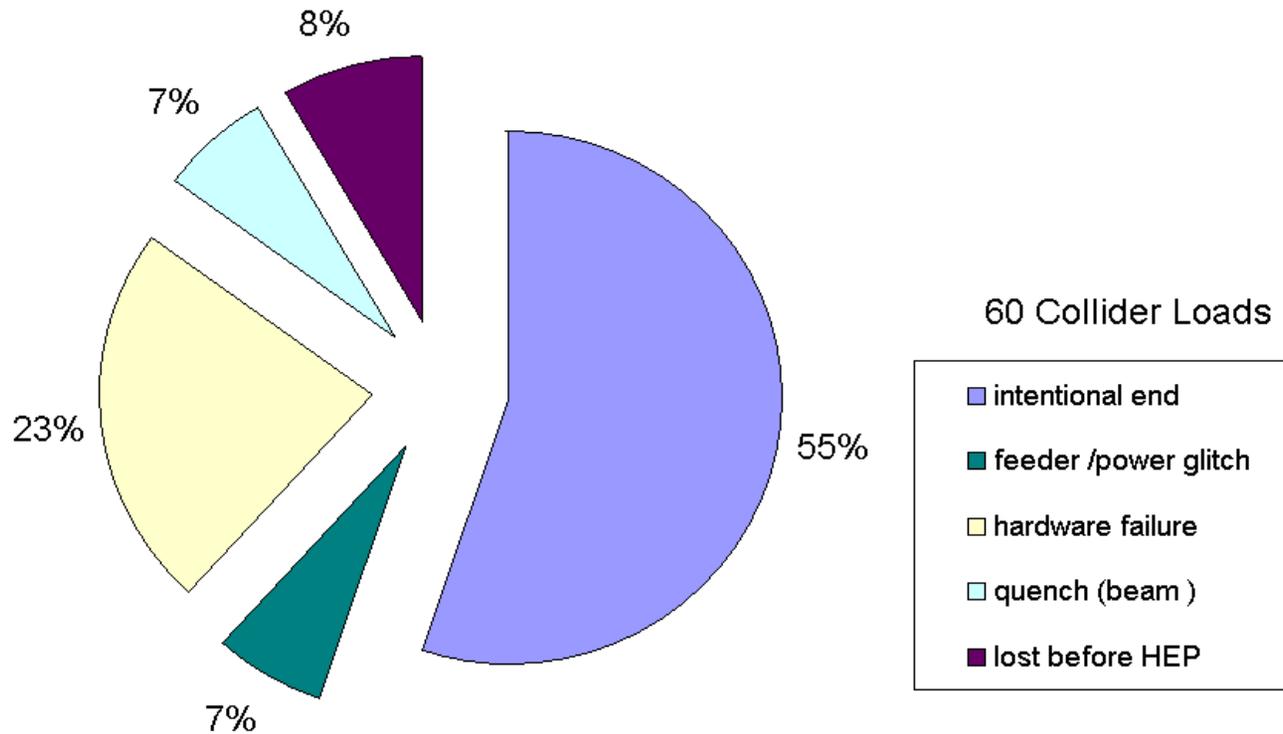
## Store Summary Week 78

<u>Store #</u>	<u>Initial Luminosity</u>	<u>Duration</u>	<u>Termination</u>	<u>comments</u>
1716	2.47 E31	7.1 hours	Abort B0Q5	D1 separator
1723	2.30 E31	10.6 hours	Abort C2 wet engine	no known changes
1727	2.11 E31	9.9 hours	A0 abort kicker trigger module	Beamloading compensation
1728	1.82 E31	16.1 hours	intentional	76% stack; p – coherent
1730	1.26 E31	8.6 hours	intentional	P -choerent
1735	2.29 E31	24.7 hours	Quench E1	smooth orbit; TEL off
1737	2.17 E31	18 hours	intentional	TEL off

# Beams Week in Review



**Store Termination from Store 1434 to 1737**

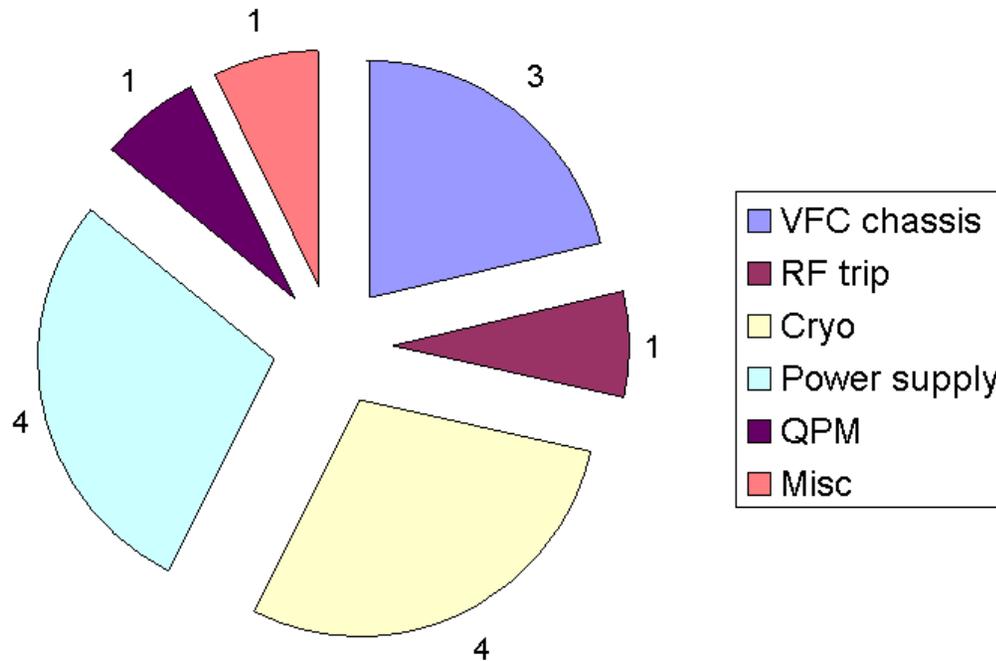


Last 2 weeks 50% intentionally terminated

# Beams Week in Review



Hardware Failures that Terminated Stores  
(Store 1434 to 1737)



# *Beams Week in Review*

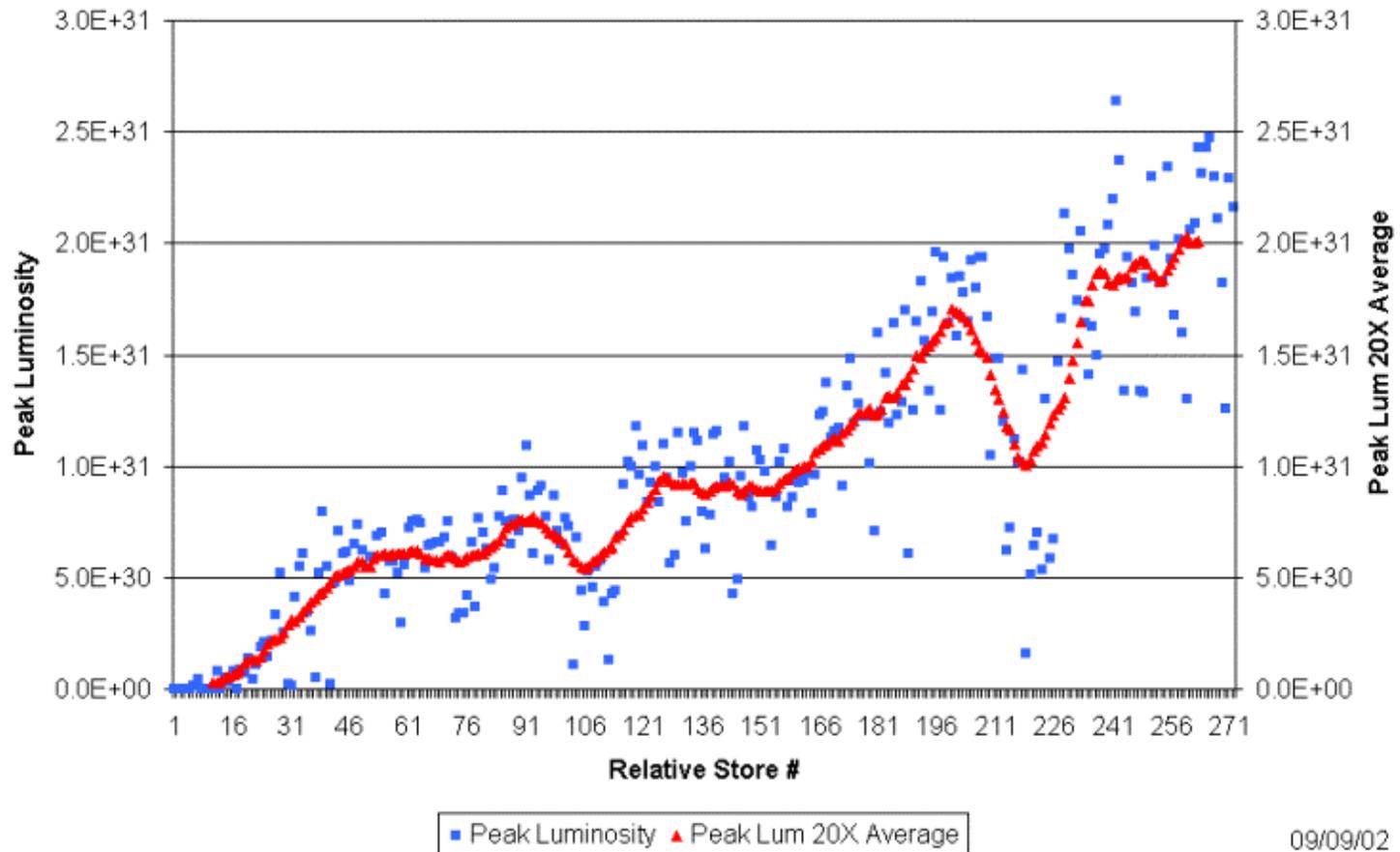


- Shutdown work
  - CDF COT Repair
  - Recycler beamline Multiwire installation

# Peak Luminosity



Collider Run IIA Peak Luminosity

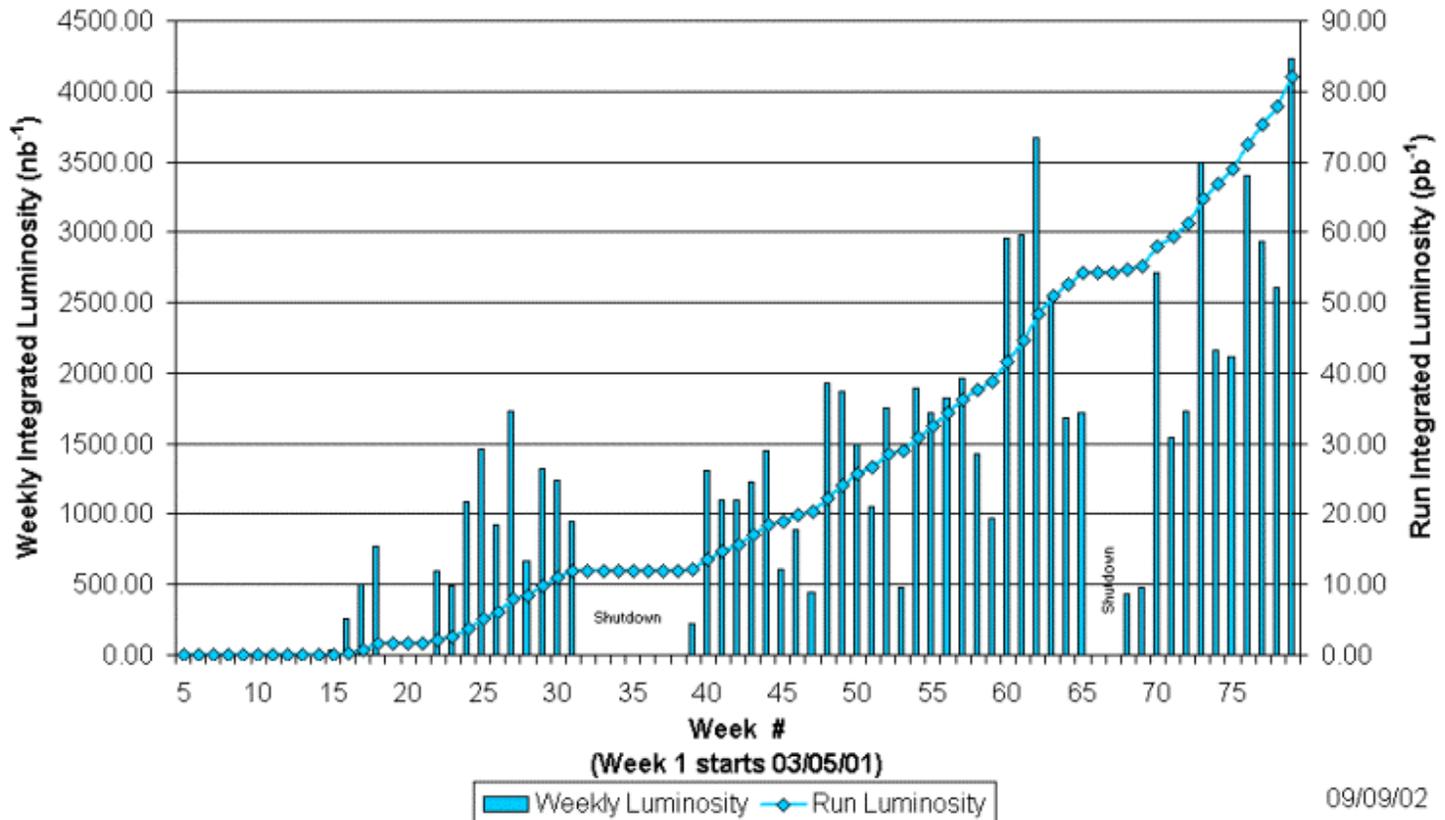


09/09/02

# Integrated Luminosity



Collider Run IIA Integrated Luminosity



09/09/02

# *Tevatron Summary*

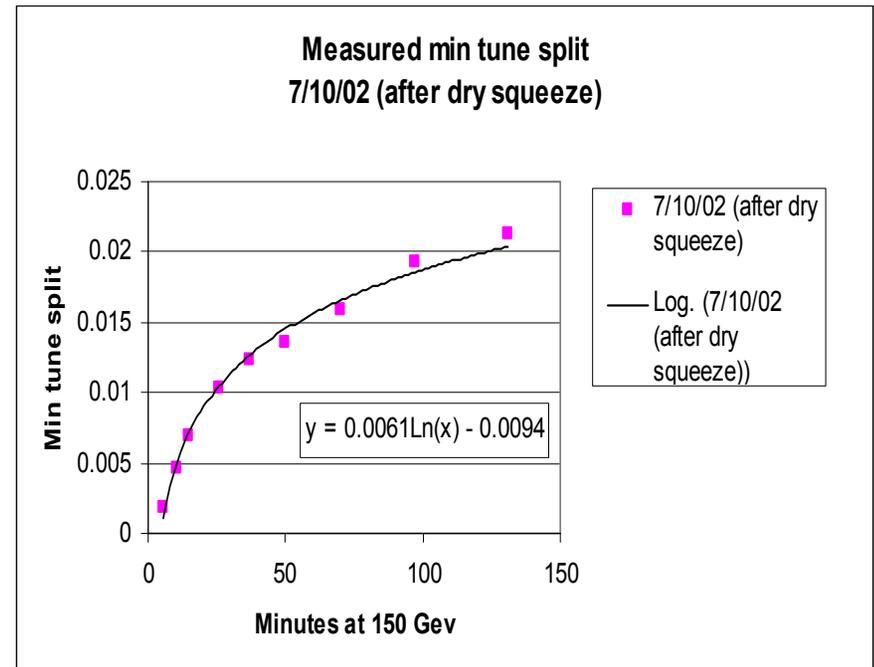
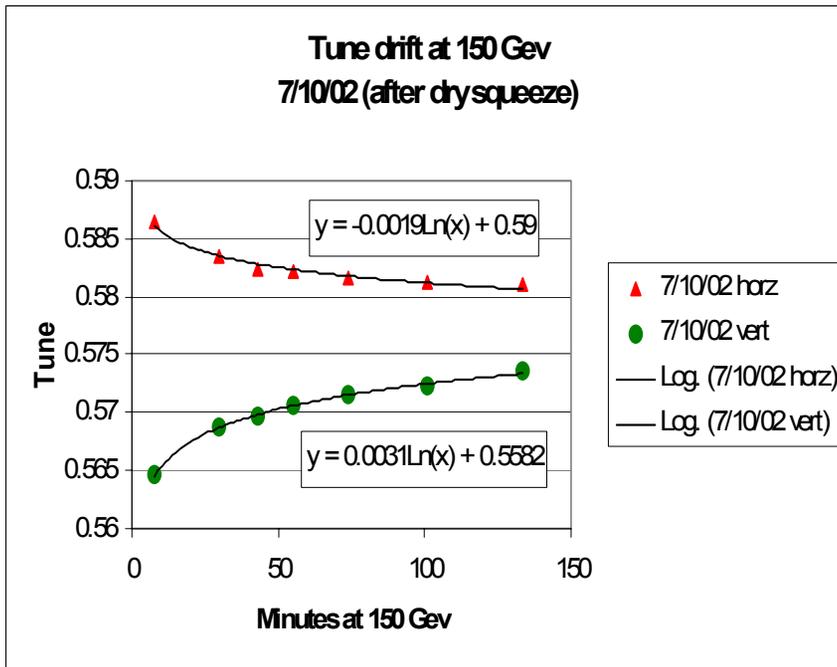


- Week 77 Accelerator studies:
  - Measured and corrected local coupling at the IR at 150 and up the ramp (not low beta)
  - Test new Chromaticity measurement system
  - Tevatron Dampers (closing the loop test)
    - Damping demonstrated.. Continue to investigate reducing the noise floor

# Tevatron Summary



## Measured Tune and Coupling Drift at 150 GeV



Correction Scheme to be implemented during this week studies

# *Pbar Summary*



- No Dedicated studies during this period
- Changed DRF2 (barrier bucket) frequency to better match the momentum cooling system
  - Yield up to  $\sim 7\%$  increase in pbars getting to Accumulator
- Pbar production remains in the  $17$  to  $18E-6$  with peak production of about  $11.6$  mA/hr for one hr.

# *Recycler Summary*

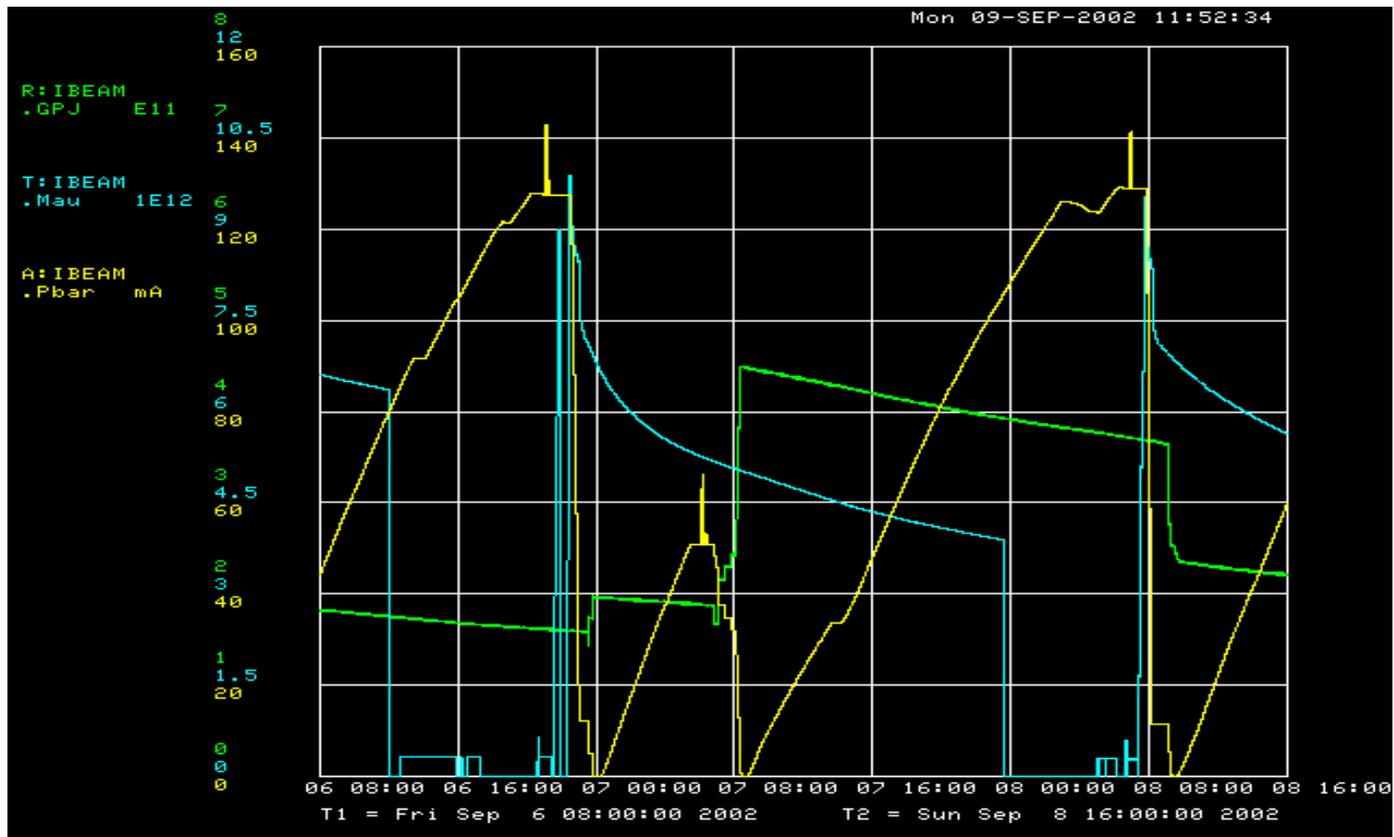


- Two Dedicated transfers from stacks of  $35E10$  to  $50E10$ .
  - Transfer efficiencies ranged from 50 to 95%
  - Stacking efficiencies  $> 70\%$
  - Lifetimes greater than 100 hrs with  $45E10$
- Shots “off the bottom”

# Recycler Summary



## Filling the Recycler



# *Schedule for this Week*



- Monday: Collider Operation ( TEL back on line)
- Tuesday (~0400): ~5 shift studies
- Wednesday (~1600): Resume Collider Operation

# *Studies this week*



- Tevatron
  - Tevatron closure for pbars (BLT)
  - Implementation of tune drift compensation
  - MI-Tevatron Transfer Line Matching
  - Investigate proton losses seen at CDF
  - Orbit Coupling at interaction regions
  - Non-linear tune & chromaticity vs orbit through interaction regions

# Schedule for this Week

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Update 9/9/02 11:23 AM	MONDAY 9/9/02	TUESDAY 9/10/02	WEDNESDAY 9/11/02	THURSDAY 9/12/02	FRIDAY 9/13/02	SATURDAY 9/14/02	SUNDAY 9/15/02
<b>Owls 0000 to 0800</b>	0600-1000 controlled access to exfer hall for Tel repair work	<b>Pbar</b> -stack <b>Tev</b> -0000 to 0400 store -0400 EOS studies about gap/cdf loss -0600 P only @980 -0800 Blt pbar only exfers.	<b>Pbar</b> - stack <b>Tev</b> -IR decoupling D0 -non linear tune shift studies	Stack and store			
<b>DAYS 0800 to 1600</b>	<b>Pbar</b> - Stack <b>Tev</b> -shot to RR & tev	<b>NTF - PT</b> <b>Pbar</b> -support BLT studies -Noon to 1400 possibly 8 hr pbar access <b>Tev</b> -Continue BLT studies <b>Misc</b> -noon possible Mi/Booster access	<b>NTF - PT</b> <b>Pbar</b> -stack <b>Tev</b> -tune drift studies -proton only store	Stack and store	<b>NTF - PT</b>		
<b>EVES 1600 to 2400</b>	<b>Pbar</b> -stack <b>Tev</b> -store	<b>Pbar</b> -finish access -stack <b>Tev</b> -A1/P1 lattice tests	-shot setup	Stack and store			

Schedule can be found at <http://www.bdfnl.gov/operations/schedules.html>