

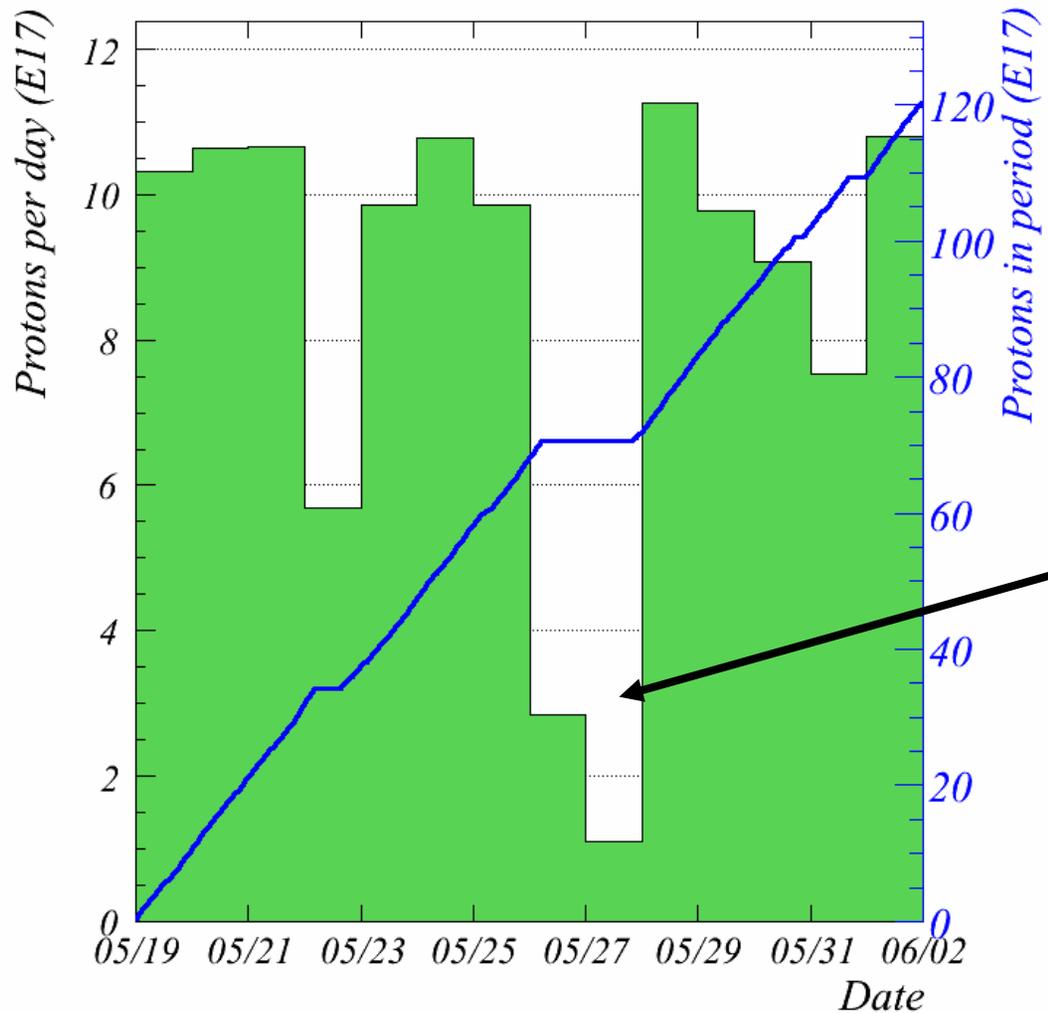


- FAR DETECTOR:
- 98.0% live time (wall clock)
- There was a power outage on the morning of May 22 at Soudan so the DNR can install a lightning arrestor on the headframe.
- The power outage coincided with a planned shutdown of the beam.
- Upon restarting the FD system, a timing system malfunction resulted in all FD time-stamps to be 1 second too early relative to the true GPS time.
- The problem was identified and fixed on the morning of May 29.
- During the period in question, neutrino events were still detected by the 4/5 and energy triggers. The software was updated to reclaim those events based on corrected timestamps.
- NEAR DETECTOR:
- Up 99.6% of the time (pot weighted)



# Protons / day for last two weeks

2 Weeks to 00:00 Monday 02 June 2008

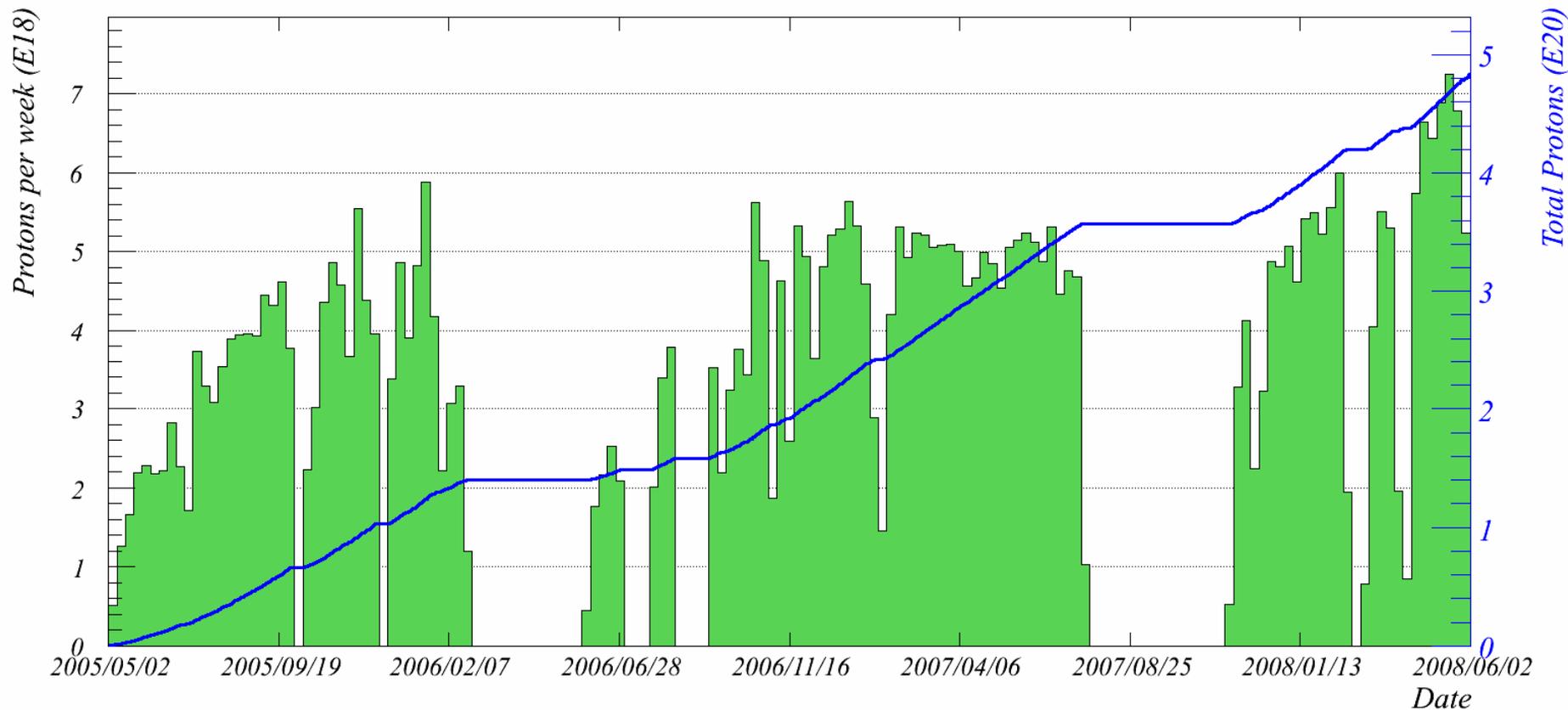


Investigation of  
Horn 1 water system



# Integrated POT

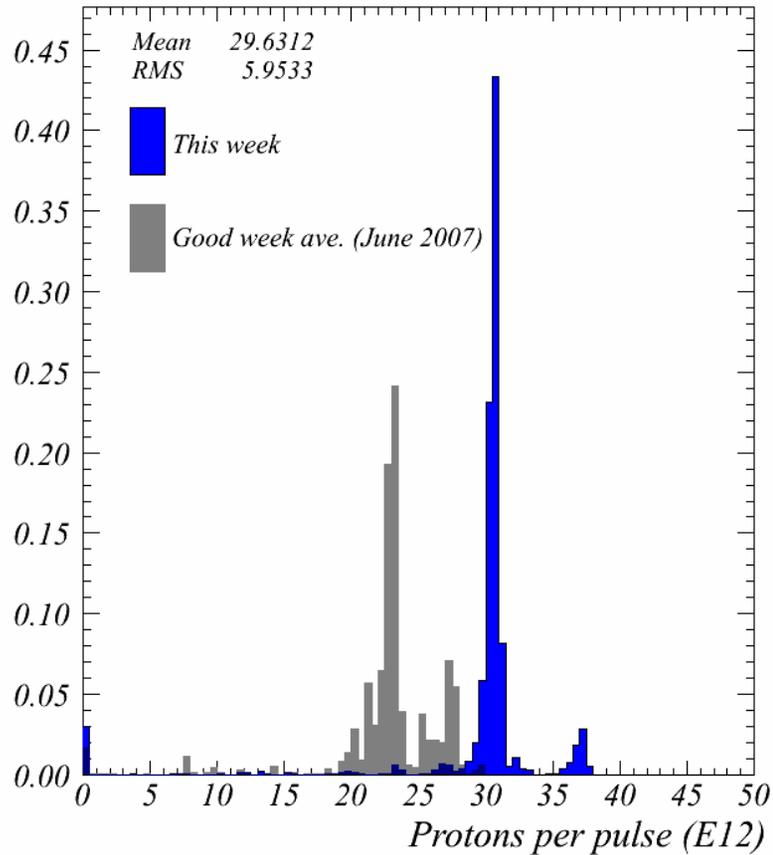
Total NuMI protons to 00:00 Monday 02 June 2008



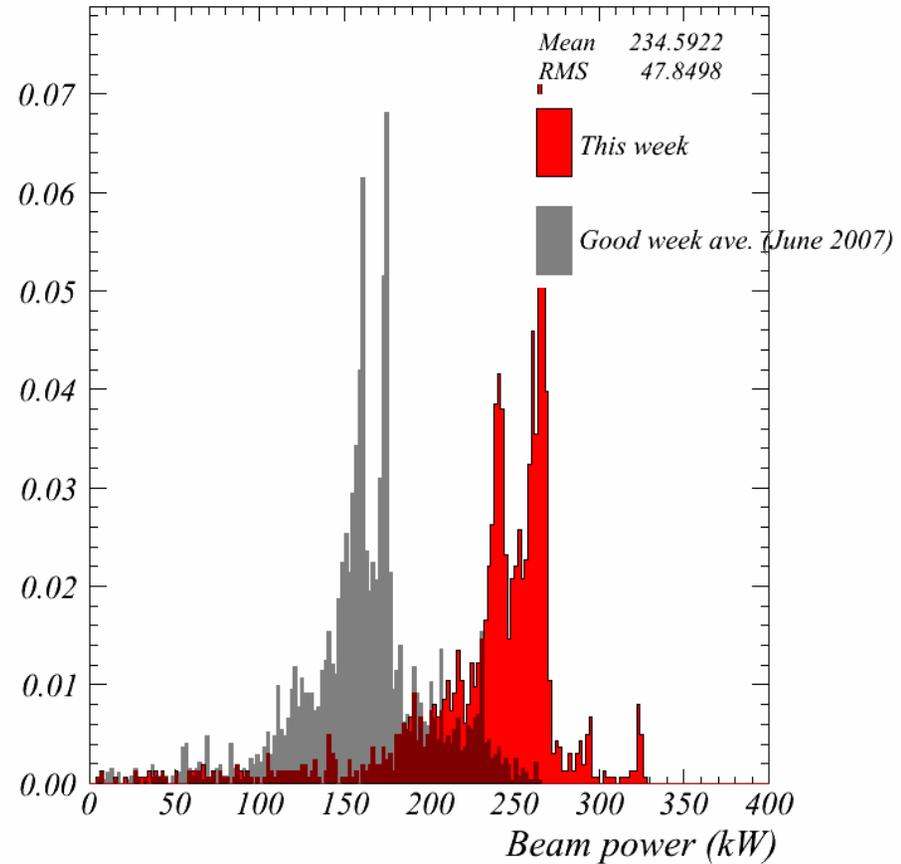


# Protons per pulse, beam power

2 Weeks ending 00:00 Monday 02 June 2008



2 Weeks ending 00:00 Monday 02 June 2008





# Horn 1 suction line failing - similar to previous Horn 2 problem

Ejection pump

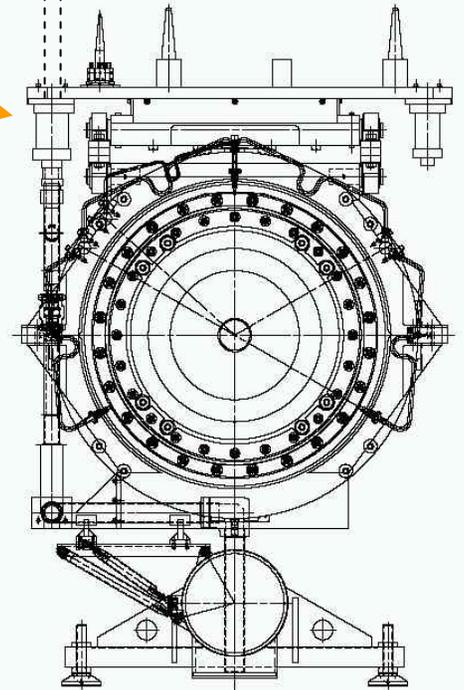
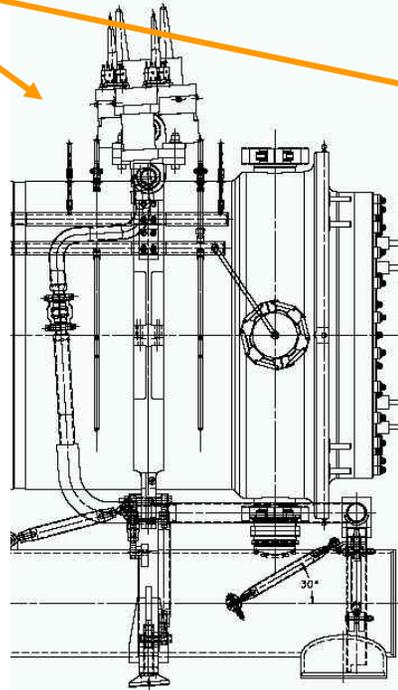
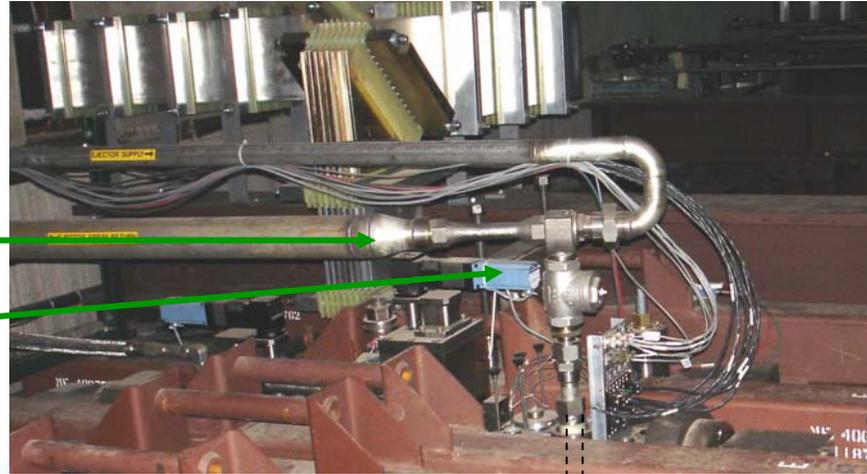
Check valve

Remote swage-lock fitting

Ceramic electrical insulation  
*hole here in suction line  
drawing in air  
reducing water suction*

Flex-hose section  
of suction line

Water collection tank





## Horn 1 suction line failing

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This is the 5<sup>th</sup> ceramic failure.

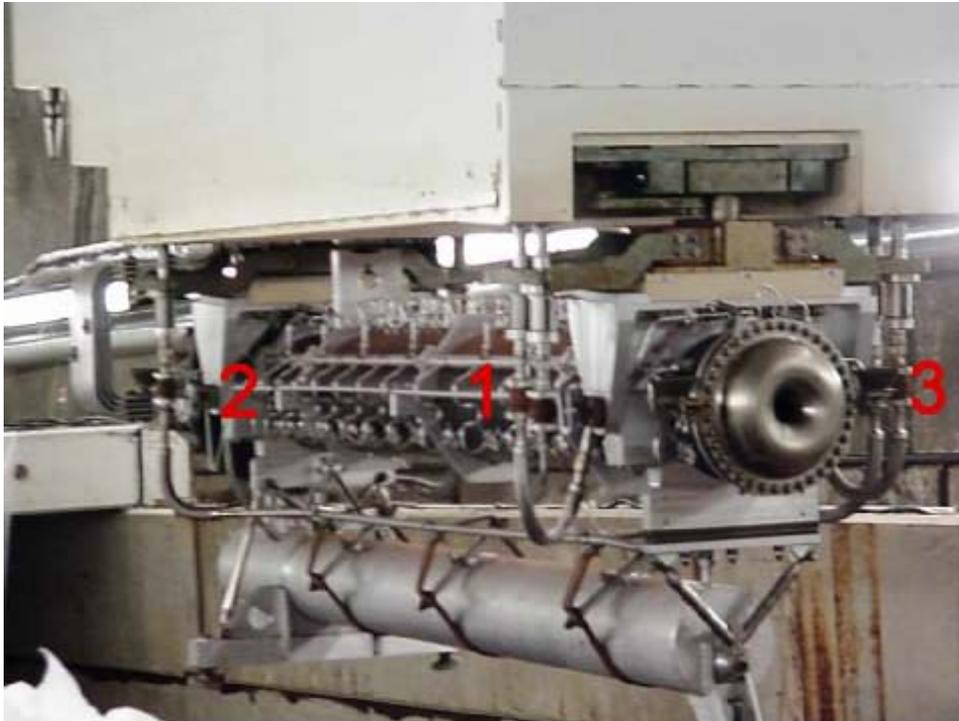
All 4 of the water line ceramics on Horn 2 have been changed to a new style that is not expected to fail.

Horn 1 still has the old style.

Horn 1 spare is being outfitted with all-new style;  
estimated completion June 6, then ready for installation.



# Replace horn rather than repair - but save for offline repair in 2009/2010



Point	Doserate @ 1 foot (mr/hour)	Doserate On Contact (mr/hour)
1	35000	75000
2	40000	75000
3	35000	80000

Horn 1 residual radiation map as of Aug, 2006 - should be higher (x2 ?) now

Previously replaced a ceramic on Horn 1,  
but that was a smaller supply line with compression fittings,  
-- this suction line requires cutting, installation of compression fittings



## Repair estimate

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Have turned down spray rate somewhat keep horn running -  
but problem continues to get worse, expect to stop for repair tomorrow

Time estimate for replacing horn with spare:  
two to five weeks

Horn 1 removal requires retraction of target.  
Last time target was retracted, drive stuck and target had to be replaced.  
(couple weeks work)

Want to use this opportunity to remove 1<sup>st</sup> target from Morgue  
- autopsy to check for radiation damage - are in unexplored territory!  
- make room in Morgue for next dead component  
(extra day or two)

Want to do low-power beam scan of horn with target removed,  
to confirm beam alignment (extra couple days)

Probably will replace stripline-block/remote clamp as well



# Spares status

HORNS	PH1-00	PH1-01	PH1-02	PH1-03	PH1-04	PH1-05	PH2-01	PH2-02	PH2-03	PH2-04
in use	proto	in use	*Need new style ceramic -June'08				in use			
fiducialize (survey)										
instrumentation										
water tank, hangers										
test pulse										
stripline										
water lines, silvering										
I.C.+O.C assem										
O.C. silvered										
O.C. coated										
O.C. welds										
O.C. machined										
O.C. blanks										
I.C. silvered										
I.C. coated										
I.C. welds			7/7	7/7	7/7	6/7		6/6	5/6	
I.C. machined										5/7
I.C. blanks										

Jun '09 700kW 700kW Jun '10 700kW

TARGETS	NT-01	NT-02	NT-03	NT-04
in use	stuck	in use		
fiducialize (survey)				
instrumentation				
hangers				
mount target + baffle				
fab carrier				
fiducialize target				
fab target + baffle				

June '09

Color code  
 broken  
 Used  
 Done  
 In progress  
 to do

Stripline Blocks	Horn 1	Horn 2	Spare	Spare2	Spare3
in use	in use	in use			
ready					
parts in hand					