NuMI / MINOS Status Report

- NuMI horn cooling problem on Friday !
  - Down for probably a couple weeks

- Smooth operation until Friday
  - between 1.4 to 1.8 E13 protons per pulse

- Running with the target at High Energy Position (HE)
  - HE until 15 E18 accumulated POTs, 6.7 E18 so far

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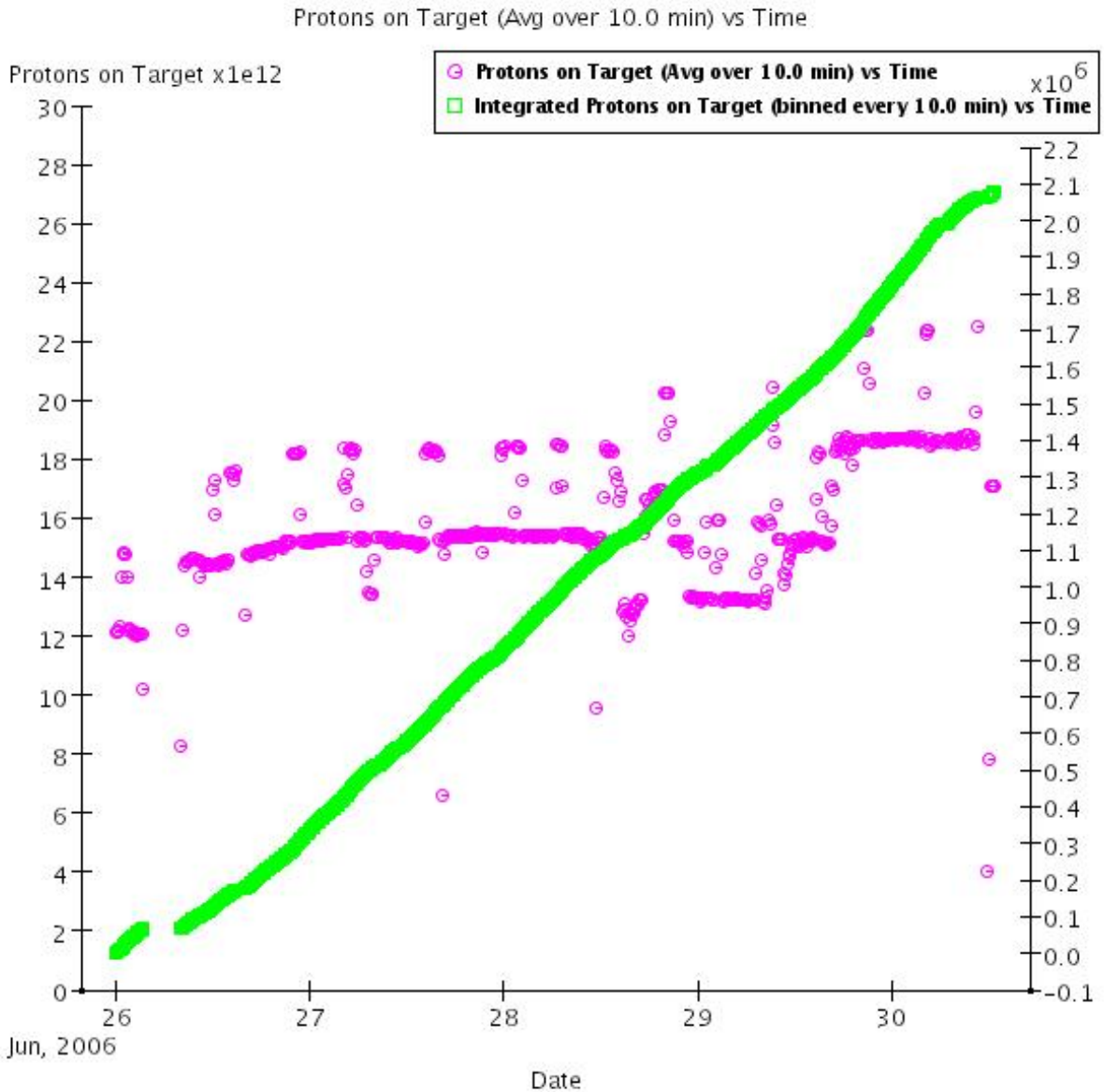

PowerPlot

2.1 E18 Integrated protons on target for the week

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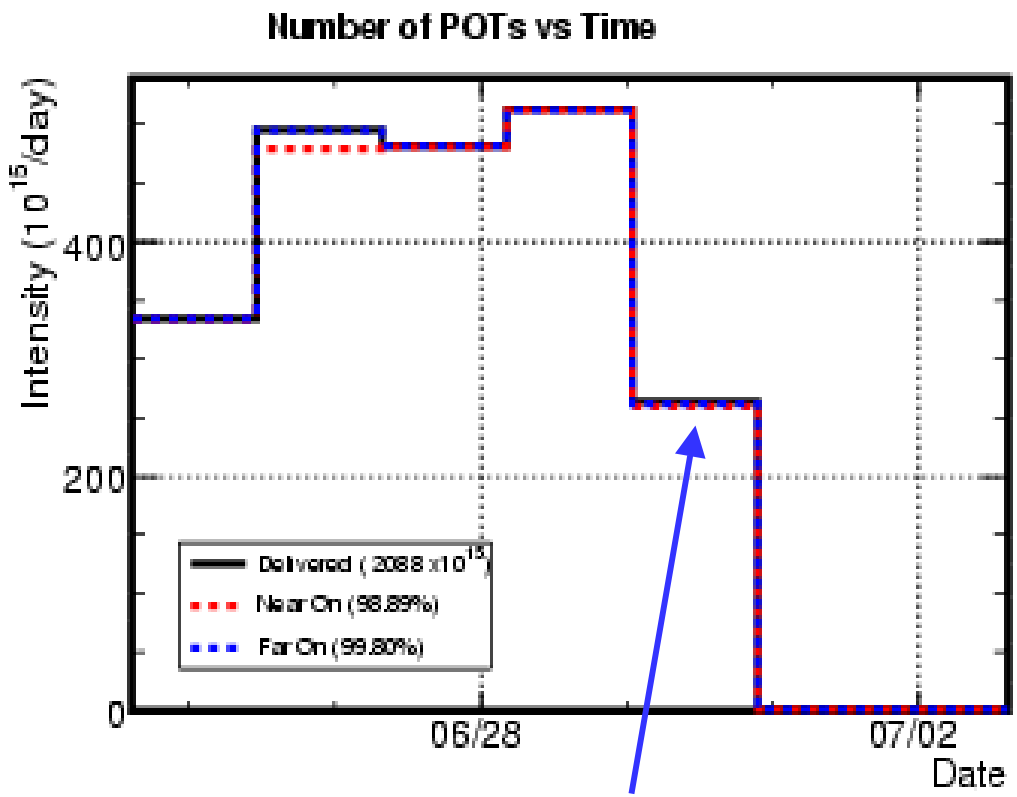
Detector up-time during beam



Beam has been down since Friday afternoon

Overall high up-time for both detectors

Near Detector short down time :
to check on electronics stability vs temperature
→ No problem found

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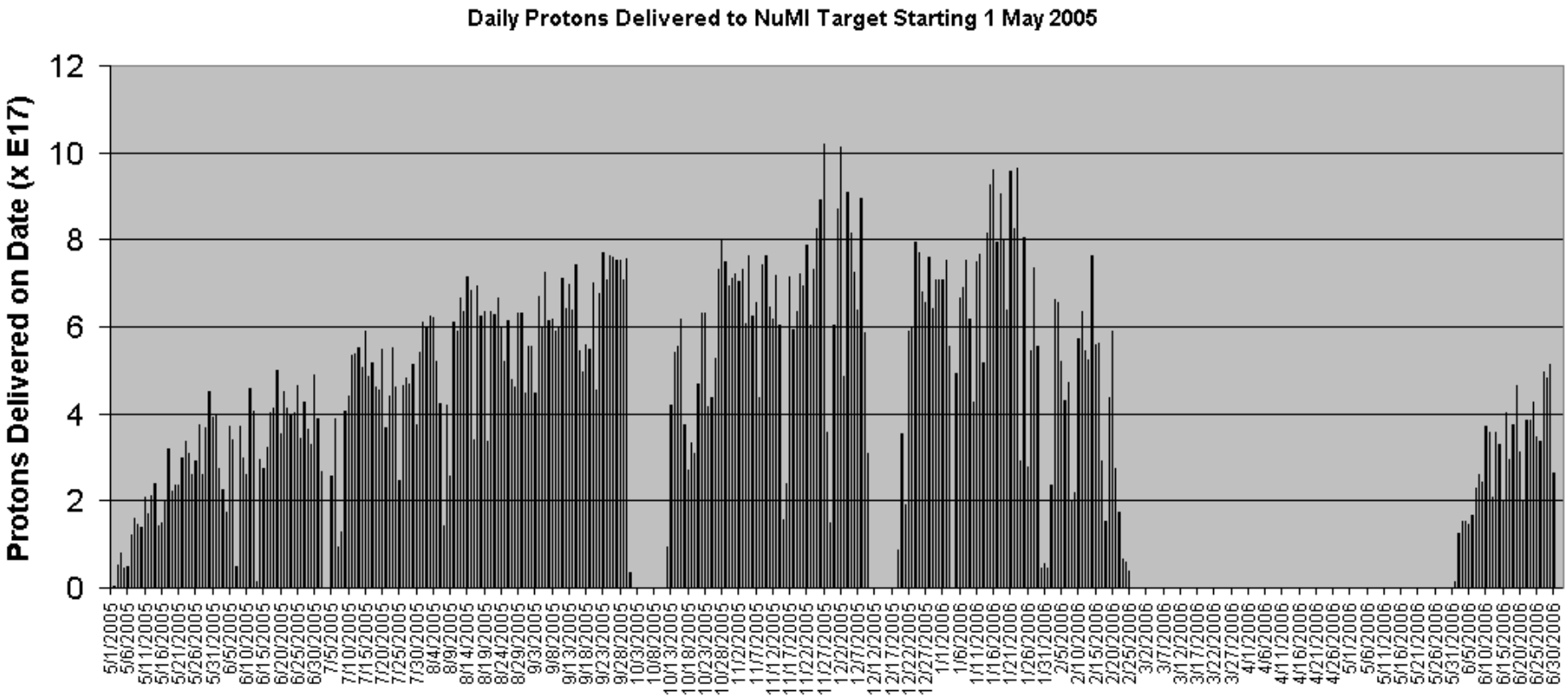
Protons delivered per day



Total since May 2005: 1.49 E20 pot

(1.39 E20 delivered through May 2006)

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Had been having problem with water collecting in tank under horn 1, instead of coming back to surge tank, and had more than normal amount of water in system.

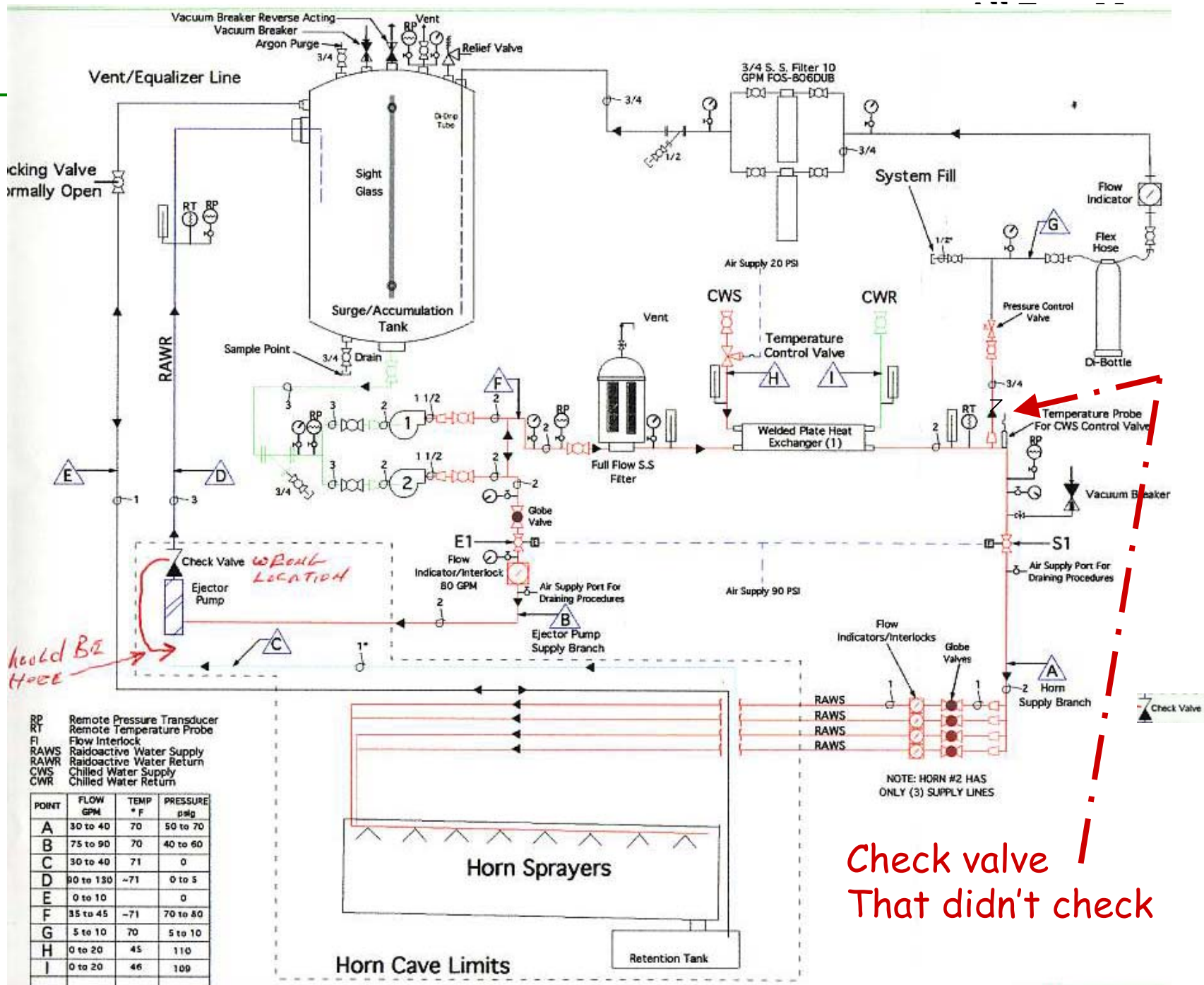
On Friday, tried to drain some water out of the surge tank, hoping that would allow more water to come back from horn collection tank.

Techs turned off the supply line to horn spray, letting ejector pump continue to take water out of horn collection tank. This also cut off pressure to the D.I bottle loop that cleans water, keeping resistivity high.

Tiny overpressure in the surge tank drove water backwards through the D.I. Loop, pushing resin beads into the supply line to the horn.

When horn supply line was turned back on, resin beads got into the horn supply line, and spray lines are now clogged.

Preliminary determination is that check valve that should have prevented this only works if mounted horizontally, and it was mounted vertically. Also, spring-loaded check valve would have made more sense.



POINT	FLOW GPM	TEMP °F	PRESSURE psig
A	30 to 40	70	50 to 70
B	75 to 90	70	40 to 60
C	30 to 40	71	0
D	90 to 130	~71	0 to 5
E	0 to 10		0
F	35 to 45	~71	70 to 80
G	5 to 10	70	5 to 10
H	0 to 20	45	110
I	0 to 20	46	109

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<u>Modifications for Prevention of Re-occurence:</u>

Install different check valve
Add filter, in case check valve fails
Add delta-pressure sensor across filters

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Clean-up of RAW skid is fairly straight-forward.

Horn is too radio-activated to manually clean or replace spray nozzles.

Over weekend, tried test of pushing resin beads out of spare nozzles by back-pressure with water, with reasonable success.

Today/tomorrow, are trying test-bench test of vacuuming beads out with air pressure instead of water. This is preferable to the water method if it works.

Wednesday, will remove target pile shielding so we can start work on the horn.

If horn clean-up works smoothly, estimate ~ 2 weeks downtime.

If horn clean-up fails, need to replace horn.

A horn change-out takes ~ 1 week, but spare not ready for at least 8 weeks.