

Fermilab accelerator operations summary for FY18 – Q3

4/2/2018 – 7/2/2018

Executive Summary:

During the reporting period beam was delivered to the NuMI target for NOvA, and MINERvA data taking. Beam was also delivered to Switchyard 120 to support a program of test beam experiments at the Fermilab Test Beam Facility (FTBF), to the BNB target for MicroBooNE data taking, and to the Muon g-2 beamline and storage ring.

During the quarter there were periods of scheduled and unscheduled downtime. During the full reporting period, 2.35×10^{20} protons were delivered on target for NuMI, 1.11×10^{20} protons were delivered on the BNB target. The Muon g-2 experiment took physics data for the full quarter. 0.477×10^{20} protons were delivered for the muon program.

More detailed information is available in presentations at the weekly All Experimenters' Meetings. See reports on the web at

http://www.fnal.gov/directorate/program_planning/all_experimenter_meetings/index.html

Status and Plans:

For the quarter, beam was delivered to the NuMI target primarily using Recycler slip-stacking. NuMI target power was consistently above 640 kW while operating the SY120 program.

Beam delivery to the Booster Neutrino Beamline for MicroBooNE was stable, with minor interruptions.

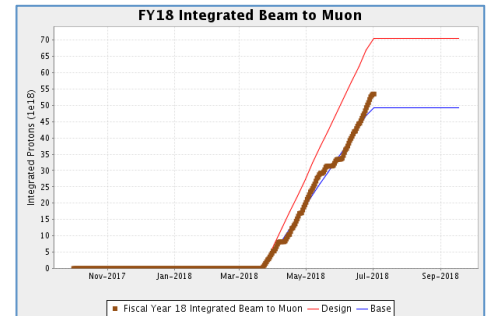
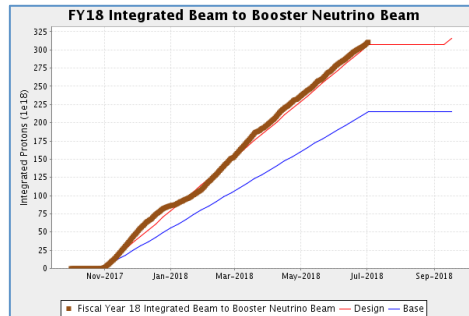
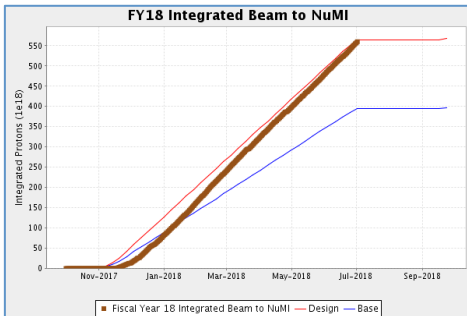
Beam delivery to G-2 was interrupted for several days due to a collection lens septum breach, on April 6. The experiment was also plagued with several bouts of kicker problem during the quarter. Otherwise beam delivery was consistent.

The notable events for the quarter:

- June 11, 2018: new Booster record of 2.56×10^{17} protons per hour
- April 6 – 11, 2018: Muon Collection lens replaced.

Performance

	Metric	Achieved
Average protons on NuMI target per week	-	1.80×10^{19}
Integrated POT for NuMI for period	1.76×10^{20}	2.35×10^{20}
FY18 integrated POT for NuMI to date	4.51×10^{20}	5.60×10^{20}
FY17a actual NuMI uptime to date (hours)	-	4870.9
Percent Uptime (Recorded/Scheduled FY18)	-	92.0%
Average protons on BNB target per week	-	8.52×10^{18}
Integrated POT for BNB for period	0.91×10^{20}	1.11×10^{20}
FY18 integrated POT for BNB to date	2.42×10^{20}	3.11×10^{20}
FY18 actual BNB uptime to date (hours)	-	5307.6
Percent Uptime (Recorded/Scheduled FY18)	-	92.0%
Average protons on Muon g-2 target per week	-	3.59×10^{18}
Integrated POT for g-2 for period	0.52×10^{20}	0.477×10^{20}
FY18 integrated POT for g-2 to date	1.28×10^{20}	0.62×10^{20}
FY18 actual g-2 uptime to date (hours)	-	3437.0
Percent Uptime (Recorded/Scheduled FY18)	-	63.0%



Notes

- 1) "Metric" corresponds to the projected expected Protons-on-Target. The "Design" and "Base" profiles are respectively 125% and 87.5% of the "Metric" profile. The numbers quoted correspond to the proposed FY18 metric.
- 2) "Achieved" corresponds to the performance during the reporting period.
- 3) Percent uptime (actual/scheduled) since October 2017.

