

Fermilab accelerator operations summary for FY17 – Q2

1/2/2017 – 4/3/2017

Executive Summary:

During the reporting period beam was delivered to the NuMI target for NOvA, MINOS+ and MINERvA data taking. Beam was also delivered to Switchyard 120 for SeaQuest and to support a program of test beam experiments at the Fermilab Test Beam Facility (FTBF), and to the BNB target for MicroBooNE data taking.

During the quarter there were periods of scheduled and unscheduled downtime. During the full reporting period, 2.21×10^{20} protons were delivered on target for NuMI and 8.39×10^{19} protons were delivered on the BNB target.

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_experimenters_meetings/index.html

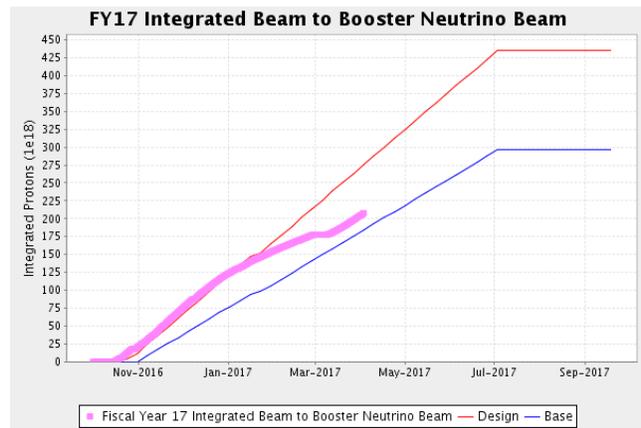
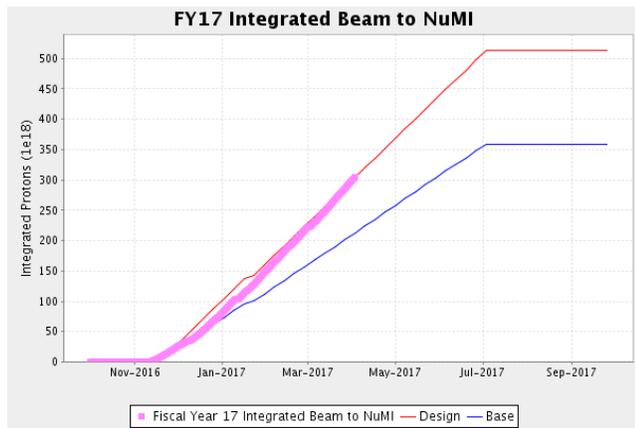
Status and Plans:

The quarter started with NuMI and BNB receiving beam. The Fixed Target program was on hold until January 11th when the failed MI52 extraction septa was replaced. Slip stacking continued to be part of normal NuMI operation, and our power on target steadily increased, hitting a new one hour power on target record of 715.88 kW on January 25th. By the end of March we were steadily delivering 641 kW to NuMI with Switchyard operating and maintaining above 5.4×10^{16} protons on target to BNB. The quarter included such notable events as:

- MI-52 septa replaced
- The new Marx Modulator was tested with beam operation on Linac station LRF5.
- Set new 1 hour NuMI target power record of 715.88 kW on 1/25.
- Switched NuMI Horn polarity for antineutrino operations, Monday, Feb 20th.
- BNB Spare Horn testing occurred from February 27th to March 8th
- New Booster 2.7×10^{17} protons/hour shielding assessment implemented
- Completed load transfers to the Master Substation by March 1st
 - Replacement of the Fermilab Master Substation and support infrastructure began in September 2015, and is now complete.
- 691 kW with Switchyard operation
- Booster reached 2.03×10^{17} protons/hour on Monday, March 20th.

Performance

	Metric	Achieved
Average protons on NuMI target per week	-	1.70×10^{19}
Integrated POT for NuMI for period	1.58×10^{20}	2.21×10^{20}
FY17 integrated POT for NuMI to date	2.38×10^{20}	3.05×10^{20}
FY17 actual NuMI uptime to date (hours)	-	2946.80
Percent Uptime (Recorded/Scheduled FY17)	-	88.0%
Average protons on BNB target per week	-	6.45×10^{18}
Integrated POT for BNB for period	1.21×10^{20}	8.39×10^{19}
FY17 integrated POT for BNB to date	2.06×10^{19}	2.11×10^{20}
FY17 actual BNB uptime to date (hours)	-	3466.24
Percent Uptime (Recorded/Scheduled FY17)	-	94.0%



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 FY17 metric.
- 2) "Achieved" corresponds to the performance during the reporting period.
- 3) Percent uptime (actual/scheduled) since October 2016.