

2007 Summary of Protons-on-Target (POT) accumulated by MINOS

Mary Bishai¹, Brett Viren¹

¹ *Brookhaven National Lab*

1 Integrated POT 2005-2007

The BeamData Process (BDP) records the MINOS beamline data from > 300 devices every time an A9 TCLK event is detected. The beam timestamps are determined using the frontend timestamps in the SWIC VME crates used for the profile, muon and hadron monitors. The data is saved on disk in 8 hr files which are then used to fill the BEAMMONSPILL table in the MINOS database. The integrated POT, start/end times, and number of spills *as recorded by the BDP* for various beam running conditions are listed in Table 1 for the period from Feb 2005 to July 17, 2007. Please note that the ND DAQ gets a separate A9 hardwired trigger and therefore there will be some small differences between ND/FD recorded spills and the number of spills recorded by the BDP due to small inefficiencies in BDP, ACNET readout problems, spill server inefficiencies...etc. Earlier studies (see NuMI-NOTE 1491) indicate that the number of ND spills matched with BDP spills is $\geq 97\%$. The start and stop timestamps for different running periods should be accurate within 1-2 spills (approx 2-4 seconds).

Table 1: Summary of different NuMI beam running conditions Feb, 2005 through July, 2007. These are for planned changes, unplanned changes in beam conditions such as horn current trips are not indicated in this list. Times are GMT. POT have calibrations applied. *Throw away spills with $< 0.1E12$ to exclude noise/pedestals. **Variation in toroid readouts.

Target	Target location	Horn current	Start time	End time	POT*	# Spills
1	-100 cm	-200 kA	2005-02-01	2005-02-27 21:30:50	2.39-3.10 E16	**
1	-250 cm	-200 kA	2005-02-27 21:43:35	2005-03-04 01:22:05	3.57-3.66 E15	**
1	-100 cm	-200 kA	2005-03-04 01:32:18	2005-03-07 23:52:44	5.73-5.84 E15	**
1	0 cm	-200 kA	2005-03-08 23:16:23	2005-03-23	6.68-6.83 E17	**
1	-100 cm	-200 kA	2005-04-30 20:19:37	2005-05-12 19:53:03	1.168 E18	
1	-250 cm	-200 kA	2005-05-12 22:37:18	2005-05-20 16:00:21	1.596 E18	
1	-10 cm	-185 kA	2005-05-20 19:44:16	2005-07-29 17:54:28	2.519 E19	
1	-10 cm	-170 kA	2005-07-29 17:58:06	2005-08-01 18:58:08	1.466 E18	
1	-10 cm	-200 kA	2005-08-01 19:01:30	2005-08-03 23:44:34	1.366 E18	
1	-10 cm	-185 kA	2005-08-03 23:46:43	2006-02-10 21:03:43	1.016 E20	
1	-10 cm	0 kA	2006-02-10 21:05:43	2006-02-15 13:37:04	2.915 E18	
1	-10 cm	-185 kA	2006-02-15 18:05:02	2006-02-25 23:02:59	2.949 E18	
Sub total			2005-02-01	2006-02-25 23:02:59	1.390 E20	
1	-150cm	-200kA	2006-06-01 22:58:47	2006-06-11 17:39:53	2.003 E18	
1	-250cm	-200kA	2006-06-11 17:47:03	2006-08-13 22:59:34	1.601 E19	
2	-9 cm (?)	-185 kA	2006-09-11 20:36:59	2007-07-17 21:23:03	1.953E20	
Sub total			2006-06-01 22:58:47	2007-07-17 21:23:03	2.13E20	