Machine and Run Status

Daniel Cebra
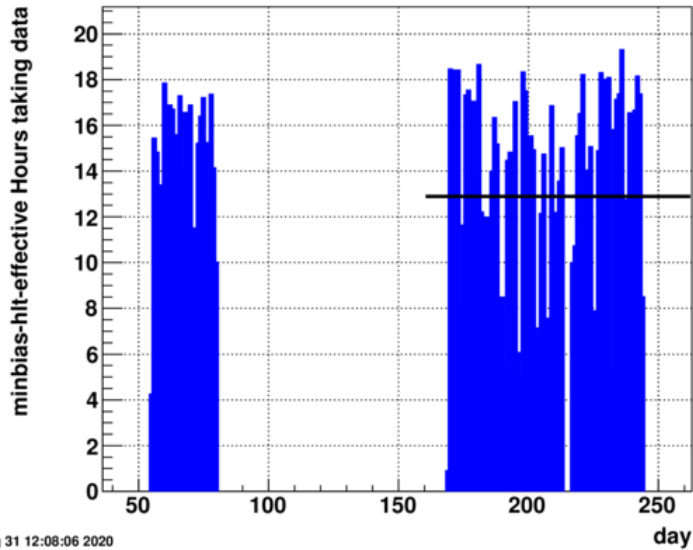
11-September-2020

Run 2020(b)

- **9.2 GeV collisions**
  - **26.5 GeV FXT**
- **7.7 GeV Collisions**

9.2 GeV collisions Run Overview

hours_perday_mb_hlt-effective.txt

Mon Aug 31 12:08:06 2020

minbias-hlt-effective Average Rate [Hz]
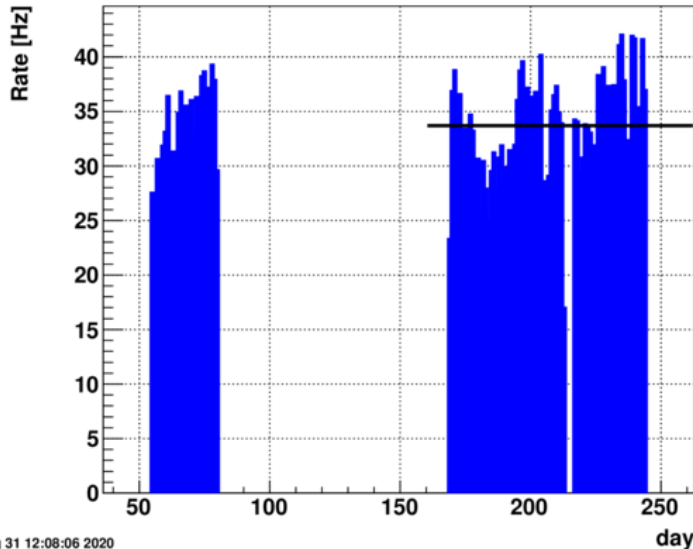
Mon Aug 31 12:08:06 2020

- Average hours per day was 13 (Expected 14)
- HLTgood average event rate was 33 Hz (Expected 33-53)
- Final total for the dataset: 161.8 M (Goal: 160 M)
- Took 102 days to achieve goals (Expected 60-98)
- Major issues through the run were summer running conditions and time sharing with CEC

minbias-hlt-effective

Mon Aug 31 12:03:20 2020

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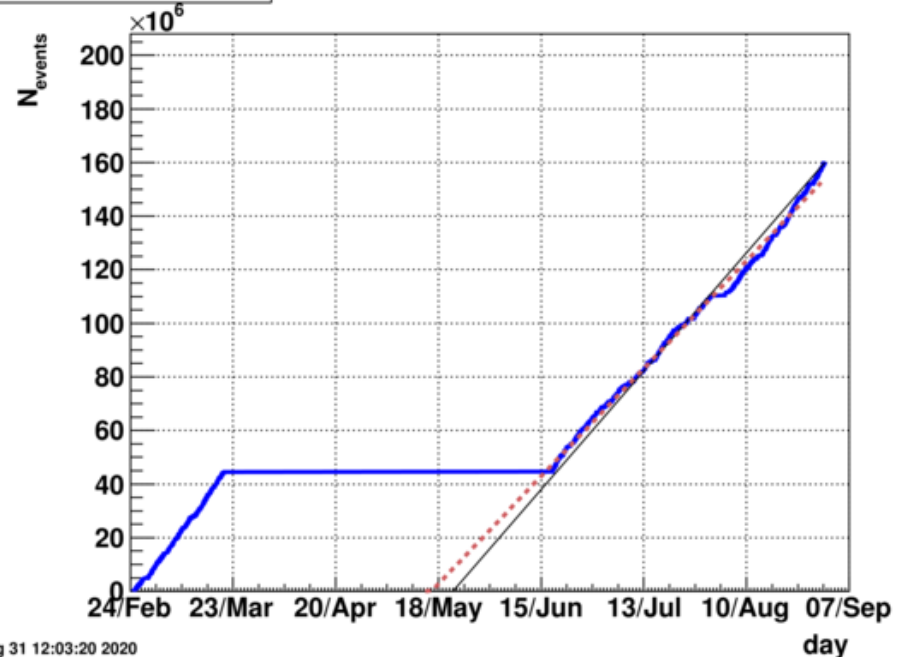
September 2nd – 14th

Schedule for final phase of RHIC operations (Could be somewhat fluid)

Tuesday June 01st – 9.2 GeV complete (160 M) – Ended 9.2 GeV operations at 8AM

Wednesday to Friday – Turn up LEReC for 7.7 GeV Collisions (rates improved over these days)

Saturday, Sunday, and Monday – Data were taken through 9AM Monday morning

Monday to Wednesday 8AM – CEC time (will got some 26.5 GeV FXT)

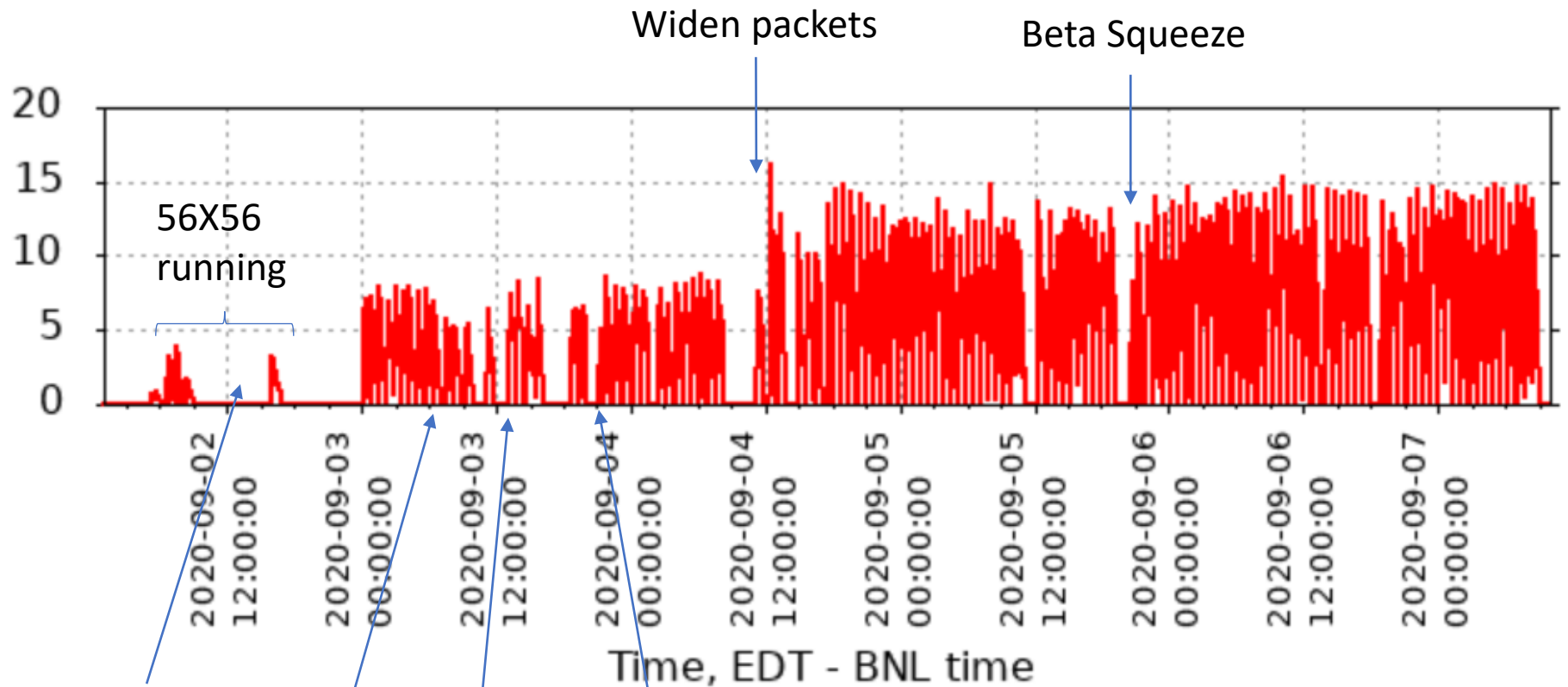Wednesday – LEReC tests, Collider tries lower working point

Thursday – Back to CeC

Friday – More machine development

Weekend – Back to CeC

Monday September 14th – End of beam operations.
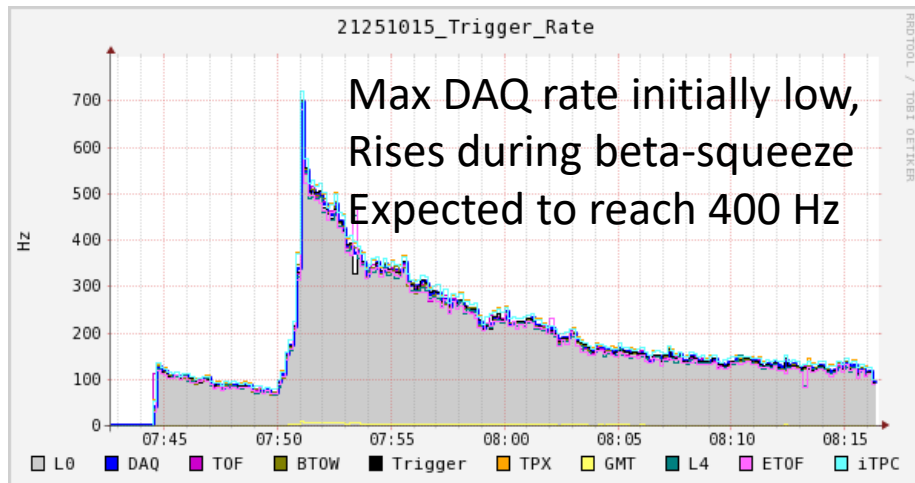
7.7 GeV Collider Running (Last Wednesday – Monday)

Widen packets

Beta Squeeze

56X56 running

First run: 21246010

Switch from EBIS to Tandem: 21247009

Global timing change: 21247014

MCR shifted the vertex Z: 21247034-35

Time, EDT - BNL time

HLT good (70cm vtx) ⎯⎯⎯

Intensities reached 85E9;
Almost twice that achieved in 2010 7.7 GeV run
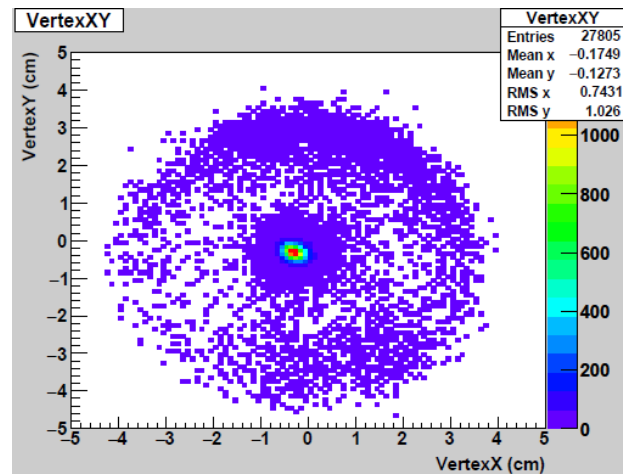
Fill Length: 30 minutes (as expected)

21251015_Trigger_Rate

Max DAQ rate initially low,
Rises during beta-squeeze
Expected to reach 400 Hz

□ L0 ■ DAQ ■ TOF ■ BTOW ■ Trigger ■ TPX ■ GMT ■ L4 ■ ETOF ■ iTPC

Time, EDT - BNL time
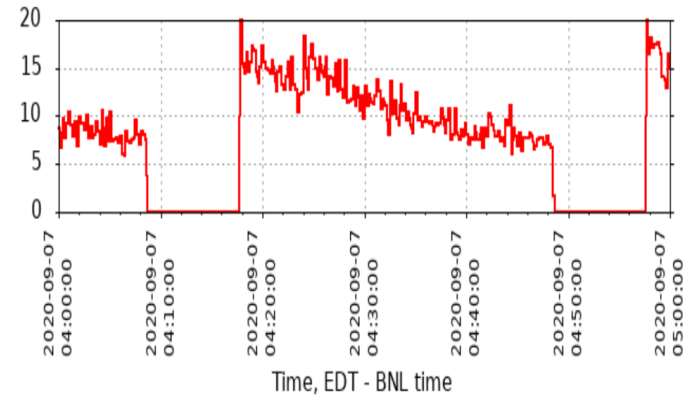
Average HLTgood rate: 16 Hz
(want this to be 16-24 Hz)

Vertez Z look OK

Vertex XY look clean

VertexZ

VertexZ	
Entries	27805
Mean	-2.357
RMS	107.2

VertexZ (cm)

VertexXY

VertexXY	
Entries	27805
Mean x	-0.1749
Mean y	-0.1273
RMS x	0.7431
RMS y	1.026
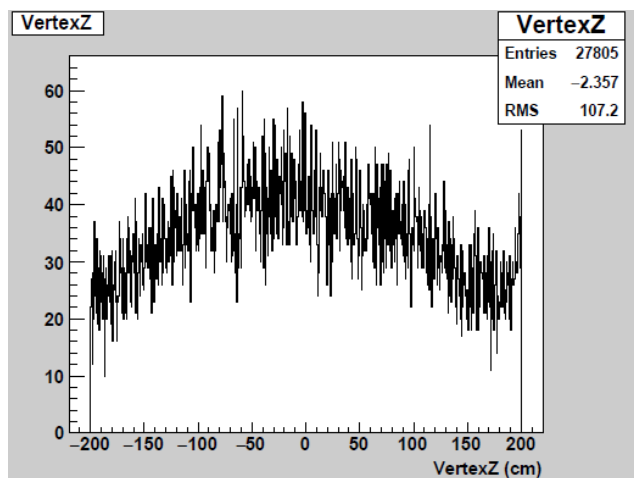
VertexX (cm)

HLTgoodeffective
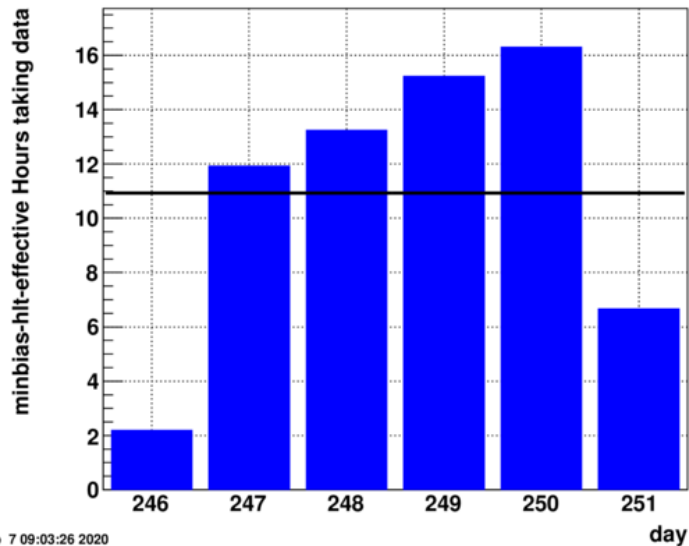fraction is 20%,
(as expected)
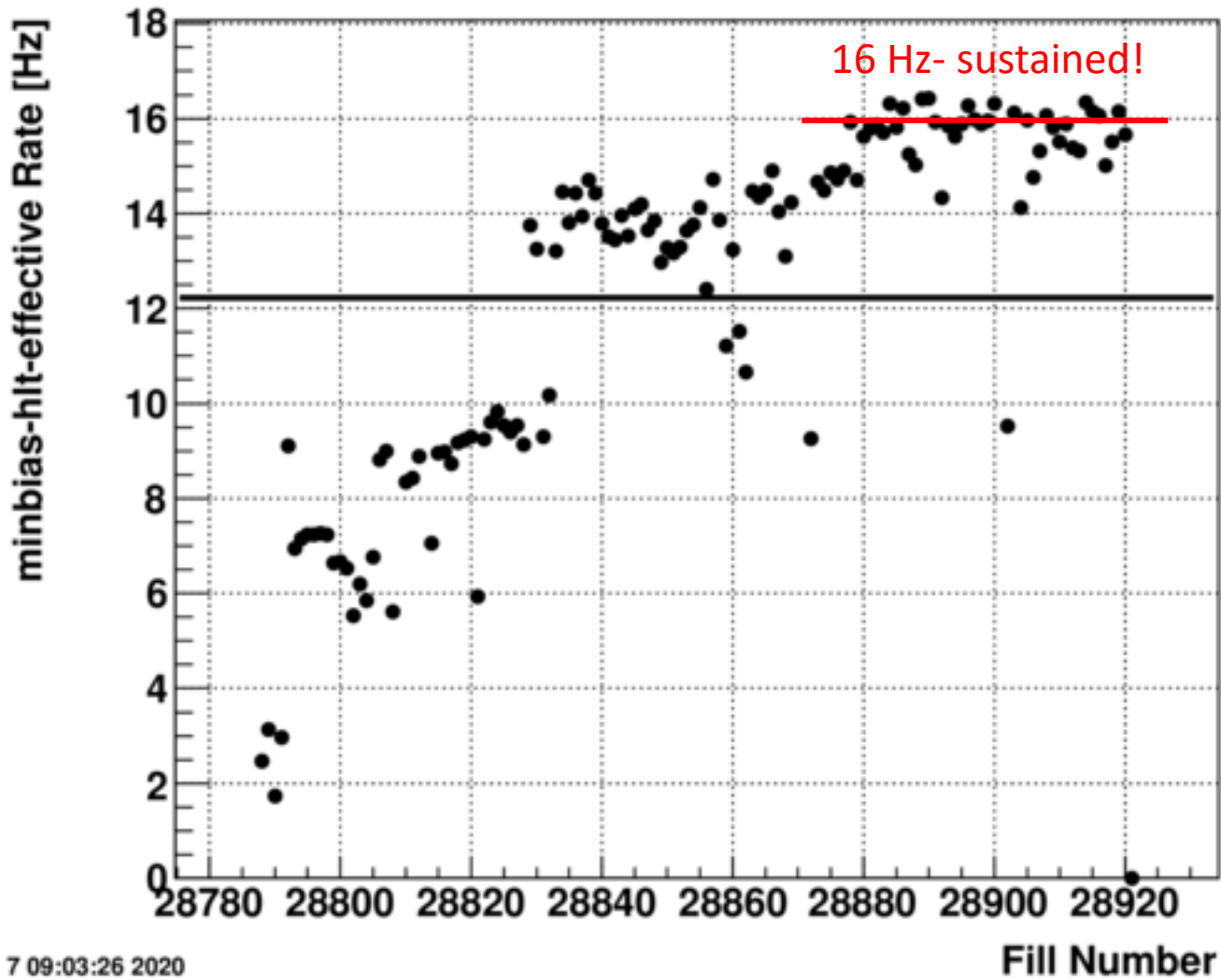
5

nev_rate_perfill_mb_hlt-effective.txt

16 Hz- sustained!

Mon Sep 7 09:03:26 2020

6

7.7 GeV collisions Run Overview

hours_perday_mb_hlt-effective.txt

Mon Sep 7 09:03:26 2020

minbias-hlt-effective Average Rate [Hz]

Mon Sep 7 09:03:26 2020
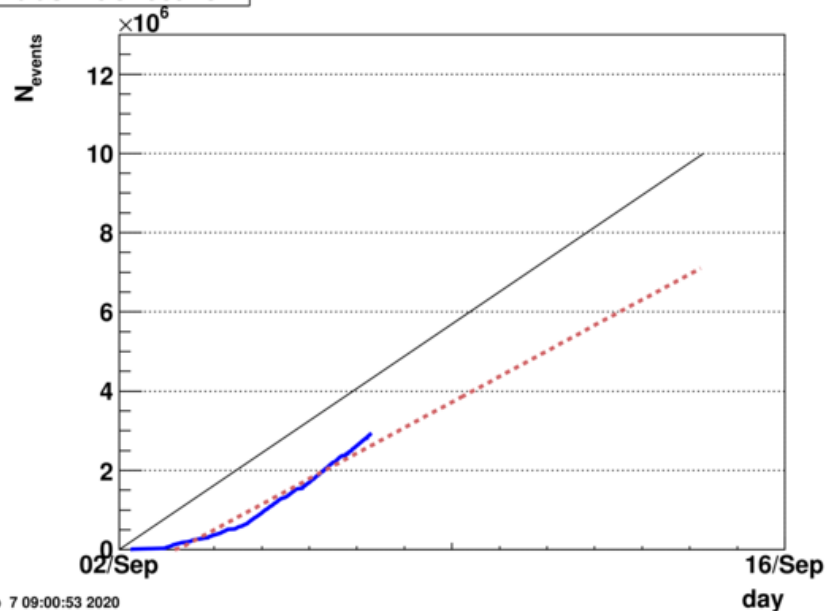
- Average hours per day was 15 over the weekend

- HLTgood average event rate achieved was 16 Hz

- Final total for the dataset: 2.94 M

minbias-hlt-effective

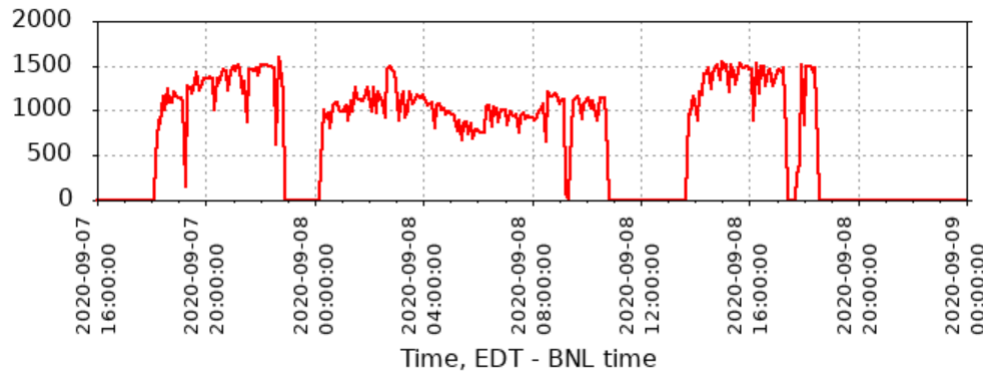Mon Sep 7 09:00:53 2020

7
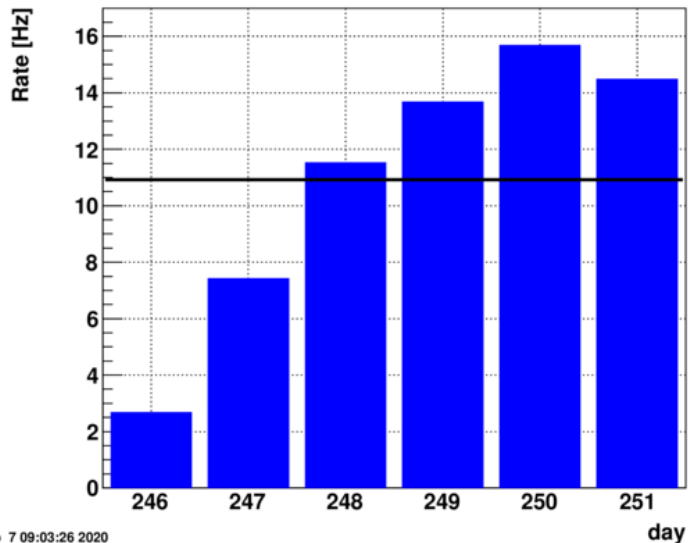
FXT running during CEC

Parasitic running during CeC time with FXT at 26.5 (7.2) GeV

➔ Previously: 69.6 M (24 runs)

➔ CEC this week Monday 9AM through Tuesday Evening ➔ 92 M HLTgood
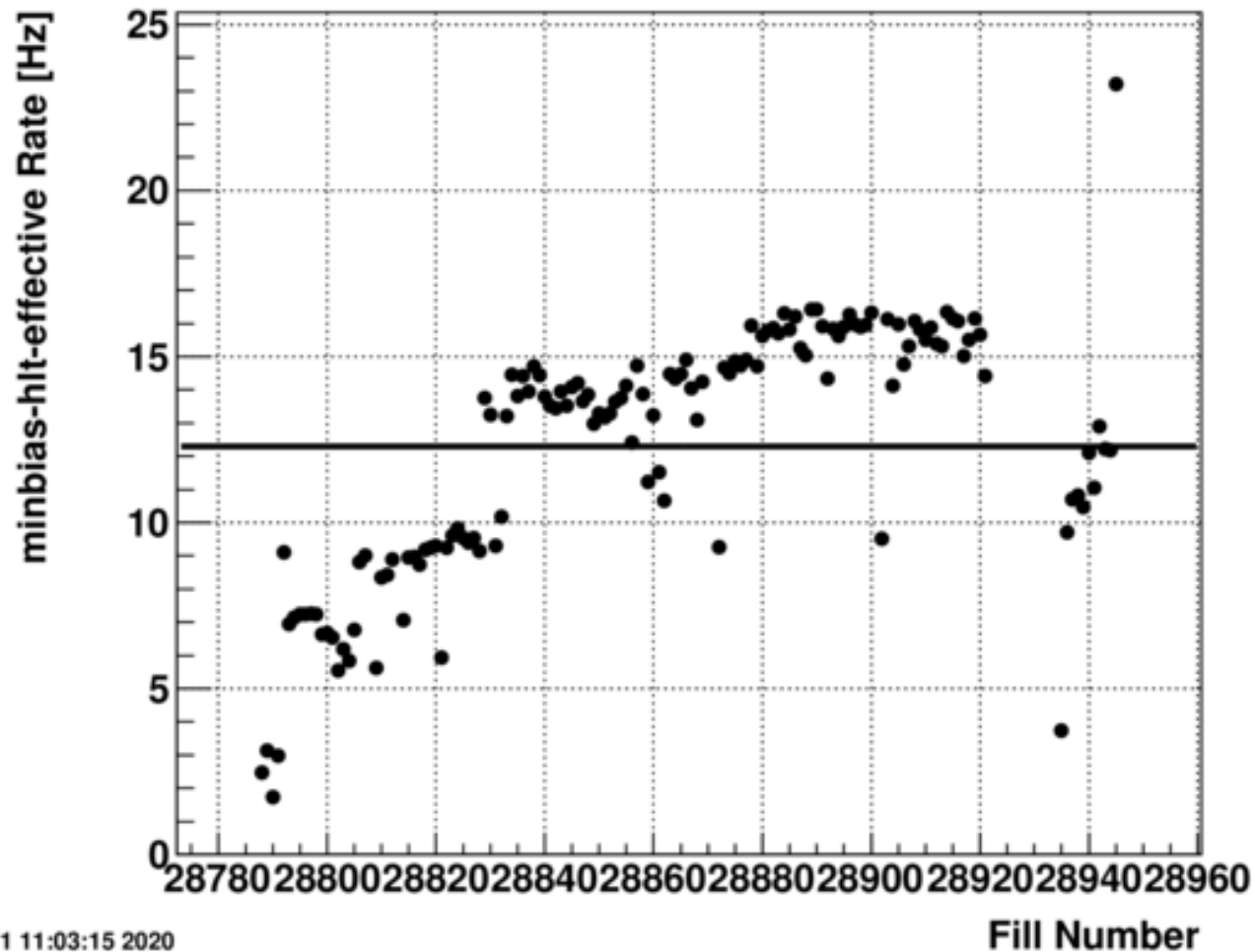

15 runs

Physics topics:
- H4L – 300-500 M
- Ω baryons yields – 300 M
- Global Lambda polarization – 300-500 M
- ϕ meson flow – 150 M

Thursday overnight – 12 more runs at 7.7 GeV collider

Exploring lower tunes

nev_rate_perfill_mb_hlt-effective.txt

Fri Sep 11 11:03:15 2020

Summary

- 9.2 GeV completed at 8AM Tuesday September 1st.

- 7.7 GeV test run was completed Monday morning. We met the event rate and hours per day goals for this test run. Accumulated 2.94 M HLTgood events.

- Accumulated additional 93 M FXT event at 26.5 (7.2) GeV Monday and Tuesday. Total of 162 M to date.

- Tried lower tune for 7.7 GeV collisions on Thursday morning.

- Now back to CeC, hoping for more 26.5 GeV FXT over the weekend.

- Run ends Monday morning.

Overall Run Status

Energy	Start	Finish	First Run	Last Run	HLTgood	Target
11.5 GeV	Dec 10th	Feb 24th	20056032	21055017	235 M	230 M
31.2 FXT	Jan 28th	Jan 29th	21028011	21029037	112.5 M	100 M
9.8 FXT	Jan29th	Feb 1st	21029051	21032016	108 M	100 M
19.5 FXT	Feb 1st	Feb 2nd	21032049	21033017	118 M	100 M
13.5 FXT	Feb 2nd	Feb 3rd	21033026	21034013	103 M	100 M
7.3 FXT	Feb 4th	Feb 5th	21035003	21036013	117 M	100 M
5.75 FXT	Feb 13th	Feb 14th	21044023	21045011	115.6 M	100 M
9.2 GeV	Feb 24th	Sep 1st	21055032	21245010	161.8 M	160 M
7.2 FXT	July 29th	TBD	21211028	TBD	162.4 M	none
7.7 GeV	Sep 2nd	Sep 7th	21246012	21251016	2.94 M	none

Energy	HLTgood w/ eTOF	Minimum w/ eTOF
31.2 FXT	101.7 M	100 M
19.5 FXT	80.4 M	80 M
13.5 FXT	88.9 M	70 M
9.8 FXT	72.7 M	65 M

9.2 GeV collisions Run Status

*Main breaks for the past week came from failures and CEC timesharing*
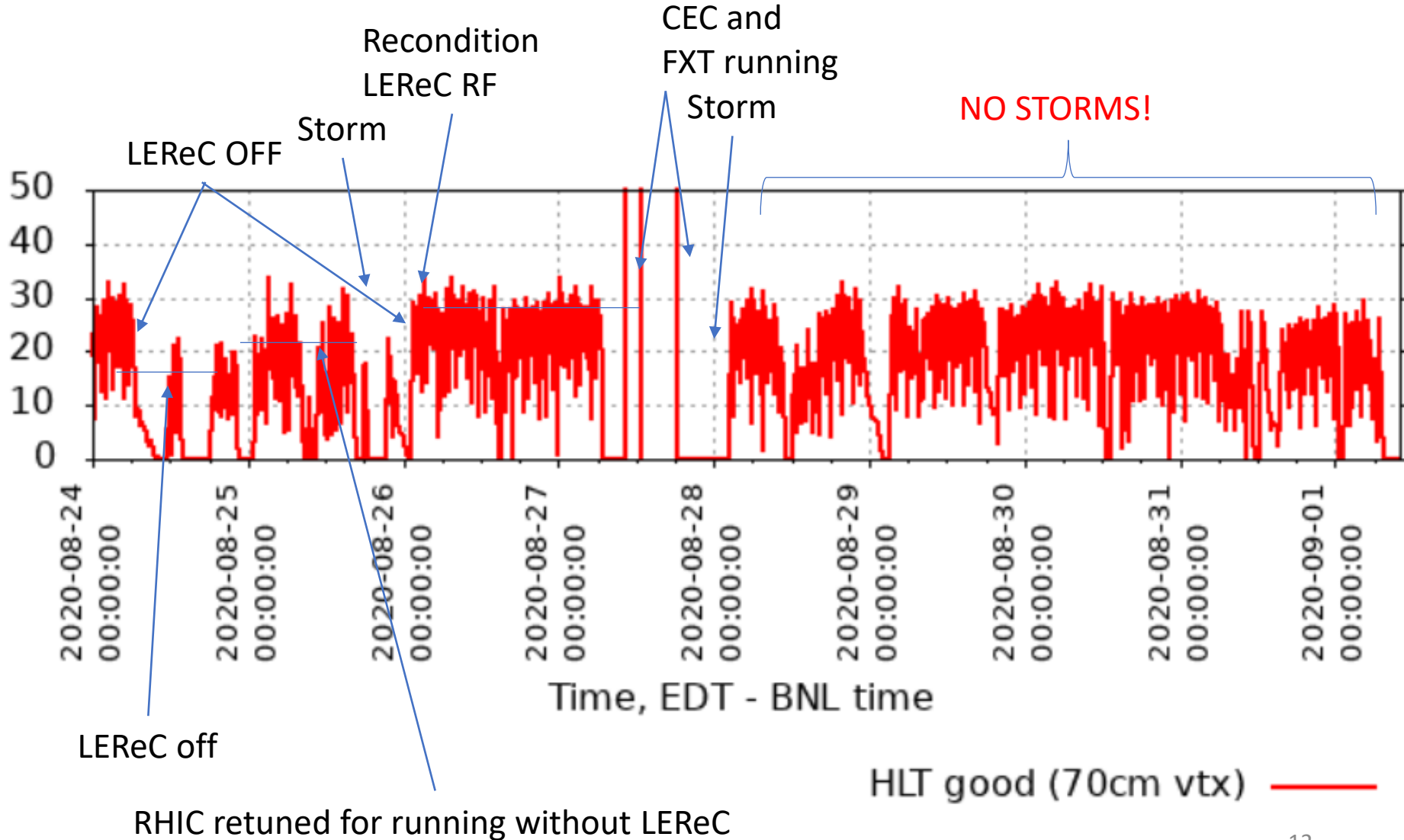
Review of the Past Week

Day	Hours of data taking	Number HLTgood Events	Issues	Hours down
Tuesday, Aug 25	12.7	1.48 M	Storms and Injectors	4
Wednesday, Aug 26	16.6	2.51 M		
Thursday, Aug 27	5.7	0.85 M	CEC (with FXT), storm	16
Friday, Aug 28	16.7	2.10 M		
Saturday, Aug 29	18.2	2.32 M		
Sunday, Aug 30	17.4	2.61 M		
Monday, Aug 31	18.7	2.27 M		
Tuesday, Sep 01	4.5	0.57 M		

Excellent week of running.

9.2 GeV collisions Run Status

hours_perday_mb_hlt-effective.txt

Mon Aug 31 12:08:06 2020

minbias-hlt-effective Average Rate [Hz]

Mon Aug 31 12:08:06 2020
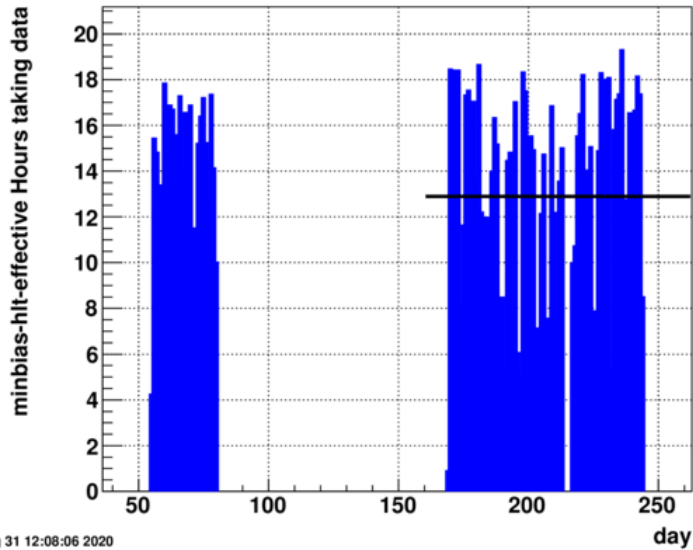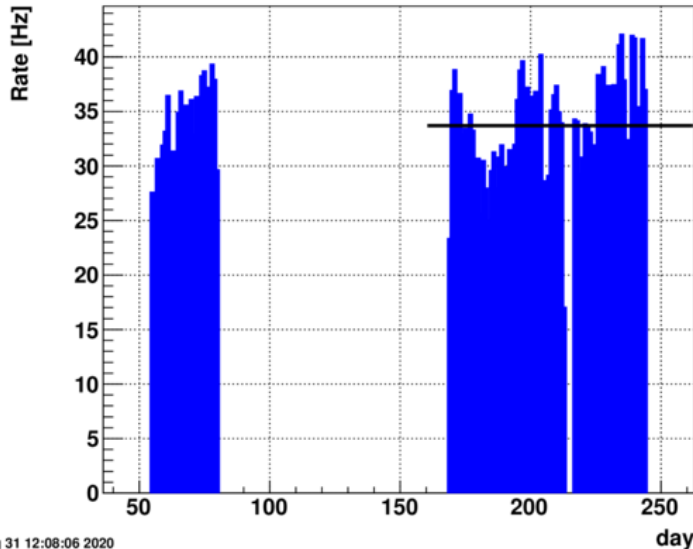
- Last week, average hours per day was 14.3.

- HLTgood average event rate has been up. Finished with several days in the lower 40's

- Currently 161.8 M, Dataset completed!

minbias-hlt-effective

Mon Aug 31 12:03:20 2020

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