

RHIC Run 23 Report

T Shrey for C-AD
RHIC/AGS Users Meeting
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Running Mode

- Au-Au (100 GeV beam energy)
 - > 20 weeks
- STAR (IR6) operating with 1 mrad DX angle
- sPHENIX (IR8) operating with variable DX angle

Injectors

- Upgrade of EBIS (+40% Au output) prevented its use for RHIC Au, Tandem came back in service for that purpose
- Tandem allows for faster fill times at intensities of less than $2e9$ /bunch because it allows for 4 extractions/cycle

Challenges going in

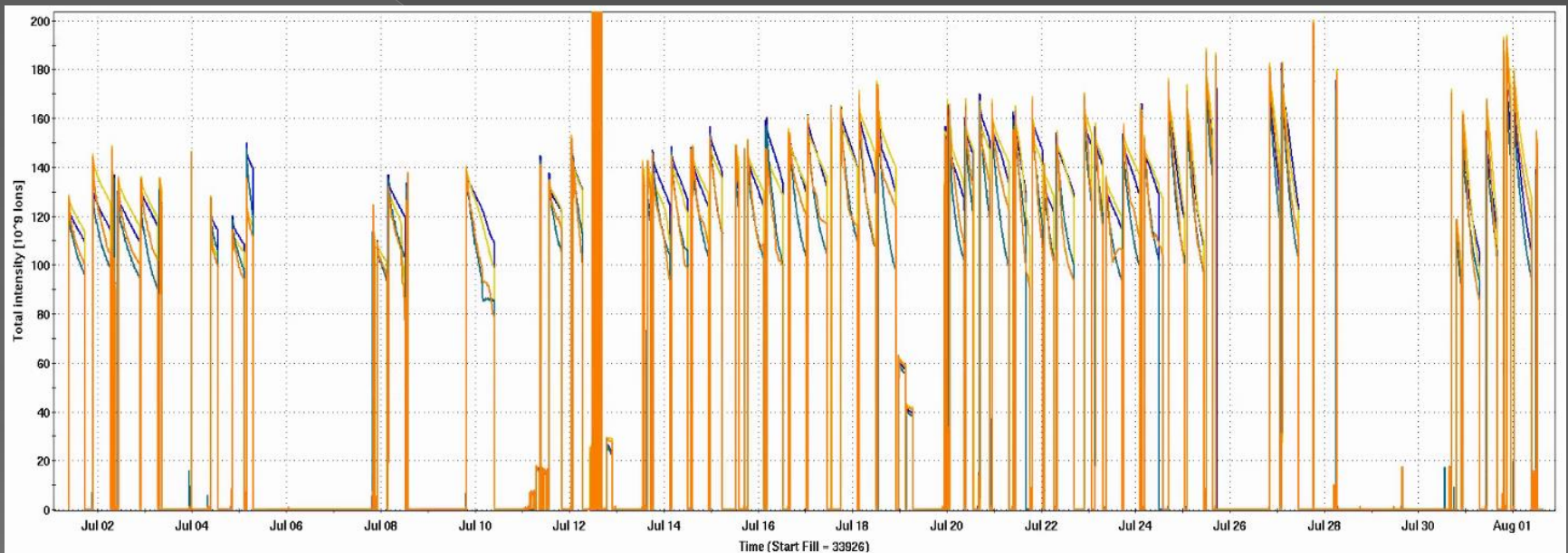
- The last time we ran 2 experiments with high intensity beam at full energy was 2016 – only 6 of 18 shift operators were here then
- 4 sections of the RHIC ring were brought up to air for various work during the shutdown, so vacuum would be an issue
- Summer operations (heat, power dips, personnel)

Unusually large number of failures this run

- Operations group almost never had a 'normal ramp' through the first seven weeks
- Experimental magnet configurations kept changing



Then the heat hit...



Using the beam time well

- Even with all these failures we made good progress
 - > sPHENIX commissioning was on schedule
 - > STAR was on track to hit their goals
 - > Beam intensity limits were being pushed and we had a path forward for getting to intensity goals – highest intensity ramps of the run did not suffer from emittance blowups that were plaguing us

Quench event

- 20 minutes into a nice store Tuesda we had a spontaneous quench link interlock that caused all the DX heaters to fire
- As part of a normal response to a QLI MCR called the Cryo control room who informed us that 1004B valve box was venting helium

FY23 Uncertainty

- As of the writing of this presentation it is uncertain if we will be able to repair the valve box in time to continue this run or the effort/money would be better spent shutting down now and starting the FY24 run early