

d-Au Preparations

17 September 2007

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Schedule

- NSRL Runs through Fri 26 Oct 2007.
- 9-11 Oct (Tue-Thur): RHIC Dry Run 1.
- Mon 22 Oct: Begin d (from MP6) setup in Booster and AGS (evenings after NSRL).
- 23-25 Oct (Tue-Thur): RHIC Dry Run 2.
- Mon 29 Oct: Begin Au (from MP7) setup.
- Thur 1 Nov: Begin RHIC cool-down.
- Thur 8 Nov: Beam (d) in Blue.

Schedule (cont'd)

- Mon 12 Nov: Beam (Au) in Yellow.
- Thur 22 Nov: d-Au Collisions
- 22-29 Nov: MD (“ramp up” mode).
- Two additional days may be needed for scrubbing.
- Sat 1 Dec: Physics declared.

Dry Run Tasks

- Day 1: ATR, Injection, General Software
- Day 2: Instrumentation
- Day 3: Ramp, Software, Store

Outstanding Items

- RSC wants estimate of average d intensity in the TTB line (Gardner).
- d KE increase from 17.4 to 18.5 MeV to match Au³¹⁺ rigidity. Inflector V goes from 67.3 to 71.7 kV (Gardner, Russo).
- Use just one plane of MW harp to monitor d beam intensity (RSC).
- Multi-cathode sputter source (Tandem).

Outstanding Items (cont'd)

- Check that 9 d merge cycles still OK for Booster power and harmonic constraints.
- L20 septum magnet mode switch from 3.75 (Au77+) to 7.32 (deuteron) Tm (Gardner, Warburton).
- A5 kicker proton mode pulse width OK for deuterons? (Gardner).
- AGS 8 to 4 merge for d (Brennan, Smith).

Outstanding Items (cont'd)

- IBS Suppression Lattice or not?
 - 1) 10 m beta* at injection; DX aperture OK. Beta wave in arcs OK?
 - 2) DX aperture with 1 m beta* OK?
 - 3) Chromaticity behavior at transition?
 - 4) Other issues?
- If we choose not to re-bucket d, then we won't use common cavities for Au. Any issues here?

Outstanding Items (cont'd)

- Remote control of Lambertson position?
- IPM status?
- 10 Hz compensation status?
- Feedback on yellow main dipole to maintain desired yellow radius around transition.
- d-Au mode switching status?

d-Au Run Projections (Fischer)

- 1.5 weeks for RHIC cool-down (80 to 4K).
- 1.5 weeks setup for collisions.
- 1 week “ramp-up” mode.
- 2 days may be needed for scrubbing.
- 11 weeks data-taking mode with further ramp-up.

Luminosity Projections (Fischer)

- For Run 3 d-Au we had:
 - 1) 55 bunches
 - 2) 110 e9 d; 0.7 e9 Au per bunch
 - 3) $\beta^* = 2\text{m}$.
- For Run 8 d-Au we project:
 - 1) 83 bunches
 - 2) 120 e9 d; 1.1 e9 Au per bunch
 - 3) $\beta^* = 1\text{m}$.

Luminosity Projections (cont'd)

- Increase factor = 5.17
(83/55) (120/110) (1.1/0.7) (2/1).
- For Run 3 d-Au we had:
 $\langle L \text{ store} \rangle = 3 \times 10^{28} / (\text{cm}^2 \text{ s}).$
- For Run 8 d-Au we project:
 $\langle L \text{ store} \rangle = 14 \times 10^{28} / (\text{cm}^2 \text{ s}).$