

# Milestone Checks for Transversity Experiments

Xiaodong Jiang, May 4th, 2007. Transversity Collaboration meeting.

**Goal: all sub-system fully tested and ready for installation by the end-of-year 2007.**

**Milestones.**

**Major design items and hardware works.**

# BB detector check. Goals as presented at the Readiness Review 03/19/07

Test all detectors. Training of a new group of on-site experts:

2 experts on wire chamber/readout/tracking/optics.

2 experts on shower detectors/trigger/DAQ.

Completed tasks as of 05/04/07 (K. Allada, X. Qian, et al.):

Trigger setup and signal cables.

Pre-shower and shower readout.

Readout of chamber-1+chamber-3.

Common grounding.

Software tools: event display, HV controls, shower calibration code etc.

# Milestone check: BB detector/DAQ

April 30, 2007:

Trigger and DAQ set up, pre-shower+shower DAQ check completed.

**DONE.**

Coming up: May 30, 2007

chamber-1+chamber-3 readout check completed. **ALMOST DONE.**

All preAmp card delivered and checked (210 + 30) **!!!!!!???????**

July 1, 2007:

6 shower PMTs fixed. If we have money+manpower, refurbish pre-shower blocks and PMTs (**money located, PMT ordered, preshower blocks in processing**).

# ... milestones on BB detector

Sept. 1, 2007:

three chamber read out check, demonstrate clear cosmic tracking.

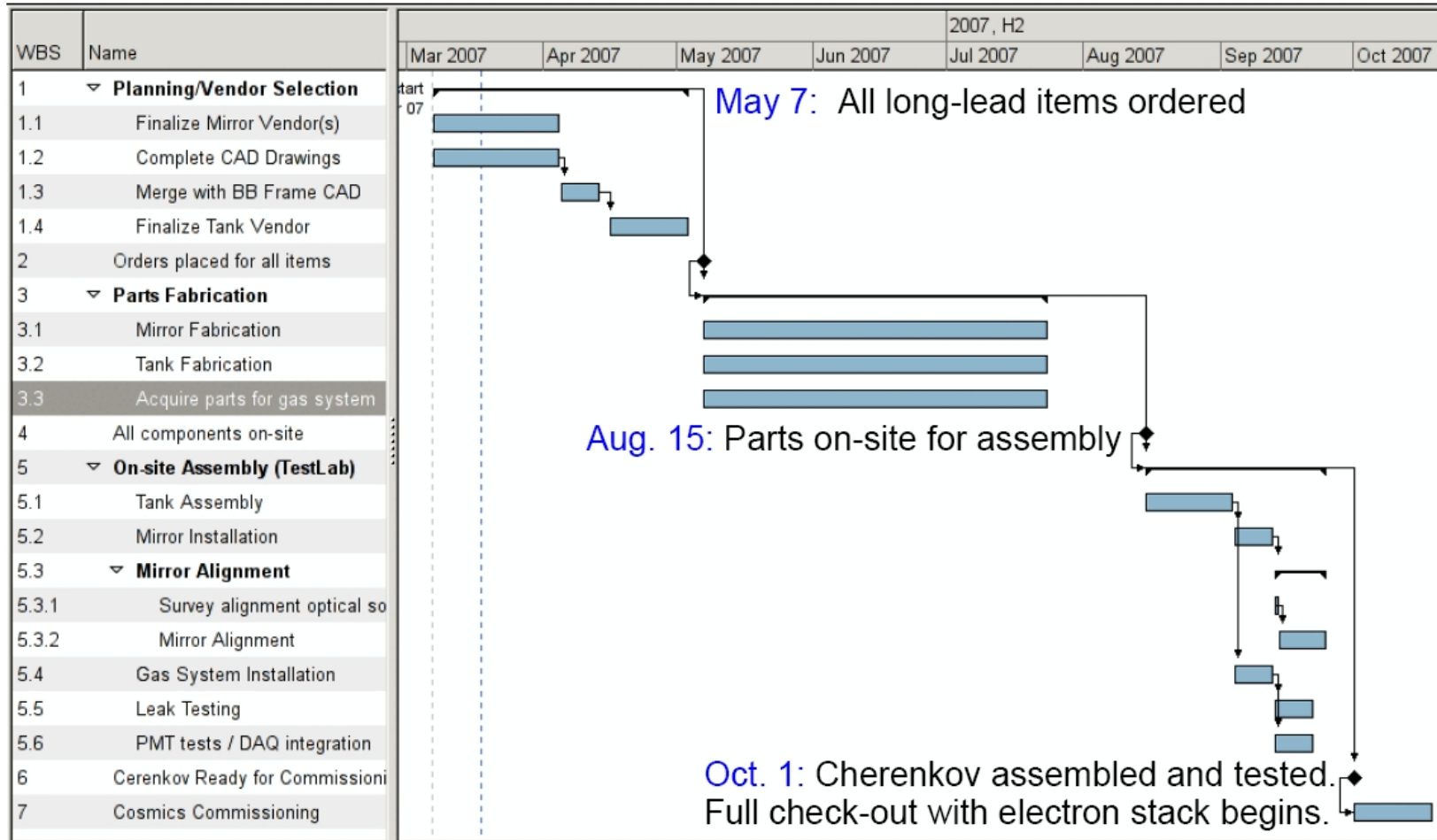
Nov. 1, 2007:

Gas Cherenkov integrated into detector package. Whole-package cosmic ray test. ch1+ch2+gas-C+preshower+Scint+shower.

**Dec. 1, 2007: Ready for installation.**

# BigBite Gas Cherenkov Milestones

## Cherenkov Timeline and Milestones



- Note: Fabrication and Assembly start times are keyed on Milestone dates, providing additional slack in schedule.

# BigBite Chamber-2 Milestones

## 4. Multi-Wire Drift Chamber-2 (MWDC)

Wire stringing and Preparation of wire frames **Complete**

**March 31, 2007:** Preparation of cathode frames complete

**April 10, 2007:** Middle chamber arrives at UVA

**May 10, 2007:** Complete middle chamber assembly with new frames

**June 1, 2007:** Complete middle chamber testing

**June 10, 2007:** Middle chamber arrives at Jefferson lab

4-6 weeks: Installation of the chamber in detector frame, connect gas and power and cabling

8-10 weeks: Testing and commissioning the detector package in the test lab

# HRS Detector Milestones

## Timeline

- Jun 25 2007 summer down
  - A1 refurbishing
  - S2m installation
- Oct 1<sup>st</sup> 2007
  - Coulomb Sum Rule running ( S2m, gas Cerenkov, pion rejector checkout)
- Jan 2008
  - Installation A1
  - Installation RICH



# HRS RICH Detector Milestones

## Milestones

### Upgrade

- End Sep 2007: RICH frames Ready, availability of the upgraded frames (and accessories).
- Mid Nov 2007: RICH Assembled in Rome, ready to be shipped to JLab.
- **Mid Dec 2007: RICH Ready for installation**, all parts of the RICH (included the new electronics) have been tested and ready for integration and installation.

# Polarized Target Milestones

## 2.2.6 Time lines and Milestones

### 1. Polarized $^3\text{He}$ target

- (a) Spin-Flip test: done
- (b) NMR/EPR system working: done, will keep improvement.
- (c) New over ready for cell testing/characterization: April 1, 2007
- (d) Vertical coils test: June 1, 2007
- (e) Cell production: 10 by July 1, 2007, 20 by December 1, 2007
- (f) New target structure: Sept. 1, 2007
- (g) Compass: Sept. 1, 2007
- (h) Laser optics line: Oct. 1, 2007
- (i) NMR FM water (optional): Oct. 1, 2007
- (j) Complete system test: Nov. 1, 2007
- (k) Ready for installation: Jan. 1, 2008

## Shielding and collimation (designs needed).

1. A 3" (st. steel) front collimator at the magnetic clamp.
2. Two boxes to hold 2"-thick lead pieces inside BigBite magnet to block low field regions.
3. A light-weight near-detector shielding.
4. A 6"ID downstream pipe section (design done).
5. Near beam height downstream shielding.
6. Concrete blocks as far-shielding.

Hardware works to be completed during the July-Oct 2007 down to speed-up transversity installation

1. BigBite magnet support, mount the new right foot, clear interferences with the downstream section.
2. Mount the new BigBite magnetic clamp piece.
3. Test mount the collimation boxes inside the magnet.
4. Measure the BigBite fringe field with the new field clamp on.
5. Modify BigBite platform right wring, clear downstream interferences.
6. Prepare the near-beam shielding pieces.

We need to have a clear plan:

Who is working on what starting when ? What technical supports we need ? What's the goal ? Who's checking ?

0. Gas Cherenkov related.

1. A frame to mount chamber1+chamber2 when gas cherenkov is in place.
2. Modification of BigBite detector mount point on the support.

These three items are part of the design for including gas cherenkov in the electron-detector package (MUST for d2n, SHOULD for transversity).

3. A light-weight near-detector shielding hut (MUST). SHOULD allow reasonable access to detectors without call-in a crane operator.
4. Upstream and down stream beam pipe sections+windows (design DONE).
5. BigBite optics slit + mount at the magnetic clamp piece (MUST), for calibration runs. A front collimator in the same place for production runs (SHOULD).

6. Collimation boxes inside BigBite magnet to hold lead-pieces (MUST).  
SHOULD be done before summer-07 down time to test fit in the summer.
7. Modification of BigBite downstream side platform to fit into 30 degree, while HRS\_L at 16 degree (MUST). The arrangement SHOULD be checked out during the summer-07 down time.
8. A support for near beam pipe shielding (MUST). SHOULD be done before Nov. 1st, 2007.
9. A detailed plan of putting concret blocks for far-side shielding on both upstream and downsteam. SHOULD be done by Jan. 1st 2008.