

CRIB CHECK SHEET v0.5 (2010.12)

*[Prior to Beam Time]*

1. F0 (*Cryogenic gas target*, *Water-cooled target[W]*, *Common Work[C]*)

- Connected target gas bottle.*
- Supplied high pressure N2 (>0.4MPa ) for the gas system valves.*
- Foil pressure test was made (leak rate should be better than 2 Torr/h).*
- Vented water from the cell bottom (if needed).*
- Set Lq. N2 level meter.*
- Turned on gas circulation system and Lq. N2 supplier module.*
- Filled Lq. N2 bottles (two bottles).*

*Started water flow [W].*

- Checked target heights and recorded settings [C].*
- Set ZnS[C].*

2. *Standad detectors (F1-F3 PPACs, F2 SSD)*

- Checked with the alpha source (if there was some problem in the previous experiment).*
- Evacuate PPAC gas system.*
- Checked if the sliders can be controlled with the PC at J1 (The drivers must be switched on).*
- Turned on PPAC preamps (F1: module on the D2 magnet, F2: small NIM bin beside the chamber).*

3. F3

- Chamber vacuum is good ( $1 \times 10^{-3}$  Pa or better).*
- All the detectors, targets etc. are aligned, and distances were measured.*
- Recorded CRIB SSD parameters (ID number, voltage, leak current, and others) in the logbook.*

4. DAQ

- Needed files copied from previous experiments.*
- DAQ, Analysis code updated and compiled for this experiment.*
- Calibration parameters were input.*
- Enough space is left in the storage devices.*
- VME (and CAMAC) boards are initialized.*
- DAQ runs off-line (with pulser, alpha source or some other trigger).*

5. CRIB system

- The water, pressurized air, electricity are all supplied (normally switched by the operators).*
- Started all the pumping system:  
HS1, F0, D1, F1, Q3, and "F2"[actually F3]...from the control panel  
F2 and F3 additional pumps...manually*
- Opened gate valves:  
F0-HS1, F0-D1...from the control panel  
Q3-F2 ...manually*
- Turned on the power supplies for magnets (D1, D2, Q1-Q7, M3, WF dipole).*
- Turned on the power supplies for WF high voltage.*
- Set up cameras (for F0 ZnS, F0 Lq. N2 level, and whatever necessary) and monitors for them at J1.*
- Started CRIB Monitor (LabView program).*
- Closed E7 room door.*
- Asked the operator for tuning.*

*[Beam time; For Beam tuning at CRIB]*

- PPAC gas filled (recommend to close gate valves).*
- Voltages applied for PPAC and SSD.*
- RF signal is coming (Connection: operators' room - cable panel near the elevetor - J1 room).*
- Started automatic Lq. N2 filling for cryogenic target system.*
- F0 slit is Ok (1mm collimator for primary beam tuning, blank for secondary beams).*
- ZnS target removed.*

- F1-F3 slits open.*
- Brho adjusted to the correct value.*
- Detector (PPAC) is at the beam position.*

*[After Beam Time]*

- Turned off PPAC HV.*
- Evacuated PPAC gas, closed valves of gas systems and gas bottles, and opened bypasses.*
- Turned off SSD biases (F2 and F3).*
- All the CRIB gate valves closed.*
- Turned off power supplies for the magnets and WF.*
- All the pumps stopped (pumps for F0 can be kept running if the target is cooled).*
- (If  $^3\text{He}$  was used) collected the  $^3\text{He}$  gas in the recycling system.*
- (If a gas target was used, ) opened F0 target bypass.*
- (If the cryogenic target was used, ) covered camera and other things against melting ice.*
- Made a backup of data files.*
- Logbooks were scanned.*
- Working cloths, dosimeters (badges) temporary ID cards were returned to CNS.*
- Submitted end report to the safety officer (ask an assistance for a Japanese-speaking person).*
- Made a summary on the beams (energy, purity, intensity, target condition etc.) and SSD (ID numbers, applied voltages, leak currents, and status), and reported to CNS members.*