Cryo Target Pre Beam Checklist

Last revised 9/30/10 **Date _____time _____**

This checklist will be performed after every restricted access to Hall A that maintenance is performed

People checking list _____

Left Arm

Spectrometers

___ Correct angle _____ (not to be used for calculations)
___ Check spectrometer for obstructions to movement
___ Check Intergen bottles for correct pressure
___ Ensure that Intergen alarm switch is in the normal position and the green light on the front panel is on
___ Ensure that 14-degree stop pin is installed (if used)
___ Ensure that outer limit stop is installed (if used)
___ Minimum/Maximum angles for spectrometer from _____Deg. To ____ Deg.

Vacuum

___ Turbo on at turbo controller in rack # 1H71B01
___ Pump valves open at valve controller in rack # 1H71B01 channel #2
___ Convectron gages read "0" millitorr
___ Cold cathode gauge in rack # 1H71B01 < 5x10-5
___ Actual cold cathode reading _____
___ Ensure that Q1 lead heaters in rack 1H71B08 are on and operating (4 blinking red lights)
___ Ensure that Q2, Q3 and Dipole lead heaters are on and operating and at lease 40 deg.
___ Bogie power is ON ___ Off ___

Power supplies

____ Red rotating beacons on

Q1:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)
___ Unlock power disconnect switch and turn on AC power
___ Visually check power supply for faults
___ When all faults have been cleared, Ensure that power supply is in remote control

Q2:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)

___ Ensure that all doors and panels are closed and secured

___ Unlock power disconnect switch and turn on AC power

___ Turn on both sets of three pole breakers located on power supply

___ Visually check power supply for faults

___ When all faults have been cleared, lift lever on lower right side of supply

___ Ensure that power supply is in remote control

Q3:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)

___ Ensure that all doors and panels are closed and secured

___ Unlock power disconnect switch and turn on AC power

___ Turn on both sets of three pole breakers located on power supply

___ Visually check power supply for faults

___ When all faults have been cleared, lift lever on lower right side of supply

___ Ensure that power supply is in remote control

Dipole:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)

___ Unlock power disconnect switch and turn on AC power

___ Turn on power lever on right upper side of supply

___ Visually check power supply for faults on supply and at rack #

___ When all faults have been cleared, Ensure that power supply is in remote control

___ Ensure Kepco power supply is on

___ Check power supply for proper polarity positive____ negative____

___ NMR gradient compensation for proper polarity positive____ negative____

___ Ensure that the Q3 insulating vacuum pump is functioning and has sufficient oil

___ Ensure the Q3 automatic valve is operational and open and it's the Convectron gage reads 0

___ Ensure that spectrometer turbo backing pump is on, has sufficient oil and that the automatic valve is operational

Right Arm

Spectrometers

___ Correct angle _____ (not to be used for calculations)
___ Check spectrometer for obstructions to movement
___ Check Intergen bottles for correct pressure
___ Ensure that Intergen alarm switch is in the normal position and the green light is on on the front panel
___ Ensure that 14-degree stop pin is installed
___ Ensure that outer limit stop is installed (if used)
___ Minimum/maximum angles for spectrometer _____to_____

Vacuum

___ Turbo on at turbo controller in rack # 1H72B01
___ Pump valves open at valve controller in rack # 1H72B01 channel #2
___ Convectron gages read "0" millitorr
___ Cold cathode gauge in rack # 1H72B01 < 5x10-5
___ Actual cold cathode reading _____

___ Ensure that Q1 lead heaters in rack 1H72B08 are on and operating (4 blinking red lights)
___ Ensure that Q2, Q3 and Dipole lead heaters are on and operating and at least 40 deg.
___ Bogie power is ON ___ Off ___

Power supplies

____ Red rotating beacons on

Q1:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)
___ Unlock power disconnect switch and turn on AC power
___ Visually check power supply for faults.
___ When all faults have been cleared, Ensure that power supply is in remote control.

Q2:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)
___ Ensure that all doors and panels are closed and secured
___ Unlock power disconnect switch and turn on AC power
___ Turn on both sets of three pole breakers located on power supply
___ Visually check power supply for faults
___ When all faults have been cleared, lift lever on lower right side of supply.
___ Ensure that power supply is in remote control

Q3:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)

___ Ensure that all doors and panels are closed and secured

___ Unlock power disconnect switch and turn on AC power

___ Turn on both sets of three pole breakers located on power supply

___ Visually check power supply for faults.

___ When all faults have been cleared, lift lever on lower right side of supply.

___ Ensure that power supply is in remote control

Dipole:

___ Visual inspection of main current leads, dump resistor, and lead flags (for condition, visual shorts, etc.)

___ Unlock power disconnect switch and turn on AC power

___ Turn on power lever on right upper side of supply.

___ Visually, check power supply for faults on supply and at rack #OD172Q.

___ When all faults have been cleared, Ensure that power supply is in remote control.

___ Ensure Kepco power supply is on

___ Check power supply for proper polarity positive____ negative____

___ NMR gradient compensation for proper polarity positive____ negative____

___ Ensure that the Dipole automatic valve is operational and open, that the Convectron gage reads 0 and that the backing pump is on, has sufficient oil

___ Ensure that the Q3 automatic valve is operational and open, that the Convectron gage reads 0 and that the backing pump is on, and has sufficient oil

___ Ensure that spectrometer turbo backing pump is on, has sufficient oil and that the automatic valve is operational

Left Arm (from the computer)

Spectrometer controls

___ Bogie controls checked for operation (do not move)
___ check movement of left collimator for operation at 3 positions
___ check left angle camera for movement in both directions

Magnet controls

Q1

___ Q1 full of liquid (60%) actual reading from computer _____
___ Open lead flows on Q1 to 80 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Q2

___ Q2 full of liquid (80%) actual reading from computer _____
___ Open lead flows on Q2 to 60 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

D1

___ Dipole full of liquid (60%) actual reading from computer _____
___ Open lead flows on Dipole to 80 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Q3

___ Q3 full of liquid (80%) actual reading from computer _____
___ Open lead flows on Q3 to 100 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Right Arm (from the computer)

Spectrometer controls

___ Bogie controls checked for operation (do not move)
___ check movement of right collimator for operation at 3 positions
___ check right angle camera for movement in both directions

Magnet controls

Q1

___ Q1 full of liquid (60%) actual reading from computer _____
___ Open lead flows on Q1 to 80 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Q2

___ Q2 full of liquid (80%) actual reading from computer _____
___ Open lead flows on Q2 to 60 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

D1

___ Dipole full of liquid (60%) actual reading from computer _____
___ Open lead flows on Dipole to 80 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Q3

___ Q3 full of liquid (80%) actual reading from computer _____
___ Open lead flows on Q3 to 80 slm as read from the Hall A Tools page
___ Actual lead flows A_____ B_____

Controls check from the computer console

___ Pull up the Hall A tools page
___ Ensure that all of the lead flows are in the green
___ Ensure that all liquid levels are in the green
___ Ensure that all polarities are correct

___ Using the current button open the control page to left Q1
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to left Q2
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to left Q3
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to left Dipole
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to right Q1
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to right Q2
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to right Q3
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ Using the current button open the control page to right Dipole
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

___ input 1 GeV/c for both spectrometers
___ Ensure that all magnets lock in for the input momentum
___ list magnets that do not _____

___ If used open the controls page to Big Bite
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

Target

___ Windows functional
___ Cctv cameras "on" and focused
___ Target light "on"
___ Backing pump "on" at pump
___ Ensure roughing is closed
___ Turbo "on" at rack # 1H75B09
___ Turbo valve "open" at rack # 1H75B09 channel # 1 upper & #2 lower
___ Ensure target convectron set point is 5 torr
___ Gages operational
___ Convectron "0" millitorr at rack # 1H75B09
___ Cold cathode < 5x10-4 at rack # 1H75B08
___ Actual cold cathode reading _____

Exit beam tube

___ Diffuser cooler on
___ Diffuser water level ok
___ close flow valve and observe flow meter (drops to 0)
___ open flow valve and observe flow meter (rises to 1 GPM) Actual GPM_____
___ Backing pump is "on" and operational
___ Valve "open" at pump
___ Turbo "on" at rack # 1H75B09
___ Gages operational
___ Convectron "<5" millitorr at rack # 1H75B09
___ Actual convectron gage reading _____
___ magnetic shielding installed (if necessary)

Entrance beam tube

___ Ensure that beam line girder turbo is on and running
___ Ensure that there is cooling water flow to the Moeller Dipole
___ Ensure that E P turbo is on and running
___ Instrument air compressor functioning normally
___ All beam line vacuum valves "open" (VBV1H04 B and C upstream and down stream of the target visually checked at the valve)

___ Call MCC, get the name of the person you talked to _____and say "I am doing the Hall A pre beam checklist, Please Ensure that the Hall A beam line valves are set to close" after they say that they are, say "I am turning the control key from maintenance to operational are you ready" after they say yes, turn key and tell them "you have control could you please open the valves so that we can verify operability make an e-log entry"

BigBite

Hall

___ All interlocks in rack # 1H75B08 indicate green
___ Check 3 Moeller power supplies for on and in remote
___ Ensure installation of Ion chambers at EP, and target
___ Correct LCW flow and pressure (120 psi supply and <50 psi return)
___ Cctv monitors at X terminal off
___ Clear of unnecessary equipment
___ Man lift and Forklift in truck ramp.
___ Ensure that all lifting slings and safety harnesses are correctly stored and that the storage cage is at least 90 deg from the beam dump and at least 60 ft from the target
___ Perform pre sweep of run safe boxes.
___ Move Left spectrometer stairs clear of lower balcony.

___ **Ensure polar crane is positioned over the entrance beam pipe, and that power is off at the power disconnect switch**

___ **Ensure that spectrometer entrance window guards are removed**

___ **Ensure that spectrometer exit window guards are removed**

___ **Ensure that detector VDC covers are removed**

___ **Ensure that target window guards are removed**

___ Ensure operability of shield house doors

___ Deliver checklist to work coordinator

___ Make the following entries into the HALOG
"Checklist Complete and Target Window and spectrometer Guards are Removed"
"Angle limits for the Left Spectrometer are _____ to _____"
"Angle limits for the Right Spectrometer are _____ to _____"
"The tech on call at startup is _____"
Note any outstanding issues not completed on the checklist
Note any special requirements or restrictions

Name of person checklist was delivered to _____