

Waterfall Target Pre Beam Checklist Date _____ time _____

Last revised 7-1-05

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

Person responsible for checklist _____

People checking list _____

Left Arm (Old Electron)

Spectrometers

- _____ Correct angle 12.5 deg. (not to be used for calculations)
- _____ **Check intergen bottles for correct pressure**
- _____ **Ensure that Intergen alarm switch is in the normal position**
- _____ Bogie power is Off _____
- _____ magnetic shielding installed (if necessary)

Vacuum

- _____ Insure that turbo backing pump is on
- _____ Turbo on at turbo controller in rack # 1H71B01
- _____ Pump valves open at valve controller in rack # 1H71B01 channel #2
- _____ Convectron gages read "0" millitorr
- _____ ensure roughing pump at dipole entrance has sufficient oil
- _____ **Cold cathode gages on at gage in rack # 1H71B01 cold cathode < 5x10-5**
- _____ Actual cold cathode reading _____
- _____ Entrance & exit vacuum windows functional

- _____ ensure that the Q3 insulating turbo and backing pump are on and functional
- _____ ensure that the automatic valve is open and that the Convectron gage reads 0

Left Arm (Old Electron)

Magnet controls

Q1

- ___ Q1 full of liquid (60%) actual_____
- ___ Open lead flows on Q1 to 80 slm as read from rack #Q171Q
- ___ Actual lead flows A_____ B_____
- ___ Cctv camera on and focused

D1

- ___ Dipole full of liquid (60%) actual_____
- ___ Open lead flows on Dipole to 80 slm as read from rack #D171Q
- ___ Actual lead flows A_____ B_____

Q2

- ___ Q2 full of liquid (80%) actual_____
- ___ Open lead flows on Q2 to 60 slm as read from the Q2 instrument rack meter.
- ___ Actual lead flows A_____ B_____
- ___ Insure that lead heaters are on and operating

Q3

- ___ Q3 full of liquid (80%) actual_____
- ___ Open lead flows on Q3 to 60 slm as read from the Q3 instrument rack meter.
- ___ Actual lead flows A_____ B_____
- ___ Insure that lead heaters are on and operating

Left Arm

Power supplies

POWER SUPPLY TURN ON PROCEDURES

___ Verify UPSs as operational on all power supply controls (with no current on magnets only)

___ 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, insure that power supply is in remote control

Q2:

___ 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 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

___ Insure that power supply is in remote control

Q3:

___ 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 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

___ Insure 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, insure that power supply is in remote control

___ Cctv camera on and focused

___ Check power supply for proper polarity positive___ negative___

___ NMR gradient compensation for on and proper polarity

positive___ negative___

Right Arm

Spectrometers

- ___ Correct angle 12.5 Deg. (not to be used for calculations)
- ___ **Check intergen bottles for correct pressure**
- ___ Bogie power is ON ___ Off ___
- ___ **Ensure that Intergen alarm switch is in the normal position**
- ___ magnetic shielding installed (if necessary)

Vacuum

- ___ Insure that turbo backing pump is on
- ___ Turbo on at turbo controller in rack # 1H71B01
- ___ Pump valves open at valve controller in rack # 1H71B01 channel #2
- ___ Convectron gages read "0" millitorr
- ___ ensure roughing pump at dipole entrance has sufficient oil
- ___ **Cold cathode gages on at gage in rack # 1H71B01 cold cathode < 5x10-5**
- ___ Actual cold cathode reading _____

- ___ ensure that the Dipole insulating turbo and backing pump are on and functional
- ___ ensure that the automatic valve is open

Right Arm

Magnet controls

Q1

- ___ Q1 full of liquid (60%) actual_____
- ___ Open lead flows on Q1 to 80 slm as read from rack #Q171Q
- ___ Actual lead flows A_____ B_____
- ___ Cctv camera on and focused

D1

- ___ Dipole full of liquid (60%) actual_____
- ___ Open lead flows on Dipole to 80 slm as read from rack #D171Q
- ___ Actual lead flows A_____ B_____

Q2

- ___ Q2 full of liquid (80%) actual_____
- ___ Open lead flows on Q2 to 60 slm as read from the Q2 instrument rack meter.
- ___ Actual lead flows A_____ B_____
- ___ Insure that lead heaters are on and operating

Q3

- ___ Q3 full of liquid (80%) actual_____
- ___ Open lead flows on Q3 to 60 slm as read from the Q3 instrument rack meter.
- ___ Actual lead flows A_____ B_____
- ___ Insure that lead heaters are on and operating

Right Arm (Old Hadron)

Power supplies

POWER SUPPLY TURN ON PROCEDURES

___ Verify UPSs as operational on all power supply controls (with no current on magnets only)

___ 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, insure that power supply is in remote control.

Q2:

___ 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 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.

___ Insure that power supply is in remote control

Q3:

___ 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 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.

___ Insure 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, insure that power supply is in remote control.

___ Cctv camera on and focused

___ Check power supply for proper polarity positive___ negative___

___ NMR gradient compensation for on and proper polarity

positive___ negative___

Target

___ Cctv cameras “on” and focused

- ___ Target light “on”
- ___ Backing pump “on” at pump
- ___ Turbo “on” at rack # 1H75B09
- ___ Turbo valve “open” at rack # 1H75B09 channel # 1
- ___ ensure target convectron set point is 5 torr
- ___ Gages operational
- ___ Convectron “0” millitorr at rack # 1H75B09
- ___ Cold cathode $< 5 \times 10^{-4}$ at rack # 1H75B08
- ___ Actual cold cathode reading _____
- ___ ensure that water level is between level lines on reservoir
- ___ ensure that both ends of the water supply line is connected and it’s seal is in place
- ___ ensure that both ends of the water return line is connected and it’s seal is in place
- ___ ensure that the water pump is on and in remote
- ___ ensure that the motion system is operational and move it to an empty position

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)

- ___ Backing pump “on” at pump 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

- ___ Insure that beam line girder turbo is on and running
- ___ Insure that there is cooling water flow to the Moeller Dipole
- ___ Insure that E P turbo is on and running
- ___ Instrument air compressor functioning normally

- ___ Beam line vacuum valves “open” (visually checked)

___ Call MCC, get the name of the person you talked to and say “I am doing the Hall A pre beam checklist, Please Insure 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”
 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 A

- ___ 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 A

- ___ 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 A
- ___ Using the current button open the control page to left D1
- ___ Clear all faults and turn on magnet with correct polarity
- ___ Ramp magnet to 100 A

- ___ 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 A

- ___ 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 A

- ___ 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 A

- ___ Using the current button open the control page to right D1
- ___ Clear all faults and turn on magnet with correct polarity
- ___ Ramp magnet to 100 A

- ___ set angle button to 6 degrees
- ___ input .5 GeV/c for both spectrometers
- ___ ensure that all magnets lock in for the input momentum
- ___ list magnets that do not _____

- ___ ensure that both septum power supplies are on

Hall

- ___ All interlocks in rack # 1H75B08 indicate green
- ___ Check 3 Moeller power supplies for on and lights flashing at magnets
- ___ Ensure installation of Ion chambers at EP, and target

- ___ Correct LCW flow and pressure (100 psi supply and 60 psi return)
- ___ Cctv cameras on and focused
- ___ 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.

___ Unnecessary personnel exit Hall.

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

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

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

___ Ensure operability of shield house doors

___ Deliver checklist to shift leader or run coordinator

Name of person checklist was delivered to _____