Transversity Pre Beam Checklist

Last revised 4/22/09 **Date _____time _____**

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

Spectrometers

___ Correct angle _____ (not to be used for calculations)
___ Correct pointing _____(not to be used for calculations)
___ check camera angle for movement in both directions
___ Bogie controls checked for operation (do not move)
___ Bogie power is ON ___ Off ___
___ Check spectrometer for obstructions to movement
___ Check Intergen bottles for correct pressure
___ Ensure that Intergen alarm switch is in the normal position
___ Insure that 14-degree stop pin is installed (if used)
___ Insure that outer limit stop is installed (if used)
___ minimum/Maximum angles for spectrometer from _____Deg. To ____ Deg.
___ magnetic shielding installed (if necessary)
___ pointing surveys complete

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 cold cathode < 5x10-5
___ Actual cold cathode reading _____
___ Entrance & exit vacuum windows functional
___ Insure that Q2, Q3 and Dipole lead heaters are on and operating
___ Insure that Q1 lead heaters in rack 0Q172Q-C2 are on and operating (4 blinking red lights)
___ Cctv camera on and focused

___ ensure that the Q3 insulating vacuum pump functioning and has sufficient oil
___ ensure that the automatic valve is open and that the Convectron gage reads 0
___ Insure that spectrometer turbo backing pump is on and has sufficient oil

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

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____

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

Left Arm

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

Spectrometers

___ Correct angle _____ (not to be used for calculations)
___ Correct pointing _____(not to be used for calculations)
___ Collimator operation at 3 positions
___ check camera angle for movement in both directions
___ Bogie controls checked for operation (do not move)
___ Bogie power is ON ___ Off ___
___ Check spectrometer for obstructions to movement
___ Check intergen bottles for correct pressure
___ Ensure that Intergen alarm switch is in the normal position
___ Insure that 14-degree stop pin is installed
___ Insure that outer limit stop is installed (if used)
___ Minimum/maximum angles for spectrometer _____to_____
___ magnetic shielding installed (if necessary)

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 cold cathode < 5x10-5
___ Actual cold cathode reading _____
___ Cctv camera on and focused

___ ensure that the Q3 insulating vacuum pump is functional and has sufficient oil
___ ensure that the automatic valve is open and that the Convectron gage reads 0
___ Insure that Q2, Q3 and Dipole lead heaters are on and operating
___ Insure that Q1 lead heaters in rack 0Q172Q-C2 are on and operating
(4 blinking red lights)

___ ensure that the Dipole insulating vacuum pump is functional and has sufficient oil
___ ensure that the automatic valve is open and that the Convectron gage reads 0
___ Insure that turbo backing pump is on and has sufficient oil

Right Arm

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 1600 amps and back down 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 1600 amps and back down to 100 amps

___ 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 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 1600 amps and back down 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 1600 amps and back down to 100 amps

___ 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 amps

___ input 1 GeV/c for left spectrometer
___ ensure that all magnets lock in for the input momentum
___ list magnets that do not _____

___ Open the controls page to BigBite
___ Clear all faults and turn on magnet with correct polarity
___ Ramp magnet to 100 amps

Target

___ access panels installed and taped and interlocks closed
___ Cctv camera "on" and focused
___ Target light "on"
___ Laser bench panels installed and taped and interlocks closed
___ laser interlock key in and the run position
___ ensure HE purge is on
___ ensure target chamber vent fan is running
___ ensure that laser box cooling fan is runing

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

___ 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 check 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 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"

BigBite

___ ensure BigBite magnet is on the forward stops
___ ensure that BigBite detector guards are removed
___ ensure that the field readback is working on the BB GUI

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)
___ Note cryo supply pressure on Right Q1____psi Left Q1____psi
___ Note cryo warm return pressure
___ 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.

___ 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 external collimators are removed**

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

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

___ **check for loose steel objects prior to turning on BigBite**

___ Ensure operability of shield house doors

___ Remove wireless from Hall

___ Deliver checklist 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 _____"
"The tech on call at startup is _____"
Note any outstanding issues not completed on the checklist
Note any special requirements or restrictions