X20C SAFETY CHECKLIST			BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE
Rev: C	**Effective: 5/24/2010**	**Page** 1 **of** 1	Number: LS-SCL-0046
Prepared by: Philip Marino	Reviewed by: P. Marino		**Approved by: B. Chmiel**

Original signatures on file.

After completing this form call Operation Coordinator for Safety Approval Form (SAF)

For locations of beamline checkpoints see Beamline Schematic.

☐ 1. Valid Padlock Index and log, no locks open
- A. Check to make sure all safety shutter interlocks are satisfied (white panel at top of equipment rack).

Check points 2-17 are along beamline X20C, beginning at upstream end.

Best access to 2-7 is between X19&X20.

☐ 2. Bremsstrahlung shield 1A, B, C (BS #1) (built into ring sawtooth wall), as in photo 1.
☐ 3. Lead scatter shielding A, B, C around beamline pipes and BE window, as in photo 2.
- B. Water flow for Be window, located overhead above valve 1.
- C. Gate valve 1 open (indicator on the top of valve).

☐ 4. Exclusion Zone 1 A, B, C (EZ #1) Scatter Shield and Bellows under EZ #1 as in photo 3.
☐ 5. Bremsstrahlung shield 2A, B, C (BS # 2) as in photo 4.
- D. Check pressure for X20C at Ion pump controller located below BS #2, should be less than $1x10^{-5}$ torr.

☐ 6. Exclusion Zone 2 A, B, C (EZ #2) as in photo 5.
☐ 7. Bremsstrahlung shield 3A, B, C (BS # 3) as in photo 6.
- E. Water flow for mirror, located near floor under BS # 3.

BEST ACCESS TO 8-17 IS BETWEEN X20C AND RING SHIELDING WALL.

☐ 8. Lead shielding slit #2 and bellows #2 as in photo 7.
☐ 9. Lead shielding on observation cross #1 and spacer cross, as in photo 7.
☐ 10. Lead shielding on mirror tank, as in photo 8.
☐ 11. Bremsstrahlung shield (BS # 4) as in photo 9.
☐ 12. Lead shielding on bellows #3 and downstream spool piece as in photo 9.
☐ 13. Bremsstrahlung shield (BS # 5) and lead covering upstream pipe as in photo 10.
☐ 14. Bremsstrahlung shield (BS # 6) as in photo 11.
- F. Water flow for monochromator, located near floor behind roughing pump.

☐ 15. Lead shielding on bellows #4 and top of observation cross #2as in photo 12.
☐ 16. Leaded Plexiglas on monochromator viewports (on top 2 viewports).
☐ 17. Lead shielding on bellows #5 located behind rack as in photo 13.

For numbered Safety items:

OPCO / Beamline Staff:_____ Date: _____

For lettered User system checks:

Beamline Rep.:_____ Date: _____