

<b>X20A SAFETY CHECKLIST</b>			BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE
<b>Rev: C</b>	<b>Effective: 5/24/07</b>	<b>Page 1 of 1</b>	Number: LS-SCL-0044
Reviewed by: Thomas McDonald		Reviewed by:	<b>Approved by: J. Aloï</b>

Original signatures on file.

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**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 2-19 are along beamline X20A, beginning at upstream end.**

**Best access to 2-17 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 1A, B, C (EZ #1). Scatter Shield under EZ #1 as in photo 3.
- 5. Bremsstrahlung shield 2A, B, C (BS # 2) as in photo 4.
  - D. Check pressure for X20A at Ion pump controller located below Bremsstrahlung shield 2, should be less than  $1 \times 10^{-5}$  torr.
- 6. Exclusion Zone 2A, B, C (EZ #2) as in photo 5.
- 7. Bremsstrahlung shield 3A, B, C (BS # 3) as in photo 6.
- 8. Bremsstrahlung shield (BS # 4) as in photo 7.
- 9. Lead shielding slit #2 and bellows #2 as in photo 8.
  - E. Water flow for mirror, located near floor.
- 10. Lead shielding on observation cross #1 and spacer cross, as in photo 8.
- 11. Lead shielding on mirror tank, as in photo 9.
- 12. Bremsstrahlung shield (BS # 5) as in photo 10.
- 13. Lead shielding on bellows #3 and downstream spool piece, as in photo 10.
- 14. Bremsstrahlung shield (BS # 6) and lead covering upstream pipe as in photo 11.
- 15. Bremsstrahlung shield (BS # 7) as in photo 12.
  - F. Water flow for monochromator, located near floor behind roughing pump.
- 16. Lead shielding on bellows #4 and on top of observation cross #2 as in photo 13.
- 17. Leaded Plexiglas on monochromator viewports (on top 2 viewports).

**Checkpoint 18 is inside the x20C hutch and can be viewed through its door window.**

- 18. Lead shielding on bellows #5 as in photo on hutch door.

For numbered Safety items:

OPCO / Beamline Staff: \_\_\_\_\_ Date: \_\_\_\_\_

For lettered User system checks:

Beamline Rep.: \_\_\_\_\_ Date: \_\_\_\_\_