

X20B SAFETY CHECKLIST			BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE
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Reviewed by: Thomas McDonald		Reviewed by:	Approved by: J. Aloï

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 all safety shutter interlocks (interlock panel at top of equipment rack).

Check points 2-18 are along beamline X20A, beginning at upstream end.

Best access to 2-14 is between X19&X20.

- 2. Bremsstrahlung shield 1 A, 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.
- 4. Exclusion Zone 1A, B, C (EZ #1). Scatter Shield under EZ #1 as in photo 3.
- 5. Bremsstrahlung shield 2 A, B, C (BS # 2) as in photo 4.
 - B. Water flow for Be window, located above BS #2(make sure water is flowing).
 - C. X20B 40 1/sec Ion pump controller below BS #2 should be less than 1×10^{-5} torr.
- 6. Exclusion zone 2 A, B, C (between BS #2 and BS #3) Be window under EZ #2 as in photo 5.
- 7. Bremsstrahlung shield 3A, B, C (BS # 3) as in photo 6.
- 8. Lead shielding on bellows #2 and beampipe as in photo 6.
- 9. Bremsstrahlung shield (BS # 4) as in photo 7.
- 10. Lead shielding on bellows #3 and beampipe as in photo 7.
- 11. Bremsstrahlung shield (BS # 5) as in photo 8.
- 12. Lead shielding on bellows #4 and beampipe as in photo 8.
- 13. Lead shielding on monochromator viewport as in photo9. Check for lead underneath Mono.
- 14. Exclusion zone 3 (between monochromator and X20C hut) as in photo 9.
 - D. Water flow meter for monochromator area, located near floor in front of X20C hut (make sure water is flowing).

BEST ACCESS TO CHECKPOINTS 15 IS BETWEEN X20C AND RING SHIELDING WALL

- 15. Lead shielding on bellows #5, crosspiece, slits, and monochromator (behind X20C rack) as in photo 10

CHECKPOINTS 16-18 ARE INSIDE THE X20C HUTCH AND CAN BE VIEWED THROUGH ITS DOOR WINDOW.

- 16. Bremsstrahlung shield (BS # 6) monochromator backstop, as in photo on hut door.
- 17. Lead shielding on bellows #6 as in photo on hut door.
- 18. Lead shielding on bellows #7 as in photo on hut door.

CHECKPOINT 19 IS INSIDE THE X20A HUTCH.

- 19. Lead shielding on bellows #8 (can not be seen from hut door behind equipment).

CHECKPOINT 20 IS BETWEEN THE X20A AND X20B HUTCH

- 20. Scatter shield on cross and photon shutter as in photo 11.

For numbered Safety items:

OPCO / Beamline Staff: _____ Date: _____

For lettered User system checks:

Beamline Rep.: _____ Date: _____