

X12B SAFETY CHECKLIST			BROOKHAVEN NATIONAL LABORATORY NATIONAL SYNCHROTRON LIGHT SOURCE
Rev: D	Effective: 7/31/2013	Page 1 of 1	Number: LS-SCL-0026
Prepared by: Rob Rainer		Reviewed by: P. Marino	Approved by: B. Chmiel

Original signatures on file.

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UPSTREAM OF X12A HUTCH

- 1. Valid Padlock Index and log, no padlocks open.
- 2. Bremsstrahlung shield (BS #1) in place and banded (as per photo).
- 3. Bremsstrahlung shield (BS #2) in place and banded (as per photo).
- 4. Slit tank wrapped in lead. Lead glass on Observation Port 1.
- 5. Water cooled Beryllium window #1 wrapped in lead.
- 6. Bremsstrahlung shield 3 (BS #3) intact (as per photo).
- 7. Lead glass on Observation Port 2 (OP2).
- 8. Exclusion Zone (EZ #1) running between OP2 and BS4 intact and secure.
- 9. Bremsstrahlung shield (BS #4) in place and banded (as per photo).

BETWEEN X12A AND X12C HUTCH

- 10. Exclusion Zone (EZ #3) before Monochromator intact; Bellows 3 under EZ3 wrapped in lead.
- 11. Monochromator tank wrapped in lead; Mono Observation ports 3 & 4 covered with lead glass.
- 12. White beam stop assembly wrapped in lead.
- 13. Vacuum Bellows #4 on multilayer tank wrapped in lead.
- 14. Exclusion Zone (EZ # 4) and Bremsstrahlung shield (BS # 5) in place and intact (as per photo).
- 15. Vacuum Bellows wrapped in painted lead.
- 16. Mirror tank viewport covered with lead glass.
- 17. Vacuum Bellows wrapped in painted lead.

BETWEEN X12C AND X12B HUTCH

- 18. Exclusion Zone (EZ #6) between X12C hutch and Photon shutter intact.
- 19. Beam Observation ports 6&7 covered with lead glass.
- 20. Photon shutter lead shielding intact (as per photo).
- 21. Bremsstrahlung shield (BS #6) in place and covered.

IN X12A HUTCH

- 22. Exclusion Zone (EZ #2), wall to wall black foam, in place and intact.

IN X12B HUTCH

- 23. Bremsstrahlung shield (BS #7) on downstream hutch wall intact and covered (visible through window on X-13 side)

IN X12C HUTCH

- 24. Exclusion Zone (EZ #5) wall to wall intact (In-line bellows 7 wrapped in lead).

OPCO / Beamline Staff.: _____ Date: _____

USER CHECKPOINTS

G-Rob Training:

- Ensure the Mode Switch Panel is in **Remote/Automatic Mode** & the Mode Key is kept in staff restricted storage.
- G-Rob Trained Operators must read the G-Rob SOP and receive site specific training.
- Ensure the Pendant controller is in the wall mount and the G-Rob rack is powered.
- Check that the trajectory paths are free of obstacles and the "tools" are properly placed in the tool rack.
- If needed, unmount the "end effector" and return the G-Rob to the "Home" position.
- G-Rob Users are permitted to run G-Rob Commands through CBASS ONLY.
- In the event of a collision or an emergency stop, users **MUST** contact staff.

Beamline Rep.: _____ Date: _____