

Subject:	NSLS-II Beamline 21-ID Radiation Safety Component Checklist		
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All configurations must match the associated photograph located near the checkpoint.

Check the following items in the FOE (21-ID-A)

- 21IDA-LBYR-01** Check labyrinth is secured closed and labeled.
- 21IDA-LBYR-02** Check labyrinth is secured closed and labeled.
- 21IDA-LBYR-03** Check labyrinth is secured closed and labeled.
- 21IDA-MSK-01** Check white beam mask is in place, labeled and cooling water connected.
- 21IDA-BRS-01** Check primary GBS collimator is in place and labeled as per photograph
- 21IDA-VVS-01** Check M1 vacuum vessel, which comprises entrance mask, exit mask, white beam stop, and pink beam mask #1, is in place, labeled and cooling waters are connected
- 21IDA-MSK-02** Check pink beam mask #2 is in place, labeled and cooling water connected.
- 21IDA-BRS-02** Check primary GBS stop and shielding wall are in place and labeled as per photograph
- 21IDA-MSK-03** Check pink beam mask #3 is in place, labeled and cooling water connected.
- 21IDA-PSH-01** Check photon shutter is in place and labeled.
- 21IDA-MSK-04** Check pink beam mask #4 is in place, labeled and cooling water connected .
- 21IDA-GU-01** Check hutch guillotine is secured closed and labeled as per photograph.

Check the following on the roof of the FOE (21-ID-A)

- 21IDA-LBYR-04** Check roof cable/utility access labyrinth is secured closed and labeled.
- 21IDA-LBYR-05** Check roof cable/utility access labyrinth is secured closed and labeled.
- 21IDA-LBYR-06** Check roof cable/utility access labyrinth is secured closed and labeled.
- 21IDA-LBYR-07** Check roof cable/utility access labyrinth is secured closed and labeled.
- 21IDA-LBYR-08** Check roof cable/utility access labyrinth is secured closed and labeled.
- 21IDA-LBYR-09** Check roof cable/utility access labyrinth is secured closed and labeled.

Brookhaven National Laboratory/ Photon Sciences Directorate							
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Check the following in the common zone (PGM and M3) 21-ID-B:

- 21IDB-SW-01** Check pair of PPS vacuum switches are in place, valve to chamber is open and labeled.(along pipe)
- 21IDB-SW-02** Check pair of PPS vacuum switches are in place, valve to chamber is open and labeled.
- 21IDB-VVS-02** Check the pink beam slits vessel, which comprises of two vacuum pipes and two vacuum bellows.
- 21IDB-SW-03** Check pair of PPS vacuum switches are in place on the mono chamber, valve to chamber is open and labeled.
- 21IDB-VVS-03** Check mono vacuum vessel, which comprises entrance mask, exit mask, secondary GBS stop (W block), M2 upper hard stop and 6 leaded glass covered viewports, is in place, labeled and cooling water connected

Check the following in the branch zone (downstream M3, ARPES and XPEEM) 21-ID-C:

- 21IDC-PSH-02** Check that the ARPES branch from the M3 mirror downstream exit flange to the photon shutter- which comprises:
8" flange, 2 ¾ VAT gate valve, 2 ¾ bellow, 2 ¾ pipe, in-line ion pump, monochromator slits chamber and photon shutter - is in place and labeled,.
- 21IDC-PSH-03** Check that the XPEEM branch from the M3 mirror downstream exit flange to the photon shutter - which comprises:
8" flange, 2 ¾ VAT gate valve, 2 ¾ bellow, 2 ¾ pipe, in-line ion pump, monochromator slits chamber and photon shutter - is in place and labeled.

Check the following in the end stations zone 21-ID-D:

- 21ID-SW-04** Check pair of PPS vacuum switches are in place (ARPES end station), valve to chamber is open and labeled.
- 21ID-DBF-01** Check that the direct-beam flange of the ARPES endstation is capped with the WF reconstructor (CCD) equipment or a stainless steel blank flange.
- 21ID-SW-05** Check pair of PPS vacuum switches are in place (XPEEM end station), valve to chamber is open and labeled.
- 21ID-DBF-02** Check that the direct-beam stainless steel flange of the XPEEM endstation is in place and labelled

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Execution of Checklist Performed By:

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******Removal of any radiation safety components or opening of any locks listed on this checklist requires posting an approved NSLS-II Safety System Work Permit******