

Brookhaven National Laboratory/ Photon Sciences Directorate			
Subject:	<b>NSLS-II Beamline 7-ID Radiation Safety Component Checklist</b>		
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Section A must be completed for all configurations. In addition:

- \_\_\_ For beam on the outboard branch to PSH10, Sections B must be completed.
- \_\_\_ For beam on the outboard branch to PSH7endstation, Sections B and C must be completed.
- \_\_\_ For beam on the outboard branch to PSH8 or LARIAT-1 experimental station, Sections B through D must be completed.
- \_\_\_ For beam on the outboard branch to PSH9, Sections B throughE must be completed.
- \_\_\_ For beam on the outboard branch to LARIAT-2 endstation, Sections B through F must be completed.
- \_\_\_ For beam on the outboard branch to VPPEM endstation, Sections B and G must be completed.
- \_\_\_ For beam on the outboard branch to PSH3, Sections B and H must be completed.
- \_\_\_ For beam on the inboard branch to PSH2, Section I must be completed.
- \_\_\_ For beam on the inboard branch to PSH3, Sections I and J must be completed.
- \_\_\_ For beam on the inboard branch to VPPEM endstation, Sections I throughK must be completed.

### **SECTION A:**

#### **Check the following items on the roof of the FOE (7-ID-A):**

- 7IDA-LBYR-01 Check roof labyrinth is secured, closed, and labeled.
- 7IDA-LBYR-02 Check roof labyrinth is secured, closed, and labeled.
- 7IDA-LBYR-03 Check roof labyrinth is secured, closed, and labeled.
- 7IDA-LBYR-04 Check roof labyrinth is secured, closed, and labeled.
- 7IDA-LBYR-05 Check roof labyrinth is secured, closed, and labeled.
- 7IDA-LBYR-06 Check roof labyrinth is secured, closed, and labeled.

#### **Check the following inside the FOE (7-ID-A):**

- 7-IDA-FAM-01 Check the flange containing the PPS aperture is in place and labeled.
- 7-IDA-MSK-01 Check mask is in place, labeled, and that cooling water is connected.
- 1  7-IDA-SBS-01 Check shielding is in place and labeled as per photograph
- 7-IDA-WBS-01 Check that white beam stop is in place, labeled, and that cooling water is connected.
- 2  7-IDA-BSS-01 Check lead Brems. Shielding is in place and labeled as per photograph.
- 3  7-IDA-SBS-02 Check shielding is in place and labeled as per photograph.
- 7-IDA-MSK-04 Check mask is in place, labeled, and that cooling water is connected.
- 7-IDA-MSK-02 Check mask is in place, labeled, and that cooling water is connected.

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- 7-IDA-FS-02 Check cooled frame is in place, labeled, and that cooling water is connected.
- 7-IDA-FS-06 Check cooled frame is in place, labeled, and that cooling water is connected.
- 4  7-IDA-BRS-01 Check tungsten Brems. stop is in place and labeled as per photograph.
- 7-IDA-PSH-01 Check that photon shutter 1 is in place and labeled, and that cooling water is connected.
- 7-IDA-PSH-04 Check that photon shutter 4 is in place and labeled, and that cooling water is connected.
- 5  7-IDA-GU-01 Check that hutch guillotine is secured closed and labeled as per photograph.
- 7-IDA-LBYR-07 Check that PPS labyrinth is closed, secured, and labeled.

**Check the following on the downstream wall of the FOE:**

- 6  7-IDA-SBS-03 Check that shielding is in place and labeled as per photograph.
- 7  7-IDA-CLLR-01 Check that collar is in place and labeled as per photograph.
- 7  7-IDA-CLLR-02 Check that collar is in place and labeled as per photograph.

**SECTION B:**

**Check the following in the 7-ID-1 floor area (outboard)**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-14 Check that lead shielded pipe is in place and labeled.
- 8  7-ID1-CLLR-01 Check that beam tube collar B1 (2 mm) is in place and labeled as per photograph.
- 7-ID1-SW-09 Check that pair of vacuum switches are in place and labeled, and that valve to chamber is open.
- 8  7-ID1-CLLR-02 Check that combined bellows and beam tube collar B2-3(4 mm) is in place and labeled as per photograph.
- 7-ID1-VWPT-01 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-02 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-03 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-04 Check that leaded viewport on PGM chamber is in place and labeled.

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- 7-ID1-VWPT-05 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-13 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-06 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-08 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VWPT-07 Check that leaded viewport on PGM chamber is in place and labeled.
- 7-ID1-VVS-01 Check that PGM chamber which includes vacuum vessel and M2 hard stop is in place and labeled.
- 7-ID1-SW-04 Check that pair of vacuum switches are in place and labeled, and that valve to chamber is open.
- 7-ID1-MSK-05 Check that flange containing zero order mask is in place and labeled, and that cooling water is connected.
- 7-ID1-MSK-06 Check that uncooled masks assembly is in place and labeled.
- 9  7-ID1-CLLR-04 Check that beam tube collar B4 (1 mm) is in place and labeled as per photograph.
- 9  7-ID1-CLLR-05 Check that bellows collar B5 (2mm) is in place and labeled as per photograph.
- 7-ID1-VA-15 Check that contiguous vacuum section between GV15 and GV16, and between GV15 and PSH10 is in place and labeled.
- 7-ID1-VWPT-9 Check that leaded viewport on M3 chamber is in place and labeled.
- 10  7-ID1-CLLR-06 Check that bellows collar B6 (2mm) is in place and labeled as per photograph.
- 7-ID1-PBS-01 Check that pink beam stop is in place and labeled, and that cooling water is connected.
- 7-ID1-VWPT-10 Check that leaded viewport on PBS chamber is in place and labeled.
- 11  7-ID1-CLLR-07 Check that bellows collar B7 (1 mm) is in place and labeled as per photograph.
- 7-ID1-PSH-10 Check that PSH10 is in place and labeled.
- 11  7-ID1-CLLR-08 Check that bellows collar B8 (1 mm) is in place and labeled as per photograph.
- 7-ID1-VA-16 Check that contiguous vacuum section between GV16 and GV17 is in place and labeled.
- 7-ID1-VWPT-11 Check that leaded viewport on Diagnostic Module DM3 is in place and labeled.

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- 13  7-ID1-CLLR-11 Check that bellows collar B11 (1 mm) is in place and labeled as per photograph.
- 7-ID1-VA-17 Check that contiguous vacuum section between GV17 and GV18 is in place and labeled.
- 7-ID1-VA-18 Check that contiguous vacuum section between GV18 and GV19 is in place and labeled.
- 7-ID1-VA-19 Check that contiguous vacuum section between GV19 and PSH5, and GV19 and PSH6 is in place and labeled.
- 7-ID1-PSH-05 Check that PSH5 is in place and labeled.
- 7-ID1-PSH-06 Check that PSH6 is in place and labeled.

### **SECTION C:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 10 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-24 Check that contiguous vacuum section between PSH10 and GV27 is in place and labeled.
- 12  7-ID1-CLLR-09 Check that bellows collar B9 (1 mm) is in place and labeled as per photograph.
- 7-ID1-VWPT-12 Check that leaded viewport on Diagnostic Module DM6 is in place and labeled.
- 13  7-ID1-CLLR-10 Check that bellows collar B10 (1 mm) is in place and labeled as per photograph.
- 7-ID1-VA-25 Check that contiguous vacuum section between GV27 and GV27A is in place and labeled.
- 7-ID1-SW-10 Check that pair of vacuum switches are in place and labeled, and that valve connecting to chamber is open.
- 7-ID1-PSH-07 Check that PSH7, including vacuum section between GV28 and PSH7 is in place and labeled.

### **SECTION D:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 7 OR Photon Shutter 10 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

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- 7-ID1-VA-26 Check that contiguous vacuum section between PSH7 and GV29 is in place and labeled.
- 7-ID1-VA-27 Check that contiguous vacuum section between GV29 and GV29B is in place and labeled.
- 7-ID1-SW-11 Check that pair of vacuum switches are in place and labeled, and that valve connecting to chamber is open.
- 7-ID1-VVS-03 Check that LARIAT-1 vacuum vessel which serves as the end of the beamline is in place and labeled.
- 7-ID1-SW-05 Check that pair of vacuum switches are in place and labeled, and that valve connecting to chamber is open.
- 7-ID1-PSH-08 Check that PSH8 is in place and labeled.

**SECTION E:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 8 OR Photon Shutter 7 OR Photon Shutter 10 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-28 Check that contiguous vacuum section between PSH8 and GV31 is in place and labeled.
- 7-ID1-VA-29 Check that contiguous vacuum section between GV31 and GV31B is in place and labeled.
- 7-ID1-SW-06 Check that pair of vacuum switches are in place and labeled, and that valve connecting to chamber is open.
- 7-ID1-PSH-09 Check that PSH9 is in place and labeled.

**SECTION F:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 9 OR Photon Shutter 8 OR Photon Shutter 7 OR Photon Shutter 10 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-30 Check that contiguous vacuum section between PSH9 and the upstream flange of the LARIAT-2 endstation is in place and labeled.
- 7-ID1-VVS-02 Check that LARIAT-2 vacuum vessel which serves as the end of the beamline is in place and labeled.

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- 7-ID1-SW-07** Check that pair of vacuum switches are in place and labeled, and that valve connecting to chamber is open.

**SECTION G:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 6 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-21** Check that contiguous vacuum section between GV22 and GV23 is in place and labeled.
- 7-ID1-VA-22** Check that contiguous vacuum section between GV23 and GV24 is in place and labeled.
- 7-ID1-VA-23** Check that contiguous vacuum section between GV24 and GV25 is in place and labeled.
- 7-ID1-VA-12** Check that contiguous vacuum section between GV12 and VPPEM endstation and GV25 and VPPEM endstation is in place and labeled.
- 7-ID2-SW-03** Check that pair of vacuum switches is in place and labeled, and that valve to chamber is open.
- 7-ID2-FLG-01** Check that beam stop flange is in place and labeled.

**SECTION H:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 5 OR Photon Shutter 4.

**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- 7-ID1-VA-20** Check that contiguous vacuum section between PSH5 and GV21 is in place and labeled.
- 7-ID2-VA-09** Check that contiguous vacuum section between GV9, GV21, and HAXPES endstation is in place and labeled.
- 7-ID2-SW-02** Check that pair of vacuum switches is in place and labeled, and that valve to chamber is open.
- 7-ID2-VA-10** Check that contiguous vacuum section between HAXPES Downstream Flange and PSH3 is in place and labeled.
- 7-ID2-PSH-03** Check that PSH3 is in place and labeled.

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## **SECTION I:**

### **Check the following in the 7-ID-2 floor area (inboard):**

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**Lead Beamline Scientist (signature):** \_\_\_\_\_ **Date:** \_\_\_\_\_

- |       |                          |                      |   |
|-------|--------------------------|----------------------|---|
| 15    | <input type="checkbox"/> | <b>7-ID2-SBE-01</b>  | Check that shielded beam pipe enclosure is in place and labeled as per photograph.                        |
| 15    | <input type="checkbox"/> | <b>7-ID2-SBE-02</b>  | Check that shielded beam pipe enclosure is in place and labeled as per photograph.                        |
| 14,15 | <input type="checkbox"/> | <b>7-ID2-SBE-03</b>  | Check that shielded beam pipe enclosure is in place and labeled as per photograph.                        |
| 15    | <input type="checkbox"/> | <b>7-ID2-SBE-04</b>  | Check that shielded beam pipe enclosure is in place and labeled as per photograph.                        |
|       | <input type="checkbox"/> | <b>7-ID2-VA-05</b>   | Check that lead shielded beam pipe is in place and labeled.   |
| 14,15 | <input type="checkbox"/> | <b>7-ID2-SFE-01</b>  | Check that shielded flange enclosure is in place and labeled as per photograph.                           |
| 16    | <input type="checkbox"/> | <b>7-ID2-CLLR-20</b> | Check that bellows collar B20 (2 mm) is in place and labeled as per photograph.                           |
|       | <input type="checkbox"/> | <b>7-ID2-SW-08</b>   | Check that pair of vacuum switches is in place and labeled, and that valve connecting to chamber is open. |
| 17    | <input type="checkbox"/> | <b>7-ID2-CLLR-21</b> | Check that bellows collar B21(2 mm) is in place and labeled as per photograph.                            |
|       | <input type="checkbox"/> | <b>7-ID2-MSK-03</b>  | Check that the mask is in place and labeled, and that cooling water is connected.                         |
| 17    | <input type="checkbox"/> | <b>7-ID2-CLLR-22</b> | Check that bellows collar B22 (2 mm) is in place and labeled as per photograph.                           |
|       | <input type="checkbox"/> | <b>7-ID2-VWPT-01</b> | Check that leaded viewport is in place and labeled.   |
|       | <input type="checkbox"/> | <b>7-ID2-SW-01</b>   | Check that pair of vacuum switches is in place and labeled, and that valve connecting to chamber is open. |
|       | <input type="checkbox"/> | <b>7-ID2-VVS-01</b>  | Check that DCM chamber is in place and labeled.   |
|       | <input type="checkbox"/> | <b>7-ID2-VWPT-02</b> | Check that leaded viewport is in place and labeled.   |
| 18    | <input type="checkbox"/> | <b>7-ID2-CLLR-23</b> | Check that bellows collar B23 (2 mm) is in place and labeled as per photograph.                           |
|       | <input type="checkbox"/> | <b>7-ID2-PBS-01</b>  | Check that pink beam stop is in place and labeled, and that cooling water is connected.                   |

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- 18        **7-ID2-CLLR-24**    Check that PBS bellows collar B24 (2 mm) is in place and labeled as per photograph.
- 7-ID2-VA-06**    Check that contiguous vacuum section between GV6 and GV7 is in place and labeled.
- 7-ID2-VA-07**    Check that contiguous vacuum section between GV7 and PSH2 is in place and labeled.
- 7-ID2-PSH-02**    Check that PSH2 is in place and labeled.

**SECTION J:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 2 OR Photon Shutter 1.

**Lead Beamline Scientist (signature):** \_\_\_\_\_      **Date:** \_\_\_\_\_

- 7-ID2-VA-08**    Check that contiguous vacuum section between PSH2 and GV9 is in place and labeled.
- 7-ID2-VA-09**    Check that contiguous vacuum section between GV9 and HAXPES Station Upstream Flange is in place and labeled.
- 7-ID2-SW-02**    Check that pair of vacuum switches is in place and labeled, and that valve to chamber is open.
- 7-ID2-VA-10**    Check that contiguous vacuum section between HAXPES Downstream Flange and PSH3 is in place and labeled.
- 7-ID2-PSH-03**    Check that PSH3 is in place and labeled.

**SECTION K:**

The following section does NOT need to be verified subject to SSWP# \_\_\_\_\_ and Centrally Controlled LOTO has been applied to the Beamline Photon Shutter 3 OR Photon Shutter 2 OR Photon Shutter 1.

**Lead Beamline Scientist (signature):** \_\_\_\_\_      **Date:** \_\_\_\_\_

- 7-ID2-VA-11**    Check that contiguous vacuum section between PSH3 and GV12 is in place and labeled.
- 7-ID2-VA-12**    Check that contiguous vacuum section between GV12 and GV25 and VPPEM endstation is in place and labeled.
- 7-ID2-SW-03**    Check that pair of vacuum switches is in place and labeled, and that valve to chamber is open.
- 7-ID2-FLG-01**    Check that beam stop flange is in place and labeled.

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4/30/2019

4/30/2019

**X** Conan Weiland

Conan Weiland  
SST Lead Beamline Scientist  
Signed by: Weiland, Conan

**X** Chernoj Jaye

Chernoj Jaye  
SST Lead Beamline Scientist  
Signed by: Jaye, Chernoj

4/30/2019

**X** 

Steven Hulbert  
Technical Authority  
Signed by: Hulbert, Steven

Inspected by

Print Name \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**\*\*\*\*\***  
***Removal or Modification of any Device under***  
***Configuration Control Requires an Approved***  
***NSLS-II Safety System Work Permit***  
**\*\*\*\*\***