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National Synchrotron Light Source II, Brookhaven National Laboratory			
Doc No. PS-C-XFD-PRC-010	Author: T. McDonald	Effective Date: 01Jul2015 Review Frequency: 3 yrs	Version 2
Title: Beamline Enclosure Search and Secure and Breaking Security Procedure			Technical

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VERSION HISTORY LOG

VERSION	DESCRIPTION	DATE
1	First Issue.	30May2014
1	MPC No. 1: Name of button in step 6.2.2 changed to reflect what is posted in the field.	02Oct 2014
1	MPC No. 2: Added Attachments A-D to provide the Searcher an aid when searching the following beamlines: 3-ID, 5-ID, 10-ID, and 11-ID.	30Oct2014
2	Changed hutch to "enclosure" in title; added requirement for validation of beamline-specific Beamline Enclosure Search and Secure Sketch in sections 3.3, and 6.3; added prerequisite that Search and Secure Sketches shall be completed and posted in the KSR; added responsibility for the Configuration Management Specialist; added precaution that search shall be discontinued if the search path or sequence can not be followed in section 5.5; changes made to address finding F13 from the IRR for beamlines 3-ID, 5-ID, 10-ID, and 11-ID; beamline sketches made an example, attachments removed and now require posting in the KSR; re-worded section 6.1 (moved steps 6.1a and b to after step 6.1.9) - Searchers check PPS for faults if the enclosure fails to interlock. Moved steps 6.1.2 and 6.1.3 to prerequisites, now 4.3.	01Jul2015

ACRONYMS

BNL	Brookhaven National Laboratory	NSLS-II	National Synchrotron Light Source II
ESH	Environment, Safety and Health	PPS	Personnel Protection System
FLOCO	Floor Coordinator	SB	Search Button
FOE	First Optical Enclosure	SBE	Search Button External
HMI	Human Machine Interface		
ID	Insertion Device		

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1 PURPOSE AND SCOPE

The purpose of this procedure is to perform a search of a BNL NSLS-II beamline enclosure, as well as to break security of a secured beamline enclosure.

2 DEFINITIONS

- 2.1 Searcher: A User or Authorized Beamline Staff, who searches and secures the beamline enclosure, as well as breaks security.

3 RESPONSIBILITIES

3.1 Searcher

- 3.1.1 Searches, secures and breaks beamline enclosure security within their limitations and authorizations.

3.2 Accelerator Safety Systems Staff

- 3.2.1 Respond to any fault or suspect conditions of the beamline PPS.

3.3 ESH Staff

- 3.3.1 Perform periodic validation of beamline-specific Beamline Enclosure Search and Secure Sketches during PPS certification testing.

3.4 FLOCO

- 3.4.1 Resets faults associated with beamline PPS.
- 3.4.2 Contacts Accelerator Safety Systems Staff if PPS faults cannot be reset.

3.5 Lead Beamline Scientist and/or designee

- 3.5.1 Responds to and resolves issues when searches are discontinued because the search path or sequence cannot be followed in accordance with the Beamline Enclosure Search and Secure Sketches.

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3.6 Configuration Management Specialist

3.6.1 Posts Beamline Enclosure Search and Secure Sketches in the Key Safety Records section of the SharePoint Document Center.

4 PREREQUISITES

- 4.1 The Searcher shall be trained and qualified to perform this search procedure.
- 4.2 A Search and Secure Sketch has been generated for the beamline enclosure(s) and is posted in the Key Safety Records section of the SharePoint Document Center.
- 4.3 Secondary doors are closed and locked.

5 PRECAUTIONS AND LIMITATIONS

- 5.1 Searches shall be performed without distraction (e.g., non-search related discussions, personal conversations, distractive material, emails, etc.) to ensure that an adequate search is performed.
- 5.2 Radiation levels in the beamline enclosures during beam operation constitute a “High Hazard” radiation field. All personnel shall be removed from the beamline enclosures prior to opening the beamline safety shutter(s).
- 5.3 Searching the enclosures shall be performed by only one Searcher. More than one Searcher is not permitted.
- 5.4 Personnel shall press the Emergency Stop button inside the enclosure if the “Beam Imminent” beacon/alarm is seen or heard during the performance of this procedure.
- 5.5 Searches shall be discontinued and the Lead Beamline Scientist or designee notified if the search path (including a clear line of sight using mirrors) or sequence cannot be followed in accordance with the Beamline Enclosure Search and Secure Sketch.

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6 PROCEDURE

Note: Beamline Enclosure Search and Secure Sketches are located in the Key Safety Records section of the SharePoint Document Center.

6.1 Search and Secure a Beamline Enclosure

Note: Pressing SB1 activates the “search in progress” amber beacon(s) and sounders inside the beamline enclosure.

Note: Pressing SB1 starts a countdown, within which the search shall be completed. The time of the countdown will be appropriately programmed for the size of the particular beamline enclosure being searched.

6.1.1 Searcher presses SB1 on Check Station 1.

Note: Beamline enclosures may have more than two interior search buttons (e.g., SB1, SB2, SB3).

6.1.2 Searcher performs the search AND presses all of the SBs inside the enclosure, in order.

6.1.3 Searcher uses search mirrors to check for hidden personnel.

6.1.4 Searcher exits the beamline enclosure through the primary door.

Note: When using an automated door controller, the Searcher shall maintain visual contact with the door until it is fully closed.

6.1.5 Searcher fully closes the primary door.

Note: 30 seconds after SBE is pressed, the interlock sign will illuminate.

Note: Once SBE has been pressed, the Beam Imminent alarm will sound, the magnetic door lock on the primary door engages, and the red “Beam Imminent” beacon will flash.

6.1.6 Searcher presses SBE.

6.1.7 IF the enclosure fails to interlock, THEN:

- a. Check the PPS HMI for interlock faults.

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- b. Contact the FLOCO to clear and reset any faults before proceeding
- c. IF unable to reset faults, THEN the FLOCO contacts the Accelerator Safety Systems Staff.

6.2 Breaking Beamline Enclosure Security

- 6.2.1 User or authorized Beamline Staff close the appropriate beamline shutter(s).
- 6.2.2 User or authorized Beamline Staff press the "SBE" button on the beamline HMI keypad.

6.3 Periodic Validation of Beamline-specific Beamline Enclosure Search and Secure Sketches

- 6.3.1 ESH Staff validate the information contained on beamline-specific Beamline Enclosure Search and Secure Sketches during PPS certification testing.

7 REFERENCES

- 7.1 PS-C-CMD-PRC-002, *Records Management Procedure*
- 7.2 PS-C-CMD-PRC-003, *Document Control Procedure*

8 ATTACHMENTS

Attachment A, *Example Beamline Enclosure Search and Secure Sketch*

9 DOCUMENTATION

The following document is generated as a result of this procedure, and shall be maintained in accordance with PS-C-CMD-PRC-002, *Records Management Procedure* and PS-C-CMD-PRC-003, *Document Control Procedure*:

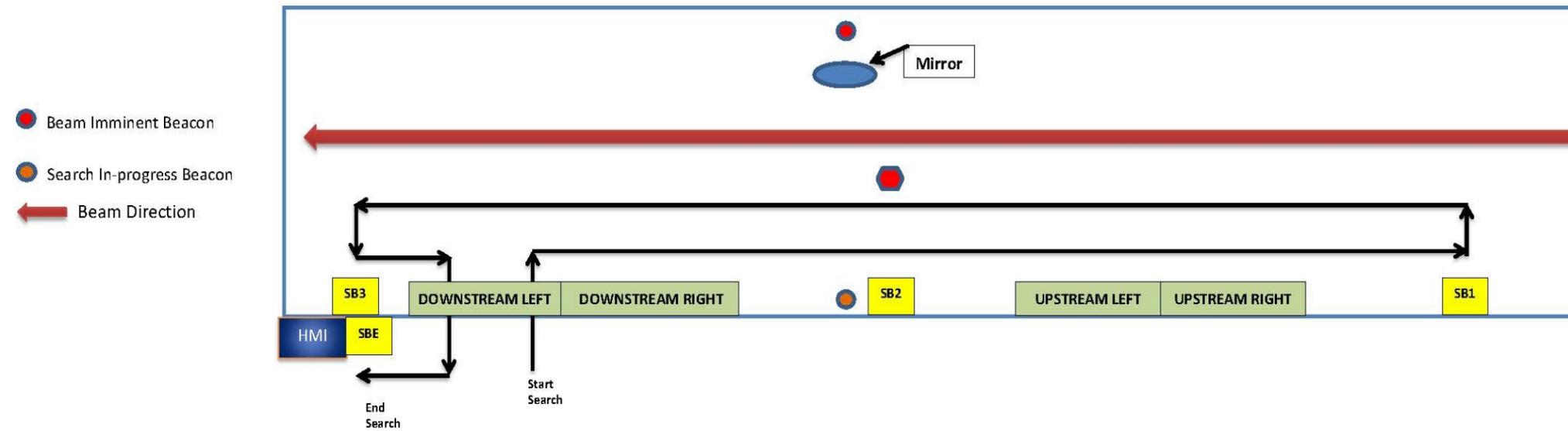
- Beamline Enclosure Search and Secure Sketches

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Attachment A

Example Beamline Enclosure Search and Secure Sketch

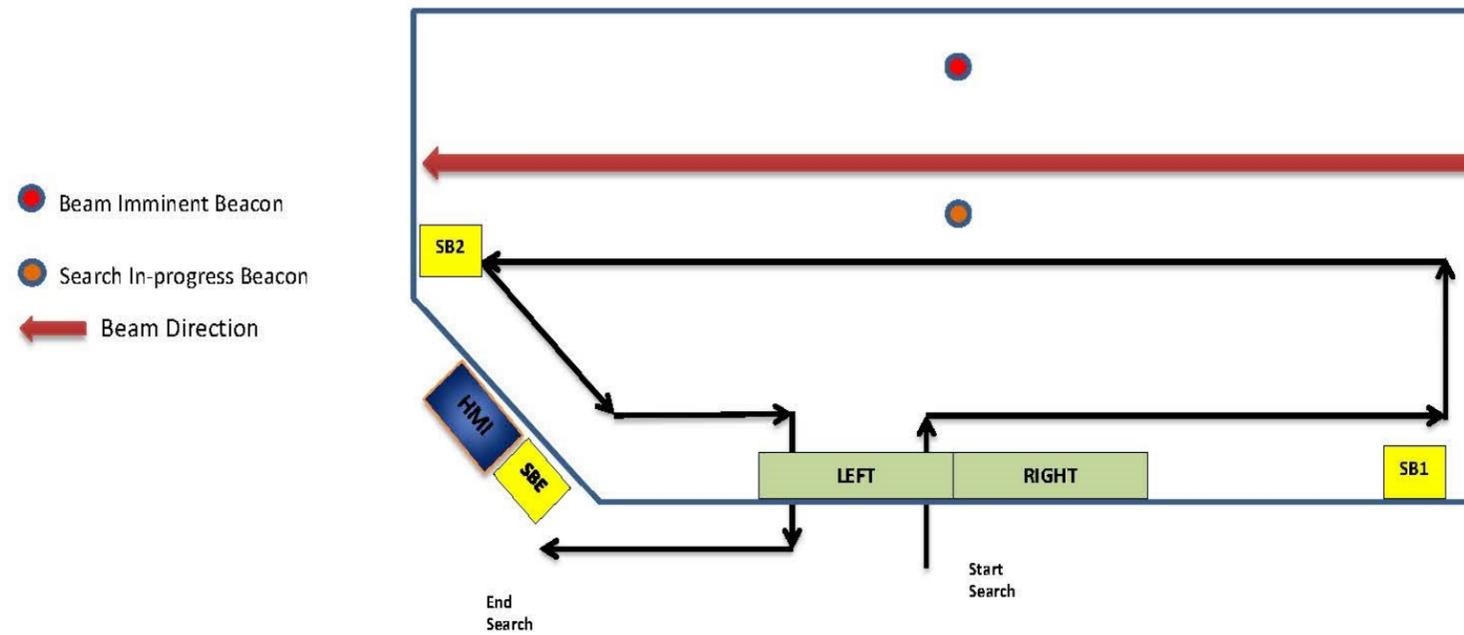
3-ID A (FOE) Beamline Enclosure Search Sequence



1. Check PPS HMI for PPS Faults and turn Door Maglocks ON (green) using HMI
2. Contact FLOCO to clear and reset any faults before starting search
Initial Search Conditions are:
 - Door Maglocks ON (Green on Keypad)
 - Both Upstream and Downstream RIGHT Doors are Closed
 - Downstream LEFT door remains Open
 - HMI clear of any faults (No red A chain or B chain faults)
3. Confirm the enclosure is free of people before beginning the search
4. Search Sequence:
 - a. Enter enclosure through the open door and Press SB1
 - b. Stop and check mirror for personnel behind beamline components
 - c. Press SB2
 - d. Press SB3 and exit enclosure
 - e. Close the downstream LEFT door (if using automatic door closer- watch door at all times)
5. Press SBE
6. Beam Imminent warning sounds for 30 seconds
7. Hutch is now interlocked.

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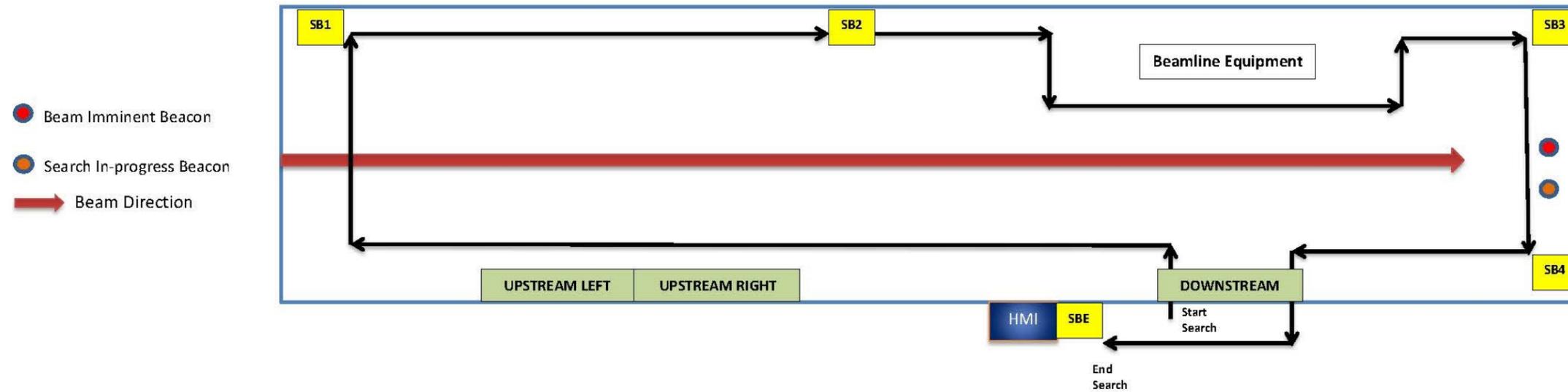
3-ID B Beamline Enclosure Search Sequence



1. Check PPS HMI for PPS Faults and turn Door Maglocks ON (green) using HMI
2. Contact FLOCO to clear and reset any faults before starting search
Initial Search Conditions are:
 - Door Maglocks ON (Green on Keypad)
 - RIGHT Doors is Closed
 - LEFT door remains Open
 - HMI clear of any faults (No red A chain or B chain faults)
3. Confirm the enclosure is free of people before beginning the search
4. Search Sequence:
 - a. Enter enclosure through the open door and Press SB1
 - b. Press SB2 and exit enclosure
 - c. Close the LEFT door (if using automatic door closer- watch door at all times)
5. Press SBE
6. Beam Imminent warning sounds for 30 seconds
7. Hutch is now interlocked.

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3-ID C Beamline Enclosure Search Sequence



1. Check PPS HMI for PPS Faults and turn Door Maglocks ON (green) using HMI
2. Contact FLOCO to clear and reset any faults before starting search
Initial Search Conditions are:
 - Door Maglocks ON (Green on Keypad)
 - Both Upstream Doors are Closed
 - Downstream door remains Open
 - HMI clear of any faults (No red A chain or B chain faults)
3. Confirm the enclosure is free of people before beginning the search
4. Search Sequence:
 - a. Enter enclosure through the open door and Press SB1
 - b. Press SB2
 - c. Check behind beamline equipment and Press SB3
 - d. Press SB4 and exit hutch
 - e. Close the Downstream door
5. Press SBE
6. Beam Imminent warning sounds for 30 seconds
7. Hutch is now interlocked.

-END-