National Synchrotron Light Source II, Brookhaven National Laboratory			
Doc No. PS-C-XFD-PRC-006	Author: B. Heneveld	Effective Date: 13Nov2015 Review Frequency: 3 yrs	Version 3
Title: Beamline Enclosures and Cryogen Fill Station ODH Monitoring System Alarm Response Procedure			Technical

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VERSION HISTORY LOG

VERSION	DESCRIPTION	DATE
1	First Issue	29May2014
2	Replaced all "hutches" with Beamline Enclosures throught procedure. Validation waived by Author, B. Heneveld and Conduct of Operations Manager, L. Hill.	29July2014
3	Revised to include cryogen fill stations.	13Nov2015

ACRONYMS

BNL	Brookhaven National Laboratory
ESH	Environment, Safety and Health
FLOCO	Floor Coordinator
LN2	Liquid Nitrogen
NSLS–II	National Synchrotron Light Source II
O2	Oxygen
ODH	Oxygen Deficiency Hazard
ORPS	Occurrence Reporting and Processing System
POM	Personal Oxygen Monitor

1 PURPOSE AND SCOPE

The purpose of this procedure is to provide instructions for ODH Monitoring System alarm response for the beamline enclosures and cryogen fill stations that contain the PureAire Air Check O_2 Oxygen Deficiency Monitors and associated alarms. These systems have been installed in NSLS-II Beamline Enclosures and Cryogen Fill Stations identified to be at risk of oxygen deficiency under specific LN_2 System failure scenarios.

The scope of this procedure includes:

- Verification that automated systems have performed, including the local alarms
- Communication of the alarms to the Control Room
- Ensuring BNL Fire/Rescue response to the alarms, evaluation of the beamline enclosure or cryogen fill stations oxygen concentration and communication of concerns preventing the beamline enclosure or cryogen fill station from return to normal operations
- Obtaining and documenting beamline enclosure or cryogen fill station return to service
- Documenting the event by contacting the BNL ORPS categorizer for verified alarms, and obtaining the return to service authorization

2 DEFINITIONS

2.1 Verification: A process of confirming that system activation results in the expected outcome.

3 RESPONSIBILITIES

3.1 Beamline Staff, Beamline Users and Cryogen Fill Station Users

3.1.1 Respond to ODH alarms at the beamline enclosures and cryogen fill stations by contacting the Control Room.

3.1.2 Verify that all automated alarm systems have performed as expected.

3.1.3 Restrict beamline enclosure and cryogen fill station entry to only BNL Fire/Rescue responders during and subsequent to an alarm condition.

3.2 Control Room Staff

3.2.1 Contact BNL Fire/Rescue for ODH condition evaluation.

3.2.2 Provide additional resources as may be requested by BNL Fire/Rescue in the resolution of the ODH system alarm response.

3.2.3 Make an entry into the Operations Log with the return to service time and determination.

3.3 FLOCO

3.3.1 Posts and de-posts beamline enclosure and cryogen fill station entry restrictions.

3.4 ESH Staff

3.4.1 Contact ORPS Categorizer for verified ODH conditions.

3.4.2 Evaluate alternative controls for beamline enclosure and cryogen fill station entry when the ODH alarm system is malfunctioning.

4 PREREQUISITES

None.

5 PRECAUTIONS AND LIMITATIONS

5.1 Personnel shall not place themselves in any danger beyond the limits of their training when responding to an emergency.

5.2 Only authorized personnel (BNL Fire/Rescue) shall enter the beamline enclosures and cryogen fill stations during and subsequent to an alarm condition due to the potential for an oxygen deficiency and LN_2 pooling.

6 PROCEDURE

6.1 Response to Alarm Activation

Warning: Only authorized personnel (BNL Fire/Rescue) shall enter the beamline enclosure or a cryogen fill station during and subsequent to an alarm condition due to the potential for an oxygen deficiency and LN_2 pooling.

Note: Beamline enclosure access doors shall be left in the position they were in when the alarm activated.

6.1.1 Contact the Control Room (x2550) from a safe location and make clear that BNL Fire/Rescue response is required.

6.1.2 Control Room Staff contacts BNL Fire/Rescue.

Warning: Personnel shall not place themselves in danger to perform the following steps.

Note: It is a good practice for personnel to wear a POM while performing the following step.

6.1.3 Verify that both visual AND audible alarms have activated at all exterior entrances to the beamline enclosure or cryogen fill station.

a. IF visual or audible alarms have not activated, THEN post a person in the area OR set up barricades to prevent access to the ODH area.

6.1.4 Await instructions from BNL Fire/Rescue or Operations Staff.

6.2 Alarm Return to Normal and Authorizing Beamline Enclosure or Cryogen Fill Station Access

Warning: Alarms can become inactive due to the failure of the PureAire Air Check O_2 Oxygen Deficiency Monitor under extreme temperature or atmospheric conditions. BNL Fire/Rescue shall evaluate all alarm events even if the alarms self terminate.

Warning: BNL Fire/Rescue shall be the only authority to determine whether the potential ODH condition in a beamline enclosure or cryogen fill station has been resolved. No other entry shall occur until BNL Fire/Rescue has given the "All Clear."

Note: The BNL ORPS Categorizer is automatically notified of any BNL Fire/Rescue response and does not need to be contacted for false alarms.

6.2.1 ESH Staff contact the BNL ORPS Categorizer at x1234 or 631-433-0443 to report any verified ODH conditions.

6.2.2 If repairs are needed, contact the Control Room to initiate contact with the appropriate technical staff to make necessary repairs.

6.2.3 For verified ODH conditions, the FLOCO posts the beamline enclosure or cryogen fill station "No Entry Unless Authorized by BNL Fire/Rescue" (or equivalent).

6.2.4 For verified ODH monitor malfunctions, FLOCO or ESH Staff ensure that alternate equivalent monitoring (e.g., POMs) is available prior to beamline enclosure or cryogen fill station entry.

6.2.5 WHEN BNL Fire/Rescue clears the ODH condition AND the beamline enclosure or cryogen fill station is authorized for entry, THEN the FLOCO removes the "No Entry Unless Authorized by BNL Fire/Rescue" (or equivalent) posting.

6.2.6 Control Room Staff record the beamline enclosure or cryogen fill station return to service in the Operations Log.

6.3 Alarm Malfunction

6.3.1 In the event that an alarm is determined to be malfunctioning, ESH Staff evaluate authorized alternative controls (e.g., POMs) to allow beamline enclosure or cryogen fill station operations to continue.

7 REFERENCES

None.

8 ATTACHMENTS

None.

9 DOCUMENTATION

None.

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