

PSD Document Number: **000769**

November 2, 2011

Prepared by Andrew Ackerman

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PHOTON SCIENCES DIRECTORATE  
UN-REVIEWED SAFETY ISSUE (USI) DETERMINATION  
X17 INTERLOCK TESTING TIME EXTENSION

This USI determination is presented to document plans to extend the deadline for testing of the X17 beamline personnel protection interlock systems. Those interlocks control access to the synchrotron beam for protection from radiological hazards and are normally tested on a six month interval. The NLS operating schedule conflicts with the testing deadline. The extension will accommodate the experiment program and add no significant risk to personnel. BNL Safety and Health Services Division personnel have reviewed this issue and advised management at the directorate level in a USI format.

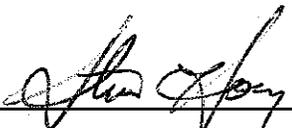
The X17 interlocks are tested during maintenance shutdown periods because of the time needed to complete this task. The testing can take as much as a day assuming no problems or delays are encountered. Testing for this system is due on 11/30/11 and, this year, the NLS maintenance schedule begins on 12/19/11; 19 days later. Allowing continued operation for the 19 days will enable planned experiments on the line with no interruption.

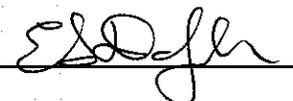
The required tests will be performed during the winter 2011/2012 shutdown and X17 operation will not resume until satisfactory validation of the subject interlocks. This extension is for one instance only. Based on many years of operations and testing at X17 and throughout the NLS, we expect that this extra 19 days of operation will have no significant impact to personnel safety.

On 12/19/11, PSD ESH personnel will LOTO the X17 Safety Shutters to provide a mechanical barrier to operation. With those shutters locked closed, no ionizing radiation hazard is present at X17 during any X-ray storage ring conditions. These shutters will remain closed and LOTO'd until the personnel protection interlocks at X17 are operational and verified through testing.

This extension has no impact to the authorization basis documents for the NLS.

Approved:

Steve Hoey  11/3/11

Erik Johnson  11/6/11

**EMS, FUA and SAD/ASE Checklist for Photon Sciences Directorate Reviews**

(Photon Sciences Directorate ES&H personnel and the Environmental Compliance Representative can assist in completing this form)

**Review Committee:** Andrew Ackerman

**Date:** 11/02/2011

**Project Name (and # if any):** None

This checklist identifies issues associated with this project that may impact the Directorate Environmental Management System, Occupational Health & Safety Management System, Facility Use Agreements, Safety Assessment Documents & Accelerator Safety Envelopes, and NEPA documents.

**SIGNIFICANT ENVIRONMENTAL ASPECTS ASSOCIATED WITH THIS PROJECT:**

Check off any environmental aspects that are associated with this project (NSLS and NSLS-II Environmental Management System aspects matrices show the significant aspects).

For criteria, go to the SBMS Subject Area titled Identification of Environmental Aspects and Impacts.

<input type="checkbox"/> Industrial Waste Generation	<input type="checkbox"/> Work with Engineered Nanomaterials	<input type="checkbox"/> Power Consumption	<input type="checkbox"/> Historical Contamination (groundwater, soil)
<input type="checkbox"/> Hazardous Waste Generation	<input type="checkbox"/> Atmospheric Emissions	<input type="checkbox"/> Engineered Nanomaterials	<input type="checkbox"/> Soil Activation
<input type="checkbox"/> Radioactive Waste Generation	<input type="checkbox"/> Liquid Effluents	<input type="checkbox"/> Historical Monuments/Cultural Resources	<input type="checkbox"/> Transuranic Waste Generation
<input type="checkbox"/> Mixed Waste Generation	<input type="checkbox"/> Storage or Use of Chemicals or Radioactive Materials*	<input type="checkbox"/> Sensitive/Endangered Species and Sensitive Habitats (including Pine Barrens)	<input type="checkbox"/> Other Regulatory Requirements - recycling
<input type="checkbox"/> Medical Waste Generation	<input type="checkbox"/> Water Consumption	<input type="checkbox"/> Environmental Noise	<input type="checkbox"/> NONE

\*Art 12 registered area, spill potential, transportation of hazmat or rad, backflow devices, PCBs.

Any environmental aspects new to the Directorate:  Y or  N? Any aspects associated with new activities:  Y or  N? If yes, describe below and issue a memo to the appropriate Photon Sciences Directorate ESH Manager:

**APPLICABLE REGULATORY REQUIREMENTS:**

Check off any BNL Subject Areas that are applicable to this process:

Note: PI's should consider subscribing to the Subject Area Subscription Service as a means of staying informed of changes to the Subject Area requirements.

<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Radioactive Waste Management
<input type="checkbox"/> Environmental Monitoring	<input type="checkbox"/> Regulated Medical Waste Management
<input type="checkbox"/> Hazardous Waste Management	<input type="checkbox"/> Spill Response
<input type="checkbox"/> Liquid Effluents	<input type="checkbox"/> Storage and Transfer of Hazardous & Non-hazardous Materials
<input type="checkbox"/> Mixed Waste Management	<input type="checkbox"/> Transfer of Hazardous or Radioactive Materials On-Site
<input type="checkbox"/> National Environmental Policy Act (NEPA) and Cultural Resource Evaluation	<input type="checkbox"/> Transport of Hazardous or Radioactive Materials Off-Site
<input type="checkbox"/> Non-Radioactive Airborne Emissions	<input type="checkbox"/> Underground Injection Control
<input type="checkbox"/> PCB Management	<input type="checkbox"/> Regulated Industrial Waste Management
<input type="checkbox"/> Pollution Prevention and Waste Minimization	<input type="checkbox"/> Working with Nanomaterials ES&H
<input type="checkbox"/> Radioactive Airborne Emissions	<input checked="" type="checkbox"/> None

**Facility Use Agreement (FUA)**

Answer "Yes" or "No" for each category below.

Category	Applicable		Elements and Details
	Yes	No	
Radiological Source Terms	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See FUA Table 4.1.1 for details.
Chemical, Toxic, Biological & Hazardous Source Terms	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See FUA Table 4.1.2 for details.
Physical Source Terms	<input type="checkbox"/>	<input checked="" type="checkbox"/>	See FUA Table 4.1.3 for details.

If yes, do any terms require an update to the FUA: Y or N? If yes, describe below and issue a memo to the appropriate Photon Sciences Directorate ESH Manager:

**Safety Assessment Document (SAD)/Accelerator Safety Envelope (ASE)**

Does this project include components that exceed or are not included in the safety boundaries described in the SAD or the ASE: Y or N? If yes, describe below and issue a memo to the appropriate Photon Sciences Directorate ESH Manager:

**Job/Facility Risk Assessments (JRA/FRA)**

Does this project include components that exceed or are not included in the jobs, hazards, controls or risks described in the JRA/FRAs: Y or N? If yes, describe below and issue a memo to the appropriate Photon Sciences Directorate ESH Manager:

**NEPA Environmental Assessment (EA)**

Does this project include components that exceed or are not included in the NEPA EA: Y or N? If yes, describe below and issue a memo to the appropriate Photon Sciences Directorate ESH Manager:

Andrew Ackerman  
Reviewer's Name



Reviewer's Signature

11/02/2011  
Date