

INSTRUMENT READINESS REVIEW (IRR)

FOR

NSLS-II BEAMLINES, FRONT ENDS AND INSERTION DEVICES

LINES OF INQUIRY (LOIs)



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FOR THE
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BASIC ENERGY SCIENCE
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FOR

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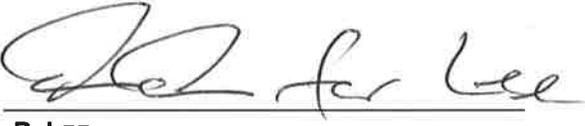
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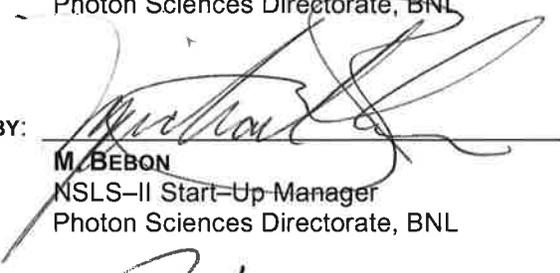
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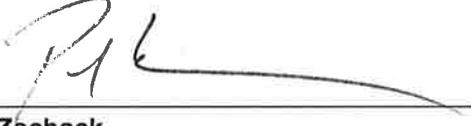
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TABLE OF CONTENTS

1.	INTRODUCTION	1
2.	PILLAR I DOCUMENTATION	1
	Beamline Overview	1
	Radiation Control	1
	Procedures.....	1
	Action Items and USI	1
3.	PILLAR II HARDWARE (RADIATION SAFETY COMPONENTS, SAFETY CRITICAL COMPONENTS AND OTHER)	1
	Radiation Safety Components and PPS.....	1
	Safety Critical Components	2
	Other Hardware	2
4.	PILLAR III PERSONNEL	2
	Lead Beamline Scientist	2
	Authorized Beamline Staff	2
	Supporting Staff; Lead Accelerator Operators; ROCO Roles	2

1. INTRODUCTION

The lines of inquiry (LOIs) included in this document were developed to support the Instrument Readiness Reviews (IRRs) for beamline commissioning and operations. The scope of this review includes the Front ends and Insertion Devices associated with these beamlines. They are organized according to the readiness criteria included in the Instrument Readiness Plan (IRP) for these reviews and are intended to be applicable to only those aspects of the readiness criteria that apply to the beamlines, front ends, and insertion devices, rather than a re-evaluation of the Photon Sciences "base program" which has been reviewed by previous Accelerator Readiness Review teams.

2. PILLAR I DOCUMENTATION

BEAMLINE OVERVIEW

Safety Assessment Document Lines of Inquiry (LOI)

Determine adequacy of the beamline functional description
Determine adequacy of the hazard analysis and mitigation strategy
Determine if the list of credited controls is complete

RADIATION CONTROL

Radiation Control Lines of Inquiry (LOI)

Review Beamline Radiation Safety Commissioning Plan
Verify beamline specific radiation survey plan is approved.
Verify that ray traces are approved and captured as controlled documents

PROCEDURES

Procedures Lines of Inquiry (LOI)

Review PS procedure program documentation
Interview selected beamline management/staff on their role in the PS procedure program
Review selected operating procedures controlling approval for startup, commissioning, beam enable, and safety significant controls
Review procedures required for beamline commissioning
Interview PS staff on select procedures
Determine adequacy of procedure program to support Beamline Commissioning and to maintain the function of 'credited controls'

ACTION ITEMS AND USI

Action Items and USI Lines of Inquiry (LOI)

Confirm that pertinent USI's are complete and filed
Interview PS USI manager
Determine adequacy of resources to support USI program
Determine status of findings and recommendations from previous reviews.

3. PILLAR II HARDWARE (RADIATION SAFETY COMPONENTS, SAFETY CRITICAL COMPONENTS AND OTHER)

RADIATION SAFETY COMPONENTS AND PPS

Radiation Safety Component Lines of Inquiry (LOI)

Interview Lead Beamline Scientist
Determine if beamline specifications have been defined for 50 mA operation

Review the completed Travelers
Verify that all radiation safety components are installed and ready
Verify that configuration management requirements met
Determine if Area Radiation Monitors are installed, calibrated, and connected to the Personal Protection System (PPS) interlocks

SAFETY CRITICAL COMPONENTS

Safety Critical Components Lines of Inquiry (LOI)
Determine if PPS components been installed, tested, and verified by the cognizant engineer and independently certified by ES&H staff
Determine oxygen sensors and alarms are installed, calibrated, and ready
Determine if the personal oxygen monitors are available, calibrated, and ready
Determine if the hutch structures have adequate provision to meet the life safety code
Determine adequacy of electrical power distribution.

OTHER HARDWARE

Other Hardware Lines of Inquiry (LOI)
Photon transport components and optics are installed and ready
End station diagnostics are installed and ready
Control systems are installed and ready
Vacuum equipment is installed and ready
Utilities (permanent and temporary) are installed and ready
Equipment protection system interlocks are installed ad ready

4. PILLAR III PERSONNEL

LEAD BEAMLINE SCIENTIST

Lead Beamline Scientist Lines of Inquiry (LOI)
Verify that the Lead Beamline Scientist has been identified and trained in appropriate beamline startup, and commissioning procedures.
Verify that safety-related training for the Lead Beamline Scientist is adequate and current.
Verify Job Training Assessments (JTAs) have been completed for the Lead Beamline Scientist and are adequate to enable the Lead Beamline Scientist to carry out his/her roles and responsibilities.

AUTHORIZED BEAMLINE STAFF

Authorized Beamline Staff Lines of Inquiry (LOI)
Verify that Authorized Beamline Staff have been identified and trained in appropriate beamline startup, and operational procedures.
Verify that safety-related training for Authorized Beamline Staff is adequate and current.
Verify Job Training Assessments (JTAs) have been completed for Authorized Beamline Staff personnel and are adequate to enable personnel to carry out their roles and responsibilities.

SUPPORTING STAFF; LEAD ACCELERATOR OPERATORS; ROCO ROLES

Supporting staff; Lead Accelerator Operators; ROCO Roles Lines of Inquiry (LOI)
Verify that staff have been identified and trained in appropriate beamline startup, and operational procedures.
Verify that safety-related training for staff is adequate and current.
Verify Job Training Assessments (JTAs) have been completed for staff are adequate to enable personnel to carry out their roles and responsibilities.

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