

Operational Safety Procedure Form

(See [ES&H Manual Chapter 3310 Appendix T1 Operational Safety Procedure \(OSP\) and Temporary OSP Procedure for instructions.](#))



DEFINE THE SCOPE OF WORK

Title:	Operation of PRAD Vacuum Chamber		
Location:	Experimental Hall B	Type:	<input checked="" type="checkbox"/> OSP <input type="checkbox"/> TOSP
Risk Classification (per Task Hazard Analysis attached) (See ESH&O Manual Chapter 3210 Appendix T3 Risk Code Assignment.)		Highest Risk Code Before Mitigation (3 or 4):	3
		Highest Risk Code after Mitigation (N, 1, or 2):	2
Owning Organization:	Hall B	Date:	03/24/2016
Document Owner(s):	Bob Miller, Eugene Pasyuk		
Document History (Optional)			
Revision:	Reason for revision or update:	Serial number of superseded document	

ANALYZE THE HAZARDS

1. Purpose of the Procedure – Describe in detail the reason for the procedure (what is being done and why).
 This document describes procedures for operating the PRAD Vacuum Chamber

2. Scope – include all operations, people, and/or areas that the procedure will affect.
 The operations include but not limited to installation and removal of widow cover, connection of the beam pipe to the window. All operations near the window should be performed by authorized personnel only.

3. Description of the Facility – include floor plans and layout of a typical experiment or operation.
 The PRad experiment is set up on level 1 of the Hall B Space Frame. PRad experiment a large ~5m long vacuum chamber extending from the target to the PRad detector system. There is a 1.7m diameter 63 mil Al. window at one end of the vacuum chamber, just before the PRad detectors. When this chamber is under vacuum it has very large stored energy. The accidental rupture of the window causes release of this stored energy. This presents a hazard to the personal and equipment.

4. Authority and Responsibility:

4.1 Who has authority to implement/terminate	Hall B engineer or designee
4.2 Who is responsible for key tasks	

Hall B work coordinator or designee. Only the personnel authorized by the Hall Work Coordinator or designee can perform the work.

4.3 Who analyzes the special or unusual hazards (See [ES&H Manual Chapter 3210 Appendix T1 Work Planning, Control, and Authorization Procedure](#))

Hall B engineer

4.4 What are the Training Requirements (See http://www.jlab.org/div_dept/train/poc.pdf)

- Read the OSP
- EH&S orientation (SAF100)
- Hall B safety awareness training (SAF111)
- PRad ESAD

5. Personal and Environmental Hazard Controls Including:

5.1 Shielding

N/A

5.2 Interlocks

N/A

5.3 Monitoring systems

N/A

5.4 Ventilation

N/A

5.5 Other (Electrical, ODH, Trip, Ladder) (Attach related Temporary Work Permits or Safety Reviews as appropriate.)

N/A

6. List of Safety Equipment:

6.1 List of Safety Equipment:

Hearing protection, safety glasses

6.2 Special Tools:

N/A

DEVELOP THE PROCEDURE

1. Associated Administrative Controls

- Appropriate training, as described in 4.4
- Written procedures in this document

2. Operating Guidelines

Hall work coordinator, in concert with the PRad Run Coordinator, shall determine the appropriate time for operations with Vacuum Chamber.

3. Notification of Affected Personnel (who, how, and when)

Hall work coordinator or designee shall notify PRad Run Coordinator before and after each operation with Vacuum chamber

4. List the Steps Required to Execute the Procedure: from start to finish.

1. Place barriers at all entries to level 1 spaceframe.
2. Place signs at all entries to level 1 that warn personnel of a thin window under vacuum.
3. Place signs at all entries to level 1 that state ear plugs and safety glasses must be worn to enter level 1.
4. Place ear plugs and safety glasses at the entries to level 1.
5. Personnel authorized by the Hall Work Coordinator will pump down the vacuum tank and check for leaks.
6. The signs and barriers will remain in place as long as the tank is under vacuum.

A window cover has been fabricated from 1/8" thick aluminum to protect the window from damage due to something falling into the window. This cover will be attached to the window at all times except when the experiment is running.

The window will be installed or removed only when there is no vacuum in the tank. This will remove the stored energy in the tank so people can work near the window.

5. Back Out Procedure(s) i.e. steps necessary to restore the equipment/area to a safe level.

In the event of a leak in the vacuum system, personnel authorized by the Hall Work Coordinator will bleed up the vacuum in the vacuum tank.

6. Special environmental control requirements:

6.1 Environmental impacts (See [EMP-04 Project/Activity/Experiment Environmental Review](#))

N/A

6.2 Abatement steps (secondary containment or special packaging requirements)

N/A

7. Unusual/Emergency Procedures (e.g., loss of power, spills, fire, etc.)

If there is an emergency and personnel can enter the area, the vacuum tank can be bleed up by personnel authorized by the Hall Work Coordinator. If personnel can not enter the area, the signs are in place to warn emergency responders of the thin window under vacuum.

8. Instrument Calibration Requirements (e.g., safety system/device recertification, RF probe calibration)

N/A

9. Inspection Schedules

The Vacuum chamber and window shall be inspected prior to any operation.

10. References/Associated Documentation

Attachment A: PRad Vacuum chamber Task Hazard Analysis
 Attachment B: PRad Vacuum window design

11. List of Records Generated (Include Location / Review and Approved procedure)

[Click](#)
 To Submit OSP
 for Electronic Signatures

Distribution: Copies to: affected area, authors, Division Safety Officer

Expiration: Forward to ESH&Q Document Control

Form Revision Summary

Qualifying Periodic Review – 02/19/14 – No substantive changes required.

Revision 1.3 – 11/27/13 – Added “Owning Organization” to more accurately reflect laboratory operations.

Revision 1.2 – 09/15/12 – Update form to conform to electronic review.

Revision 1.1 – 04/03/12 – Risk Code 0 switched to N to be consistent with [3210 T3 Risk Code Assignment](#).

Revision 1.0 – 12/01/11 – Added reasoning for OSP to aid in appropriate review determination.

Revision 0 – 10/05/09 – Updated to reflect current laboratory operations

ISSUING AUTHORITY	FORM TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.
ESH&Q Division	Harry Fanning	02/19/14	02/19/17	1.3

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