

Person: Butler, Jessie ([jbutler@jlab.org](mailto:jbutler@jlab.org))  
Org: PHALLA

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Operational Safety Procedure Review and Approval Form # 123035  
(See [ES&H Manual Chapter 3310 Appendix T1 Operational Safety Procedure \(OSP\) and Temporary OSP Procedure](#) for Instructions)

Type:	<b>OSP</b> <a href="#">Click for OSP/TOSP Procedure Form</a> <a href="#">Click for LOSP Procedure Form</a> <a href="#">Click for LOTO-COMPLEX Information</a> <a href="#">Click for LOTO-GROUP Information</a>			
Serial Number:	<b>ENP-21-123035-OSP</b>			
Issue Date:	<b>11/9/2021</b>			
Expiration Date:	<b>10/9/2024</b>			
Title:	<b>Moving BigBite Magnet and Detector Package</b>			
Location: (where work is being performed) <a href="#">Building Floor Plans</a>	<b>101 - Experimental Hall A</b>   Location Detail: (specifies about where in the selected location(s) the work is being performed)   <b>Inside Hall A downstream of pivot area</b>			
Risk Classification: (See <a href="#">ES&amp;H Manual Chapter 3210 Appendix T3 Risk Code Assignment</a> )	Without mitigation measures (3 or 4): <b>2</b> With mitigation measures in place (N, 1, or 2): <b>1</b>			
Reason:	This document is written to mitigate hazard issues that are : <b>Not Applicable</b>			
Owning Organization:	<b>PHALLA</b>			
Document Owner(s):	<b>Butler, Jessie (<a href="mailto:jbutler@jlab.org">jbutler@jlab.org</a>) Primary</b>			
Supplemental Technical Validations <input type="checkbox"/>				
<b>Lock, Tag, Try (Phillip Stanley, Tim Fitzgerald)</b> <b>Cranes &amp; Hoists - Ordinary or Pre-Engineered (Bob Sperlazza, Mark Loewus)</b> <b>ODH 0 and 1 (Imani Burton, Jennifer Williams)</b> <b>Pinch Points (Bert Manzlak, Paul Collins)</b> <b>Controlled Area (Adam Hartberger, David Hamlette, Keith Welch)</b> <b>ESH&amp;Q Liasion (Bert Manzlak)</b>				
Document History <input type="checkbox"/>				
<table border="1"><thead><tr><th>Revision <input type="checkbox"/></th><th>Reason for revision or update <input type="checkbox"/></th><th>Serial number of superseded document <input type="checkbox"/></th></tr></thead></table>		Revision <input type="checkbox"/>	Reason for revision or update <input type="checkbox"/>	Serial number of superseded document <input type="checkbox"/>
Revision <input type="checkbox"/>	Reason for revision or update <input type="checkbox"/>	Serial number of superseded document <input type="checkbox"/>		
Lessons Learned	<a href="#">Lessons Learned</a> relating to the hazard issues noted above have been reviewed.			

Comments for reviewers/approvers:

*This OSP is a requirement from Physics Division... Resubmitted based on changes recommended from one of the reviewers.*

Attachments

Procedure: *OSP\_Moving BB.pdf*

THA: *THA\_Moving BB.pdf*

Additional Files: *Procedure\_Moving BB.pdf*

Review Signatures

Subject Matter Expert : Lock-> Tag-> Try	<b>Signed</b> on 11/4/2021 7:57:24 AM by Phillip Stanley ( <a href="mailto:pstanley@jlab.org">pstanley@jlab.org</a> )
Subject Matter Expert : Material Handling Equipment->Cranes & Hoists - Ordinary or Pre-Engineered	<b>Signed</b> on 11/9/2021 7:37:47 AM by Mark Loewus ( <a href="mailto:loewus@jlab.org">loewus@jlab.org</a> )
Subject Matter Expert : Oxygen Deficiency Hazards (ODH)->ODH 0 and 1	<b>Signed</b> on 11/4/2021 11:28:22 AM by Jennifer Williams ( <a href="mailto:jennifer@jlab.org">jennifer@jlab.org</a> )
Subject Matter Expert : Pinch Points	<b>Signed</b> on 11/5/2021 7:34:00 AM by Bert Manzlak ( <a href="mailto:manzlak@jlab.org">manzlak@jlab.org</a> )
Subject Matter Expert : Radiation - Ionizing->Controlled Area	<b>Signed</b> on 11/8/2021 3:03:44 PM by Keith Welch ( <a href="mailto:welch@jlab.org">welch@jlab.org</a> )

Approval Signatures

Division Safety Officer : PHALLA	<b>Signed</b> on 11/9/2021 8:06:56 AM by Ed Folts ( <a href="mailto:folts@jlab.org">folts@jlab.org</a> )
ESH&Q Division Liasion : PHALLA	<b>Signed</b> on 11/9/2021 7:56:08 AM by Bert Manzlak ( <a href="mailto:manzlak@jlab.org">manzlak@jlab.org</a> )
Org Manager : PHALLA	<b>Signed</b> on 11/9/2021 9:34:35 AM by Cynthia (Thia) Keppel ( <a href="mailto:keppel@jlab.org">keppel@jlab.org</a> )
Person : Lock, Tag, Try Coordinator	<b>Signed</b> on 11/9/2021 7:45:31 AM by Jessie Butler ( <a href="mailto:jbutler@jlab.org">jbutler@jlab.org</a> )
Safety Warden : Experimental Hall A	<b>Signed</b> on 11/9/2021 7:45:31 AM by Jessie Butler ( <a href="mailto:jbutler@jlab.org">jbutler@jlab.org</a> )

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

Click  
For Word Doc

<b>Title:</b>	Moving/Positioning BigBite Magnet and Detector		
<b>Location:</b>	Hall A	<b>Type:</b>	<input checked="" type="checkbox"/> OSP <input type="checkbox"/> TOSP
<b>Risk Classification</b> (per <a href="#">Task Hazard Analysis</a> attached) (See <a href="#">ES&amp;H Manual Chapter 3210 Appendix T3 Risk Code Assignment.</a> )	<b>Highest Risk Code Before Mitigation</b>		2
	<b>Highest Risk Code after Mitigation (N, 1, or 2):</b>		1
<b>Owning Organization:</b>	Physics / Hall A	<b>Date:</b>	28 October 2021
<b>Document Owner(s):</b>	Jessie Butler		

**DEFINE THE SCOPE OF WORK**

- Purpose of the Procedure** – Describe in detail the reason for the procedure (what is being done and why).  
To move the BigBite magnet and detector package to new locations during equipment reconfiguration changes for the SBS Experiment.
- Scope** – include all operations, people, and/or areas that the procedure will affect.  
Moving BigBite magnet will affect anyone working in the vicinity of the BigBite magnet and the operations of BigBite, SBS, upstream, and downstream corrector magnets.
- Description of the Facility** – include building, floor plans and layout of the experiment or operation.  
Experimental Hall A – Downstream of the pivot area.

**ANALYZE THE HAZARDS and IMPLEMENT CONTROLS**

- Hazards identified on written Task Hazard Analysis**
  - Radiation
  - ODH
  - Electrical
  - Pinch Point
- Authority and Responsibility:**
  - 5.1 Who has authority to implement/terminate**  
Hall A Work Coordinator
  - 5.2 Who is responsible for key tasks**  
Members of the Hall A Tech Staff
  - 5.3 Who analyzes the special or unusual hazards including elevated work, chemicals, gases, fire or sparks** (See [ES&H Manual Chapter 3210 Appendix T1 Work Planning, Control, and Authorization Procedure](#))  
Hall A Work Coordinator or Designee

**6. Personal and Environmental Hazard Controls Including:**

**6.1 Shielding**

N/A

**6.2 Barriers** (magnetic, hearing, elevated or crane work, etc.)

Keep out zones will be identified at the time of the move and will be established using personnel, ropes, or flashing lights

**6.3 Interlocks**

N/A

**6.4 Monitoring systems**

N/A

**6.5 Ventilation**

N/A

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

Trip – Elevated track and multiple cables strung along the floor in the vicinity

**7. List of Safety Equipment:**

**7.1 List of Safety Equipment:**

Safety Shoe – Required  
 Gloves – Recommended  
 Class 2 Arc Flash PPE

**7.2 Special Tools:**

1” swivel hoist ring  
 ¾ ton (minimum) chainfall  
 (4) web slings (minimum straight pull capacity of 1500 pounds and appropriate length for distance needing to move)  
 ¾ ton (minimum) ratchet level hoist (come along)

**8. Associated Administrative Controls**

This OSP, associated THA, Hall A Conduct of Operation (COO), and configuration control for access the Hall in MCC.

**9. Training**

**9.1 What are the Training Requirements** (See [List of Training Skills](#))

Hall A Awareness Training (SAF110)  
 Radiation Worker 1 Training (SAF801C, SAF801T, & SAF801P)  
 ODH Training (SAF103)  
 Read and sign Hall A’s Conduct of Operations (COO)  
 Read and sign this OSP  
 JLAB (QEW) Qualified Electrical Worker Training

**DEVELOP THE PROCEDURE**

**10. Operating Guidelines**

Conduct a pre-job walk-down to identify potential areas of interferences.  
 A minimum of three people are required to perform this procedure.  
 Ensure that all the steps listed under line item 12 of this form are performed.

**11. Notification of Affected Personnel (who, how, and when include building manager, safety warden, and area coordinator)**

Contact Hall A Work Coordinator prior to starting work

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

Please see attachment –Steps to Move BB

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

1. Release tension on chainfall
2. Clear and block off area surrounding the magnet
3. Contact Hall A Work Coordinator
4. Re-assess the job and hazards

**14. Special environmental control requirements:**

**14.1 List materials, chemicals, gasses that could impact the environment** (ensure these are considered when choosing Subject Mater Experts) and explore [EMP-04 Project/Activity/Experiment Environmental Review](#) below

N/A

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

N/A

**14.3 Abatement steps** (secondary containment or special packaging requirements)

N/A

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

In the event of injury, or an immediate emergency exists, call **911** and also notify:

- Guards (x5822)
- Occupational Medicine (x7539)
- Crew Chief (x7045) (if inside the fence)

In case of an injury follow standard JLAB procedures. Initial response cards are located with each phone for appropriate emergency phone numbers. Additional information can be found

at [https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-24400/\\*.pdf](https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-24400/*.pdf).

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

N/A

**17. Inspection Schedules**

Ensure chainfall annual inspection is up-to-date

**18. References/Associated/Relevant Documentation**

This OSP and associated THA

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

N/A

**Submit Procedure for Review and Approval** (See [ES&H Manual Chapter 3310 Appendix T1 OSP & TOSP Instructions – Section 4.2 Submit Draft Procedure for Initial Review](#)):

- Convert this document to .pdf
- Open electronic cover sheet:  
<https://jlabdoc.jlab.org/docushare/dsweb/Get/Document-24048/3310T1Form.doc>
- Complete the form
- Upload the pdf document and associated Task Hazard Analysis (also in .pdf format)

**Distribution:** Copies to Affected Area, Authors, Division Safety Officer

**Expiration:** Forward to ES&H Document Control

### Form Revision Summary

- Revision 1.7 – 02/25/2021** – Corrected link to Word doc; updated ‘ESH&Q’ to ‘ES&H’; other minor edits. No approval required.
- Revision 1.6 – 06/23/2020** – Update section 15 to reflect guard number, what to do in an emergency, crew chief numbers, etc. approved by H. Fanning
- Revision 1.5 – 04/11/18** – Training section moved from section 5 Authority and Responsibility to section 9 Training
- Revision 1.4 – 06/20/16** – Repositioned “Scope of Work” to clarify processes
- 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 0.0 – 10/05/09** – Updated to reflect current laboratory operations

ISSUING AUTHORITY	FORM TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.
ES&H Division	<a href="#">Harry Fanning</a>	04/11/18	02/25/24	1.6

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## Task Hazard Analysis (THA) Worksheet

(See [ES&H Manual Chapter 3210 Appendix T1](#)  
[Work Planning, Control, and Authorization Procedure](#))

Click  
For Word

<b>Author:</b>	Jessie Butler	<b>Date:</b>	28 October 2021	<b>Task #:</b> If applicable	N/A
<b>Complete all information. Use as many sheets as necessary</b>					
<b>Task Title:</b>	Moving/Positioning BigBite Magnet and Detector	<b>Task Location:</b>	Experimental Hall A		
<b>Division:</b>	Physics	<b>Department:</b>	Hall A	<b>Frequency of use:</b>	As Needed
<b>Lead Worker:</b>	Jessie Butler or Qualified Designee				
<b>Mitigation already in place:</b> <a href="#">Standard Protecting Measures</a> <a href="#">Work Control Documents</a>	Associated OSP and Hall A's Conduct of Operations (COO)				

Sequence of Task Steps	Task Steps/Potential Hazards	Consequence Level	Probability Level	Risk Code (before mitigation)	Proposed Mitigation (Required for Risk Code >2)	Safety Procedures/ Practices/Controls/Training	Risk Code (after mitigation)
1	Pinch Point	M	L	2	Pre-job walk-down to identify potential pinch points.	Associated OSP	1
2	Radiation Hazard	L	L	1	Ensure radiation levels are understood before entering the area	Radiation Worker 1 training	1
3	Class 2 Electrical Hazard	M	L	2	Ensure you are wearing the proper AF PPE when turning off disconnect switches to power supplies	JLAB Qualified Electrical Work (QEW) training	1
4	ODH	L	L	1	Be mindful of ODH levels before entering the Hall	ODH training	EL
5	Magnetic Field	L	L	1	Interlocks have been engaged and BigBite Power Supply has Administrative LOTO	Equipment Specific Training and Hall A Awareness Training	1

## Task Hazard Analysis (THA) Worksheet

(See [ES&H Manual Chapter 3210 Appendix T1](#)  
[Work Planning, Control, and Authorization Procedure](#))

Highest [Risk Code](#) before Mitigation:

2

Highest [Risk Code](#) after Mitigation:

1

When completed, if the analysis indicates that the [Risk Code](#) before mitigation for any steps is “medium” or higher (RC≥3), then a formal [Work Control Document](#) (WCD) is developed for the task. Attach this completed Task Hazard Analysis Worksheet. Have the package reviewed and approved prior to beginning work. (See [ES&H Manual Chapter 3310 Operational Safety Procedure Program](#).)



# Task Hazard Analysis (THA) Worksheet

(See [ES&H Manual Chapter 3210 Appendix T1](#)  
[Work Planning, Control, and Authorization Procedure](#))

### Form Revision Summary

**Revision 0.2 – 07/26/21 – Periodic Review;** updated header and footer

**Periodic Review – 08/29/18 –** No changes per TPOC

**Periodic Review – 08/13/15 –** No changes per TPOC

**Revision 0.1 – 06/19/12 -** Triennial Review. Update to format.

**Revision 0.0 – 10/05/09 –** Written to document current laboratory operational procedure.

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.
ES&H Division	<a href="#">Harry Fanning</a>	08/29/18	07/26/24	0.2

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For questions or comments regarding this form contact the Technical Point-of-Contact [Harry Fanning](#)

## **Steps for Moving/Positioning Big Bite Magnet and Detector:**

**\*\*\* WARNING: CONTACT RADCON FOR AUTHORIZATION TO WORK IN THE AREA BEFORE PROCEEDING\*\*\***

**\*\*\*WARNING: REMOVE POWER FROM BIG BITE (BB) MAGNET, SUPER BIG BITE SPECTROMETER (SBS) MAGNET AND BOTH EXIT BEAMLINE CORECTOR MAGNETS BEFORE STARTING WORK; IF POWER CAN NOT BE TURNED OFF PLEASE STOP, CONTACT THE WORK COORDINATOR, and REASSESS\*\*\***

### **Moving/Positioning BigBite Magnet and Detector:**

1. Turn off and lock out power to SBS, BB, and both exit beamline correctors (to be done by a QEW)
2. Verify that all high voltages are turned off on the BB detector stack. If you cannot verify that all HV is off please stop work and contact the work coordinator.
3. Remove all ladders and mobile stairs from the vicinity of detector rotation.
4. Conduct a walk-around of the BB carriage to ensure there will not be any interference from cables and equipment when moving the equipment.
5. Determine current position of magnet/ detector using marks on the tracks or previous run data.
6. Locate the position of the new location on the upper (I-beam) and lower (curved) tracks.
7. Attach ratchet level hoist (come along) and slings between the BB mounting stand and the white frame using two web sling on opposite ends of hoist. Install so that the hoist is located in the direction of travel needed. This setup is used to set the "Z" direction for the magnet and detector. **\*\*\*PLEASE NOTE: BB MAGNET AND DETECTORS ARE MECHANICALLY CONNECTED. DO NOT ATTEMPT TO MOVE THE DETECTORS INDEPEDENTLY\*\*\***
8. Attach the chainfall between the white stand and anchor point on the floor using two slings on opposite ends of chainfall. Install so that the chainfall is located in the direction of travel needed. This setup is used to set the angle.
9. Remove the end stops from upper (I-beam) and lower (curved) tracks.
10. Using the chainfall and ratchet level hoist, move the equipment to new run location. Use the marks on the tracks as a guide. **NOTE: IF EQUIPMENT BINDS OR IS HARD TO MOVE, PLEASE STOP AND REASSESS.**
11. Reinstall stop clamps to upper and lower tracks. Adjust stop clamps so that the magnet and stand has no movement.

12. Remove all rigging.
13. Conduct a final review of the job and make sure all tools and equipment are properly stored.
14. Make a log entry in the HALOG book describing the work performed. Note in the log entry the current angle and distance of the BB magnet.

