Jefferson Lab
Thomas Jefferson National Accelerator Facility

Task Hazard Analysis (THA) Worksheet

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

Author:	Jack Segal	**Date:**	01/14/2019	**Task #:** If applicable	

Complete all information. Use as many sheets as necessary

Task Title:	**Safe Operation of the Super Big Bite Power Supply**			**Task Location:**	Hall A
Division:	Physics	**Department:**	Hall A	**Frequency of use:**	For Apex experiment
Lead Worker:	Jack Segal				
Mitigation already in place: Standard Protecting Measures Work Control Documents	None				

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
	Electrical	Med	Low	3	• OSP. • Proper training & execution of approved procedures • Guard all exposed electrical connections	• Lock Tag and Try (SAF104) • Electrical Safety (SAF603A, SAF603N1, SAF603N2) • Fire Protection (SAF108)	0
	Magnetic Field	Med	Low	1	• OSP	• Measure and post 5 Gauss boundary • Warning Beacons	0
	Fire	Low	Low	1	• OSP	• Hall A Technical Work Permit • Protection Systems	0

Highest Risk Code before Mitigation:	3	**Highest Risk Code after Mitigation:**	0

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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.)

1. Define the scope of work

- Job Summary

  This procedure provides guidelines on how to manage the commissioning, operation, and troubleshooting of the Septum magnet.

- Affected systems

  Beam
  Super Big Bite power supplies
  Septum magnet
  LCW

2. Analyze Hazard

This document

3. Develop and implement Hazard controls

Standard PPE

4. Identify danger zones

- Target and magnet access platform area

5. Training required

- Lock Tag and Try (SAF104)
- Fire Safety (SAF108)
- Electrical Safety (SAF603A, SAF603N1, SAF603N2)

6. Perform work within controls

- Number of people needed

  1 or 2

- Verify that needed training is complete and current
- List of materials

  VOM meter
  Locks and Tags
  DC Current meter
  Temperature probe

- Procedure

  1. Perform pre-job briefing
  2. Ensure that LCW is on, that there is correct pressure (120 psi) and that there are no leaks
  3. Verify that all electrical connections are torqued and properly connected
  4. Check continuity and resistance of coil

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5. Check that all electrical connections are shielded
6. Ensure that water and temperature are functioning correctly
7. ~~7.~~
8. ~~8.~~7. Remove from the area all ferromagnetic objects that could be affected
9. ~~9.~~8. Energize power supply and clear any faults
10. ~~10.~~9. Incrementally ramp current to power the magnet and check for hot spots at connections and on coils with temperature probe
11. ~~11.~~10. Also, verify that the current output from the Super Big Bite power supplies are stable and uniform between power supplies at the momentum settings for the power supplies
12. ~~12.~~ In addition to current checks, verify with a Hall probe that the magnet's B fields are the correct orientation and that the desired field uniformity and magnitude can be achieved
11.

- Post job briefing and cleanup
  Follow procedure
  Document any mistakes, corrections, changes and pictures and implement changes
  Turn in feedback to Hall work coordinator

7. Provide feedback and continuous improvement.

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Form Revision Summary

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.
ESH&Q Division	Harry Fanning	08/29/18	08/29/21	0.1

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