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 Org: PHALLA

Status: PROCESSED  
 Saved: 9/20/2019 10:46:30 AM  
 Submitted: 9/20/2019 10:46:30 AM



Operational Safety Procedure Review and Approval Form # 90475  
 (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 LTT-Individual Information</a> <a href="#">Click for LTT-Group Information</a>		
Serial Number:	<b>ENP-19-90475-OSP</b>		
Issue Date:	<b>10/7/2019</b>		
Expiration Date:	<b>10/7/2022</b>		
Title:	<b>Hall A Welding Area</b>		
Location: (where work is being performed) <a href="#">Building Floor Plans</a>	<b>101 - Experimental Hall A - A100</b>	<b>Location Detail:</b> (specifics about where in the selected location(s) the work is being performed)	<b>Left side of the Hall up against the south wall</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>3</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>Determined to have an unmitigated Risk code of 3 or 4</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

**Gas Cylinders (Robert Myles, Tim Minga)**  
**High Noise (Imani Burton, Jennifer Williams)**  
**Welding, Cutting, Brazing, and Grinding (Jenord Alston, Steve Smith)**  
**Portable Hand Tools (Bert Manzlak, Paul Collins)**  
**ESH&Q Liasion (Bert Manzlak)**

Document History

Revision <input checked="" type="checkbox"/>	Reason for revision or update <input checked="" type="checkbox"/>	Serial number of superseded document <input checked="" type="checkbox"/>
	<b>Previous OSP (ENP-16-63659-OSP) will expire on October 31st.</b>	

Lessons Learned	<a href="#">Lessons Learned</a> relating to the hazard issues noted above have been reviewed.
Comments for reviewers/approvers: <input type="checkbox"/>	<i>Re-submitted. Added table to section 7.1 of the OSP.</i>
Attachments <input type="checkbox"/>	
Procedure: <i>HallWeldingArea_OSP.pdf</i> THA: <i>HallWeldingArea_THA.pdf</i> Additional Files:	
Review Signatures	
Subject Matter Expert : Gas Cylinders	<b>Signed</b> on 9/23/2019 1:16:09 PM by Tim Minga ( <a href="mailto:minga@jlab.org">minga@jlab.org</a> )
Subject Matter Expert : High Noise	<b>Signed</b> on 9/20/2019 10:58:33 AM by Jennifer Williams ( <a href="mailto:jennifer@jlab.org">jennifer@jlab.org</a> )
Subject Matter Expert : Hot Work->Welding->Cutting-> Brazing-> and Grinding	<b>Signed</b> on 9/20/2019 1:58:24 PM by Steve Smith ( <a href="mailto:sjsmith@jlab.org">sjsmith@jlab.org</a> )
Subject Matter Expert : Portable Hand Tools	<b>Signed</b> on 9/20/2019 1:46:23 PM by Bert Manzlak ( <a href="mailto:manzlak@jlab.org">manzlak@jlab.org</a> )
Approval Signatures	
Division Safety Officer : PHALLA	<b>Signed</b> on 9/23/2019 1:44:49 PM by Ed Folts ( <a href="mailto:folts@jlab.org">folts@jlab.org</a> )
ESH&Q Division Liasion : PHALLA	<b>Signed</b> on 9/24/2019 7:11:08 AM by Bert Manzlak ( <a href="mailto:manzlak@jlab.org">manzlak@jlab.org</a> )
Org Manager : PHALLA	<b>Signed</b> on 10/7/2019 10:18:52 AM by Patrizia Rossi ( <a href="mailto:rossi@jlab.org">rossi@jlab.org</a> )
Safety Warden : Experimental Hall A - A100	<b>Signed</b> on 9/23/2019 2:49:49 PM 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  
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<b>Title:</b>	Hall A Welding Area		
<b>Location:</b>	Experimental 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="#">ESH&amp;O Manual Chapter 3210 Appendix T3 Risk Code Assignment.</a> )	<b>Highest Risk Code Before Mitigation</b>		3
	<b>Highest Risk Code after Mitigation (N, 1, or 2):</b>		1
<b>Owning Organization:</b>	Physics / Hall A	<b>Date:</b>	16 September 2019
<b>Document Owner(s):</b>	Butler, Jessie (Hall A Work Coordinator)		

**DEFINE THE SCOPE OF WORK**

**1. Purpose of the Procedure** – Describe in detail the reason for the procedure (what is being done and why).

The purpose of this procedure is to establish a dedicated welding area in Hall A.

**2. Scope** – include all operations, people, and/or areas that the procedure will affect.

Hall A technical staff will use this area for the fabrication and modification of many different types of material used during installation. The area's primary focus will be welding, cutting, grinding, and soldering; which is done on a regular basis.

1. **Welding:** TIG only. Other types of welding require additional work control documents.
2. **Grinding:** Includes hand tools, 4 and 7 inch hand grinders. Grinding will precede welding and produce sparks; majority will be carbon steel.
3. **Soft Soldering (Brazing):** Includes 600-1500 degrees F; Handy Harmon brazing flux (paste). Copper to stainless steel (silver solder joints)
4. **Hard Soldering (Brazing):** Includes 600-1500 degrees F; Handy Harmon brazing flux (paste). Copper to stainless steel (silver solder joints)

**3. Description of the Facility** – include building, floor plans and layout of the experiment or operation.

The area is located inside Hall A on the left side (referring to beam direction).

The location is against the south wall near sprinkler heads and is not in the vicinity of any VESDA sensors.

Rear and side walls of the area are protected by metal sheets along their perimeter to contain sparks produced in the area.

Forward wall has standard welding screens with fire proof material extending from the bottom of the screen to the floor.

Cabinets, shelves, and other items within close vicinity of the area will be made of and contain only non-combustible materials.

A fire extinguisher will be kept beside of the welding table and at the entrance/exit point of the area. These extinguishers will be inspected monthly by the area's Safety Warden.

Flammable liquids will be stored in flammable lockers when not in-use.

Refrasil fire-retardant cloths or metal screens will be used to protect combustible material that can't be moved.

Flammable gases, when not in-use, will be stored outside of area; empties stored separately. Flammables will be stored at a minimum of 20 feet away from oxidizers.

Welding screens will be used to protect others working in the area UV light, sparks, heat and debris produced during welding and grinding.

## ANALYZE THE HAZARDS and IMPLEMENT CONTROLS

### 4. Hazards identified on written Task Hazard Analysis

- 1-Thermal burns
- 2-UV exposure to eyes and skin
- 3-Fire
- 4-Lacerations
- 5-Eye injury
- 6-Hearing loss

### 5. Authority and Responsibility:

#### 5.1 Who has authority to implement/terminate

Hall A Work Coordinator and/or Fire Protection Engineer

#### 5.2 Who is responsible for key tasks

Jessie Butler or designee

#### 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](#))

Jessie Butler or designee

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

#### 6.1 Shielding

Welding screens and fire blankets will be used as needed.

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

Welding screens

#### 6.3 Interlocks

N/A

#### 6.4 Monitoring systems

N/A

## 6.5 Ventilation

Standard Hall ventilation

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

N/A

## 7. List of Safety Equipment:

### 7.1 List of Safety Equipment:

Welding Shield	Hearing Protection
Safety Glasses (clear and tinted)	Hats
Gloves	Face Shield
Welding Shirt / Jackets	Fire Extinguisher

#### Welding controls & PPE:

Equipment Required?	Welding	Torch Cutting	Brazing	Saw Cutting	Grinding
Fire extinguisher	Yes	Yes	Yes	Yes	Yes
Safety glasses or goggles	No – TIG only	Yes	Yes	Yes	Yes
Faceshield over safety glasses or goggles	No	No	No	Yes	Yes
Leather gloves	Yes	Yes	Yes	Yes	Yes
Hearing protection	YES: when welding aluminum	No	No	Yes	Yes
Welding helmet & screens	Yes	No	No	No	No
Shade lens	Yes*	No	Yes*	No	No
Respirator	No – TIG only	No	No	No	YES: when grinding aluminum
Local exhaust (e.g. smoke eater, elephant trunk)	No – TIG only	No	No	No	YES: grinding aluminum (where feasible)

\* Shade lens requirements

Welding operation	Protector	Arc Current (amperes)	Typical Filter Lens Shade
Gas Tungsten Arc Welding (TIG)	Welding Helmet	<50	8-10
		50-150	8-12
		150-500	10-14
Torch Brazing and Soldering	Welding Goggle, or Helmet	n/a	2 to 4

When performing Tungsten Inert Gas (TIG) safety glasses are not required under the welding helmet. However, do not flip weld shield up before weld puddle has cooled.

Respiratory protection may be worn under a voluntary basis for welding, cutting, and grinding. Contact Industrial Hygiene to obtain respiratory protection.

By standers of grinding operations must wear the full required PPE.

## 7.2 Special Tools:

Welding machine and hand tools (cutters and grinders).

## 8. Associated Administrative Controls

This OSP and associated THA

## 9. Training

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

SAF108 (when applicable)  
 SAF150 (when applicable)  
 MED14 (when applicable)  
 SAF150GT (when applicable)

## DEVELOP THE PROCEDURE

## 10. Operating Guidelines

This OSP and Chapters 6120, 6122 and 6640 Appendix T2 of the EH&S Manual.

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

Self  
 Hall A Work Coordinator  
 Fire Watch (when applicable)

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

1. Clear area of all explosive, flammable and hazardous materials.
2. Assess the need for a fire watch (each job).
3. Inspect fire extinguishers
4. Don proper PPE
5. Ensure local ventilation is available if needed.
6. Check all equipment before use to ensure proper operation.
7. Ensure the following dangers have been eliminated or specifically addressed before proceeding.
  - a- Penetrating a pressurized system.
  - b- Penetrating a container of hazardous material.
  - c- Affecting an item that is potentially radioactive.
  - d- Damaging property.
  - e- Welding of hazardous materials (refer to material SDS). Lead is prohibited.
  - f- Remove paint from surfaces prior to hot work using safe chemical stripper (i.e. Smart Strip) to remove paint 4" from both sides of hot work area.
8. Stop all welding ½ hour prior to end of shift and check for fires and gas leaks.

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

Stop and re-assess.

**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, fire, etc.)

Shut down equipment and egress hall. In case of fire, activate fire alarm on the way out.

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

Welding machine (yearly)

**17. Inspection Schedules**

The person working in the area must inspect area, equipment and tools prior to use and at the end of every shift that this area is used.

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

Chapters 6120, 6122 and 6640 Appendix T2 of the EH&S Manual.

**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://mis.jlab.org/mis/apps/mis\\_forms/operational\\_safety\\_procedure\\_form.cfm](https://mis.jlab.org/mis/apps/mis_forms/operational_safety_procedure_form.cfm)
- 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 ESH&Q Document Control

**Form Revision Summary**

**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.
ESH&Q Division	<a href="#">Harry Fanning</a>	04/11/18	04/11/21	1.5

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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>	16 September 2019	<b>Task #:</b> If applicable	
<b>Complete all information. Use as many sheets as necessary</b>					
<b>Task Title:</b>	Hall A Welding Area	<b>Task Location:</b>	Hall A		
<b>Division:</b>	Physics	<b>Department:</b>	Hall A	<b>Frequency of use:</b>	As needed
<b>Lead Worker:</b>	Hall A Work Coordinator or Designee				
<b>Mitigation already in place:</b> <a href="#">Standard Protecting Measures</a> <a href="#">Work Control Documents</a>	Associated OSP				

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	Thermal Burns	M	M	3	Protective clothing Welder's gloves Fire Blanket First Aid Cabinet	OSP and Fire Safety	1
2	UV exposure to eyes and skin	M	M	3	Welding screens Welder's gloves Protective eyewear Report burns to OCMED	OSP and Fire Safety	1
3	Fire	M	M	3	Keep area clear of flammables & combustibles Use a fire watch	OSP and Fire Safety	1
4	Lacerations	L	M	2	Protective clothing Gloves Face shield	OSP and tool specific training.	1

## Task Hazard Analysis (THA) Worksheet

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

Sequence of Task Steps	Task Steps/Potential Hazards	<u>Consequence Level</u>	<u>Probability Level</u>	<u>Risk Code</u> (before mitigation)	Proposed Mitigation (Required for <u>Risk Code</u> >2)	Safety Procedures/ Practices/Controls/Training	<u>Risk Code</u> (after mitigation)
5	Eye Injury	M	L	2	Eye protection	OSP	1
6	Hearing Loss	M	L	2	Hearing protection	OSP	1

Highest Risk Code before Mitigation:

3

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

**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	<a href="#">Harry Fanning</a>	08/29/18	08/29/21	0.1

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

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