

Physics Division Work Governance

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1. Preface

As part of its mission, JLab provides the resources necessary for international collaborations of scientists to carry out basic research in nuclear physics and related disciplines. This research, and the work associated with installing the equipment necessary to carry it out, must be conducted in a manner that ensures that environmental, health and safety (EH&S) concerns are addressed at all times. The integration of EH&S activities into work planning and work activities, i.e. integrated safety management, supports the goals of the laboratory: obtaining the highest quality scientific results with efficient, safe, and environmentally responsible operation.

This document outlines how all personnel will conduct work in a safe and effective manner in *any* Physics Division Work Area. It is directed to physics users, physics staff, contractors, and both user-supported and regular JLab technical staff. It must be read, understood and followed by all persons working unescorted in any Physics Division Work Area. Experiment commissioning and running periods are not covered by this document but rather in specific Conduct of Operations documents for each hall that are enhanced with details for each experiment to be run.

It is important to note that it is a core JLab policy that **“No activity is so important or urgent that our standards for safety, health, or environmental protection are compromised.”**

2. Personnel Training

All personnel involved in any Hall activities during an installation period are required to have successfully completed and be current in the following JLab safety training:

- EH&S Orientation (SAF 100),
- Oxygen Deficiency Hazard Training (SAF 103),
- Relevant Hall Safety Awareness Walk-Through,
 - Hall A - SAF110,
 - Hall B - SAF111,
 - Hall C - SAF112,
 - Hall D - SAF113
- Current Radiation Worker Training and radiation dosimeter issued by JLab.
- Must have read and signed the current General Access Radiation Work Permit (SAF801kd).

Everyone working in a Physics Division Work Area must read and abide by the rules described in this document.

All personnel are required to wear JLab issued radiation dosimeters while performing work in the halls. The Safety Awareness Walk-Through for new staff, users, or contractors will emphasize any hazards that are peculiar to the current installation. Any personnel who find the configuration or equipment in the Hall to be substantially different than it was when they took the Walk-Through are encouraged to communicate with the Work Coordinator for guidance update. It is foreseen that the Hall Safety Awareness Walk-Throughs will be updated as the various halls complete their major installation work related to the 12 GeV upgrade.

All personnel are required to inform the Hall Work Coordinator, or his designated alternate, of their planned tasks in the Hall on a daily basis before commencing the work. In addition, personnel must familiarize themselves with the sections of the JLab EH&S Manual relevant for their work in any Hall. The JLab EH&S Manual addresses the need for a process of hazard analysis, identification and installation of mitigating safety measures, and evaluation and documentation of their effectiveness for a particular task or set of tasks. Technical work documents (OSPs, TOSPs, etc.) may result. Copies of technical work documents are available from the Hall Work Coordinator, and must be signed and followed by anyone carrying out work on relevant apparatus. Also, the JLab EH&S Manual is available at (<http://www.jlab.org/ehs/ehsmanual/index.html>).

All Personnel working in a Physics Division Work Area outside the Halls are required to inform the supervisor of that work area of their planned tasks on a daily basis before commencing the work. In addition, personnel must familiarize themselves with the sections of the JLab EH&S Manual relevant for their work in any Physics Division Work Area. The JLab EH&S Manual addresses the need for a process of hazard analysis, identification and installation of mitigating safety measures, and evaluation and documentation of their effectiveness for a particular task or set of tasks. Technical work documents (OSPs, TOSPs, etc.) may result. Copies of technical work documents are available from their supervisor, and must be signed and followed by anyone carrying out work on relevant apparatus. Also, the JLab EH&S Manual is available at (<http://www.jlab.org/ehs/ehsmanual/index.html>).

Prior to using a ladder at Jefferson lab you are required to take **SAF 307 Ladder Safety Awareness**. If your task requires you to work from a ladder in a position other than between the ladder rails, you may be required to take the Fall Protection classes required to wear a safety harness. If this is the case, please see your sponsor or supervisor.

If you have never had a class on the hazards of lead, that alone is enough reason to take the lead class. If you have taken a class on the hazards of lead you will want to learn what is required to handle it here at JLab. Before you handle any lead, be it in the form of bricks, sheets, pellets or solder you must take **SAF 136 Lead Worker Safety Awareness**.

If you are going to do more to a piece of electronics equipment than plug it into a receptacle, you are required to take **SAF 603A Electrical Safety Awareness**. It is required in order to make a hazard assessment of the electrical equipment you are working on and to evaluate the requirements for locking out a piece of equipment prior to working on it. In order to be qualified to work on any equipment that has been energized in any way, be it electrical, hydraulic or mechanical you must take **SAF 104 Lock, Tag and Try** and be trained by that piece of equipment's SME (Subject Matter Expert) prior to starting the work.

- Guidelines for students working in Experimental Halls:
 - No one under 18 (student or otherwise) may work in the any Hall.
 - No high school student may work outside regular working hours.
 - Undergraduates working outside regular working hours must be pre-approved by the DSO.
 - Graduate students are considered users.
 - During their first three months working in conjunction with JLab or user staff, undergraduate students 18 and over may be allowed to work in the halls (following all standard rules as outlined in the Hall COO, the Hall RWP and more generally, the JLab EH&S manual) with the provisions that:
 - a) They have completed the FULL complement of standard training courses (EH&S awareness, ODH, Rad Worker I Hall specific hazard awareness and "COO" training) and any additional training that may be deemed necessary for the assigned task;
 - b) Their work in the hall is always under the supervision of a hall-authorized "buddy", with the only non-standard condition that the buddy is NOT another undergraduate;
 - c) One of the following is true:
 - i) A permanent JLab staff member has supervisory responsibility for their work, is cognizant of the work to be done, and approves the "buddy," or
 - ii) A fully trained user is their supervisor for the purposes of their work at JLab, is cognizant of the work to be done and approves the "buddy."

At the end of the 3-month "trial period", undergraduate students 18 and older who have demonstrated to the satisfaction of a JLab staff member that they are responsible and

safety conscious shall be permitted to work in the halls under the same guidelines that apply to other users.

3. Organization and Administration

Overall responsibility for all activities taking place in a Physics Division Work Area is the responsibility of the assigned Hall Leader with assistance of the 12 GeV Assistant Project Manager (for those halls with 12 GeV Upgrade activities still ongoing) and the Hall Work Coordinator or you supervisor. The functions of the 12 GeV Assistant Project Manager and Hall Work Coordinators are detailed below as well as a review of the responsibilities of support personnel, contractors and users.

3.1 12 GeV Assistant Project Manager

The 12 GeV Assistant Project Manager oversees, on behalf of the hall leader, the implementation of the hall upgrades that fall under the official 12 GeV upgrade project of the hall. Activities and projects in the hall not part of the 12 GeV upgrade will be managed by other personnel designated by the Hall Leader as appropriate but different from the 12 GeV Assistant Project Manager. Broadly speaking, their responsibilities are similar although not the scope of the projects they manage. We focus here on the 12 GeV Assistant Project Manager. Their responsibilities are,

- Ensure that engineering and design requirements of the project are developed and resources provided.
- Ensure that appropriate procurement and installation schedules with requirements and constraints are developed and followed.
- Ensure, in coordination with the Hall Lead Engineer and Hall Work Coordinator, that the complete installation schedule is tracked and kept up-to-date. Provide update reports.
- Inform the Hall Leader and the 12 GeV Associate Project Manager – Physics of any problems encountered with the project and possible solutions to keep the project on track and on cost.

3.2 Hall Work Coordinator

The Hall Work Coordinator is the primary contact for all installation work taking place in the Hall. The responsibilities of the Hall Work Coordinator are to:

- Contribute to develop the Hall installation plan
- Ensure entry of all requests for cross-division work into ATLis
- Act as the single point of contact for Hall installations
- Coordinate and schedule activities in order to optimize productivity

- Determine if the scheduled activities in the Hall can be done safely as proposed.
- Ensure that workers are familiar with all significant hazards in the Hall and, are aware of all applicable work control documents associated with the project
- Remain in the local area and to be available by cell-phone/pager at all times. If temporarily unavailable, the Hall Work Coordinator must appoint a qualified Hall Staff member as his/her designate. The name of such designate should be clearly posted at the Hall entrance.
- Report on installation progress in weekly Hall meetings and to keep the installation schedule progress up-to-date.

3.3 Accelerator, Engineering and Admin support personnel

The responsibilities of non-Physics Division JLab staff members are to:

- Inform the Hall Work Coordinator about any planned work in the Hall.
- Keep all their required training up-to-date.
- Read the entries posted at the safety bulletin board at the gate entrance of the Hall and be aware of changes in work plans and new work planning documentation.
- Carry out their work in a safe and efficient manner.
- Request any modifications to the installation and/or the installation schedule through the Hall Work Coordinator.

3.4 Users and Contractors

Users and Contractors are persons whose supervisor is not a Hall staff member. Users often have a member of the Hall physics staff as local sponsor, contractors often have a member of the Hall technical staff as the subcontracting officer's technical representative (SOTR). The responsibilities of each user or contractor are to:

- Keep all their training up-to-date.
- Read the entries posted at the safety bulletin board at the gate entrance of the Hall and be aware of changes in goals, operating parameters, and new documentation.
- Carry out their work in a safe and efficient manner.
- Inform the Hall Work Coordinator in advance of any desired activities in the Hall.

In addition, the responsibility of each user is to discuss requests for modifications to the installation and/or installation schedule with the Hall Work Coordinator. Based on the assessed impact of the request, approval may have to be provided by the Hall Leader or designated manager (e.g. 12 GeV Assistant Project Manager) before proceeding.

4. Operating Procedures

4.1. Work Routines

Due to the large scale of typical installation work, many different groups will be involved. These include:

- 4.1.1. Hall technical staff, under the direct supervision of the Hall Work Coordinator
- 4.1.2. Hall physics staff
- 4.1.3. University user groups, students and university-supported technical personnel
- 4.1.4. Contractors
- 4.1.5. Accelerator, Engineering, Administration and Physics Division support groups.

The standard procedure for work during installation has been identified above, with the Hall Work Coordinator as the central point of contact for all work being performed in the Hall. It is worth to remember that any piece of equipment that was inside a beam enclosure (e.g. hall and beam tunnel) while beam was delivered must be surveyed by Radiation Control (RadCon) and released by them before it can be removed from the hall. Also, any item tagged by RadCon as Radioactive Material (RAM) must remain as a single entity – it must not be disassembled. If disassembly is needed, contact RadCon for approval before taking the item apart. Finally, always check with the Hall Work Coordinator as some of the work may require special procedures – for example, working inside the racks in Hall A due to Be-7 contamination of forced air-cooled electronic equipment in those racks.

The mode of operations for requests for work and plans to do work by outside groups are further detailed in the following Sections.

4.2 Beam Line Installation and Modifications

Installation work in the Halls may require changes to the beam line, (or a completely different beam line) configuration. All beam line work must be well documented as it may affect the site boundary radiation dose and the production of airborne radioactivity, and may affect beam operations. Beam line work and beam line modifications, must adhere to the following rules:

- 4.2.1 Notify the Hall Work Coordinator or his designate before initiating work on the beam line.
- 4.2.2 Radiation Control group has assessed radiological conditions of work area and work guidance, if any necessary, has been issued.
- 4.2.3 Enter work activity description into ATLis.

4.3 Scheduling of Work by Outside Groups

Work in the Hall that is to be performed by external groups such as survey and alignment, plant services, air conditioning, etc., must be scheduled so that it does not endanger personnel or equipment or interfere with the installation work. The Hall Work Coordinator is the single point of contact for any work by outside groups. To effectively schedule this work, the Hall Leader and the Hall Work Coordinator will concur on task scheduling. The Hall Work Coordinator's job is to coordinate activities in the Hall so that work can take place smoothly and safely and to insure that multiple activities do not interfere with each other.

Scientific collaboration groups from outside JLab (e.g. universities or other labs) are assigned a Hall staff contact point. In those cases, the Work Coordinator and the appropriate Hall staff will meet as needed to plan the scheduled work and develop appropriate work control documents, educational or other safety measures (such as escorts) that may be needed.

4.4 Collaboration Request for Laboratory Resources

The Hall Leader must first approve requests by User Collaborations for additional services from other laboratory divisions. Similarly, the Hall Leader must first approve requests for additional services from Hall personnel. Some of the activities may require that an OSP or TOSP be developed.

5. Appendix A - Hall Organization for 12 GeV Upgrade Projects



