	TITLE:	<u>ES&H Manual</u>
DOCUMENT ID:	3130 Accelerator Science Experiment Review Process	

1.0 Purpose

Jefferson Lab holds the strong conviction that high standards in environment, safety, health and quality (ESH&Q) are fully compatible with accomplishing forefront research.


The laboratory’s ESH&Q Policy states that “Jefferson Lab considers no activity to be so urgent or important that we will compromise our standards for environmental protection, safety, or health.”

To help ensure that safety is integrated into the planning and conduct of experiments Jefferson Lab has established an experimental review process. By including safety considerations in the early design stages of an experiment the experimenter reduces the risk that safety issues, that could significantly delay the experiment, will surface later. At the discretion of the associate director of the accelerator division, R&D carried out in any JLab accelerator (CEBAF, LERF or UITS) must follow the “Accelerator Research and Development Review Process” outlined in the Accelerator Science Experiment Review Process in [ES&H Chapter 3130 Appendix T1 Accelerator Science Experiment Safety Assessment Document \(ESAD\) Instructions](#). The criteria for assessing the need for an R&D review are:

- Programmatic impact. The stakeholders in the ongoing program of the facility where the R&D is planned must accept the risk associated with the installation of the R&D equipment, execution of the tests, and removal of the equipment. A review is required when the risks are not defined to the stakeholders’ satisfaction or are larger than is acceptable to the program stakeholders without additional review.
- Scope of work required. A review should be considered if the work required to install and execute the R&D affects the long-range planning and scheduling of group projects, or requires multiple, complex coordinated tasks, or the impact poses significant risk to the operability of systems or Lab goals.
- New target. A review is required if the R&D involves beam delivery on a target with characteristics outside the range of previously-reviewed metrics for that target (total power, maximum current, etc.)

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.	Page
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0	1 of 5

This document is controlled as an on line file. It may be printed but the print copy is not a controlled document. It is the user’s responsibility to ensure that the document is the same revision as the current on line file. This copy was printed on 9/25/2019.

	TITLE:	<u>ES&H Manual</u>
DOCUMENT ID:	3130 Accelerator Science Experiment Review Process DRAFT	

2.0 Scope

This review process is performed for accelerator science experiments performed at JLab accelerators which do not require the level of ES&H Manual 3120 The CEBAF Experiment Readiness Review Process but still requires a higher level of organized review.

A separate ES&H Manual 3120 The CEBAF Experiment Readiness Review Process applies to nuclear physics experiments mounted in the experimental halls at Jefferson Lab or other experiments in CEBAF that have the potential to compete with the NP program for beam time. The decision of applicability of Chapter 3130 process is at the discretion of Accelerator Division Associate Director which when necessary can be coordinated with the Physics Division Associate Director.

3.0 Responsibilities

Additional key staff responsibilities are located within the specific facility operations directives (Accelerator Operations Directives (AOD), LERF Operations Directives (LOD), and Upgrade Injector Test Facility Operations Directives (UOD)) or through specific facility Operational Safety Procedures (OSPs).

3.1 Associate Director of Accelerators

- Review all accelerator experimental programs.
- Approves Accelerator Science experiments to be conducted at accelerators.

3.2 Experiment Facility Leader - Director of Accelerator Operations (CEBAF), LERF Operations Coordinator or UITF Facility Manager


Requires a high level of familiarity with all aspects of the LERF program, including technical details of LERF accelerator operations and planned experiments.

- Provide accelerator operations oversight, including participation in program development and scheduling, and authorization of beam operations at the CEBAF, LERF and UITF accelerators.
- Authorize CEBAF, LERF and UITF operations by making appropriate Beam and Lasing Authorization entries in the Beam Authorization Tool (BAT). These entries define acceptable beam destinations, describe any operating constraints, and specify whether or not lasing is approved.
- Maintain records for each experiment in an electronic database, including safety documentation such as the COO, ESAD, and LOSP as applicable.
- Document and distribute Lessons Learned at the conclusion of the experiment.

3.3 Facility Hall Leader (LERF/UITF)/Director of Accelerator Operations (CEBAF)

- Coordinate with a variety of internal stakeholders and outside entities to

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.	Page
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0	2 of 5

	TITLE:	<u>ES&H Manual</u>
DOCUMENT ID:	3130 Accelerator Science Experiment Review Process DRAFT	


ensure that the facility best accommodates potential users and the operating program is well defined and supported with appropriate resources.

- Serve as the designated spokesperson for the facility.
- Set high-level programmatic goals and priorities in consultation with JLab Management and present those goals and priorities to the appropriate scheduling authority.
- Work directly with the Accelerator Division Leadership to approve potential outside funded experiments.
- Meet with representatives of potential outside-funded experiments to determine if their requirements are in line with the capabilities of the facility and help move appropriate experiments through the approval and scheduling process. This includes working directly with the Experiment Lead Scientist to address all safety and technical requirements for the experiment.
- Refer to the ESH&Q division for special review of any potential outside-funded experiment with requirements that fall outside the normal facility operating envelope as defined in the FSAD and facility ASE.
- Verify that all outside-funded experiments have completed the appropriate Experiment Safety Review Process before scheduling beam time.
- Present the appropriate safety documents for potential experiments to the Division Safety Officer (DSO) before moving to the design phase of the Experiment Review Process.
- Maintain programmatic balance for the facility by prioritizing activities and working with the various stakeholders.

3.4 Experiment Lead Scientist/UITF Experiment Principal Investigator

- Designated spokesperson for each experiment.
- Work with the Director of Accelerator Operations/Facility Hall Leader to prepare the required work plan documents for experiments as required, to comply with Jefferson Lab’s ES&H program.
- Organize development of a final Experiment Safety Assessment Document (ESAD) [ES&H Manual Chapter 3130 Appendix T1](#), as required by Section VII, Preparation for Running the Experiment (see [Experiment Readiness Review Process - Flowchart](#)). The final document is submitted for review and approval by Jefferson Lab’s DSO.
- Organize preparation of the experiment’s Conduct of Operations (COO) (see [Experimental Conduct of Operations \(COO\) Form – Template](#)), and submit to the Director or Accelerator Operations (CEBAF) or LERF Operations Coordinator or UITF Facility Manager for review and approval.
- Work with the JLab Radiation Control (RadCon) Department to develop a Radiation Safety Analysis Document (RSAD) if required for the experiment.

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.	Page 3 of 5
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0	

	TITLE:	<u>ES&H Manual</u>
DOCUMENT ID:	3130 Accelerator Science Experiment Review Process DRAFT	

- Work with the facility Work Coordinator to ensure the safe installation and operation of equipment.
- Read and comprehend information provided by the Director of Accelerator Operations or Facility Hall Leader.
- Arrange for the decommissioning of any equipment that is to be removed at the conclusion of the experiment.
- Coordinate with the Director of Accelerator Operations, LERF Operations Coordinator, or the UITF Facility Manager at the conclusion of the experiment to assemble a lessons learned document on any issues or opportunities for improvement for future experiments.

3.5 Accelerator Division Safety Officer (DSO)


- Review experiment requirements and schedule reviews for experiments.
- Invite reviewers to reviews, as needed, to assess the safety of experiments.
- Ensure steps of review process are followed.
- Review, approve and distribute Experiment Safety Assessment Document (ESAD) as appropriate.
- Review the experiment for Unreviewed Safety Issues (USI).

4.0 Expectations

- Jefferson Lab expects ES&H concerns to be integrated into the planning and conduct of each experiment.
- Experimenters are expected to work within the ES&H requirements of the [ES&H Manual](#) at all times. Experimenters, like staff, have the authority and responsibility to stop work for conditions that pose imminent hazard or danger.
- ES&H professionals are an important resource for experimenters and should be consulted when safety issues arise.
- Steps in the experimental review process include:
 - Proposal Phase
 - Approved Proposal (Preliminary Planning Phase)
 - Design Phase
 - Construction Phase
 - Scheduling of Experiment by Jefferson Lab
 - Equipment Installation
 - Preparation for Running the Experiment
 - Commission equipment
 - Run the Experiment

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.	Page 4 of 5
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0	

This document is controlled as an on line file. It may be printed but the print copy is not a controlled document. It is the user's responsibility to ensure that the document is the same revision as the current on line file. This copy was printed on 9/25/2019.

	TITLE:	<u>ES&H Manual</u>
DOCUMENT ID:	3130 Accelerator Science Experiment Review Process DRAFT	

- Decommission equipment (if appropriate) and store or dispose of target and/or contaminated apparatus properly
- Provide feedback and Lessons Learned

Phases of the Accelerator Science Experiment Readiness Review Process are found in the [Experiment Review Process](#) (click on the applicable box for details on the respective phase).

The Accelerator Science Experiment Readiness Review Process is reviewed and approved in conjunction with this ES&H manual chapter; similar to appendices documents as defined within [ES&H Manual Chapter 1300 Content Review Program](#).

5.0 References

- [Process flow chart for Experiment Readiness Review](#)
- [Typical Outline for Experimenters' Conduct of Operations](#)
- [Typical Outline for a Preliminary Experiment Safety Assessment Document](#)
- [RSAD for LERF Operating in Normal FEL Configuration](#)

6.0 Revision Summary

Revision 2.0 – ###/###/19 – Formerly Free-Electron Laser (FEL) Experiment Safety Review Process, retitled and updated to reflect current laboratory operations.

Revision 1.0 – 11/23/10 – Updated to reflect current laboratory operations



ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0

This document is controlled as an on line file. It may be printed but the print copy is not a controlled document. It is the user's responsibility to ensure that the document is the same revision as the current on line file. This copy was printed on 9/25/2019.

ISSUING AUTHORITY	TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	REVIEW DATE	REV.	Page
ESH&Q Division	Harry Fanning	##/##/19	##/##/22	2.0	5 of 5

This document is controlled as an on line file. It may be printed but the print copy is not a controlled document. It is the user's responsibility to ensure that the document is the same revision as the current on line file. This copy was printed on 9/25/2019.