LERF Experiment Review Process

Preparation for Running the Experiment

Scheduling of Experiment by JLab

Equipment Installation

Construction Phase

Design Phase

Approved Proposal Phase

Proposal Phase

Commission Equipment

Run the Experiment

Decommission Equipment

1. Proposal Phase
2. Funded outside ventures go directly to the Hall leader to develop a proposal. Each proposal must include a filled-in Preliminary Experiment Safety Assessment Document (PESAD), Beam Requirements list and a funding profile. After review by the Hall Leader, these proposals go to the Laboratory Director for

review. Only when the Laboratory Director grants his approval, do funded proposals go to the next level of safety review and eventual scheduling.

1. Approved Proposal: Preliminary Planning Phase
2. The Funded outside Venture and the Hall leader will describe the experiment, the equipment to be used and the required utilities. A filled-in PESAD is submitted to the Accelerator Division Safety Officer (DSO) as part of this description.
3. The DSO has three months to evaluate and comment on the PESAD. Since some funded ventures may be under time constraints, three months is a suggestion and not the rule.
4. Design Phase
5. Carry out a Task Hazard Analysis (THA) for any new or reconfigured equipment and write work control documents for the use of the equipment (including tests and commissioning) as indicated by the analysis.
6. Provide the complete conceptual design of the new equipment required for the experiment. Decommissioning plans for target and activated components must also be developed as appropriate.
7. Review by Jefferson Lab's RC, including subject matter experts, before construction phase starts.

4. Construction Phase (If applicable)

1. Fabricate equipment to design.
2. Test individual elements of the equipment to verify performance and operations procedures. This may require a Work Control Document (OSP/TOSP).
3. Document the equipment and develop written operations procedures for its commissioning and use (to be referenced in the Conduct of Operations document).

5. Scheduling of Experiment by Jefferson Lab

1. At this stage, fabrication of the equipment should be completed or near-completed.

Before scheduling can be requested:

1. (If Needed) Calculate and document an Experiment Operating Envelope (EOE) for all combinations of beam conditions and target(s) planned. Request RadCon to provide an initial Radiation Budget (Memo) and a formal Radiation Safety Assessment Document (RSAD) for the experiment that explicitly includes the calculations of the EOE and addresses the EHS&Q issues it raises.

This step may be omitted if the experiment beam parameters fall within the nominal LERF RSAD configuration.

1. Complete a final Hazard Analysis of the equipment and write a preliminary formal Experiment Safety Assessment Document (ESAD). This document must include an assessment of all safety hazards and must explicitly reference the RSAD.
2. Review of the Radiation Budget by the Jefferson Lab Radiation Review Panel (JRRP) if the planned Experiment Operations Envelope (EOE) is within a factor of two or exceeds the previous maximum for the Hall.
3. Review by an outside committee, including subject matter experts, before the scheduling phase starts. This review includes an Experiment Installation Plan, timeline and resource requirements.

(This review will generate the basic Experiment Installation Checklist, or EIC, identifying the items to be checked at installation prior to issuance of the Experiment Readiness Clearance. Issues or concerns raised during the course of this or subsequent reviews will be entered onto the experiment's Issue/Concern Checklist, or ICC. )

1. After this review, the experiment layout and components are considered frozen, and any design modifications will require a change control, approved by the Division Management.
2. A formal request for beamtime can be submitted to the LERF Experimental Scheduling Committee (LES) using the standard *Beam Request* form and the *Radiation Budget* form..
3. The LES considers a number of factors in its decision including relative merit to other proposals, required machine modifications to execute, experiment duration and funding. The LES recommends the experiment it in a long term (12 to 24 month) schedule for execution. The final list of recommendations for experimental execution is sent to the Hall Leader for sequential ordering.
4. The Hall Leader then puts the experiments selected by the LES and the approved funded outside ventures in a final order for execution for the next twelve months in order to best execute the experiments. The proposed schedule is then published for review and comment. After a review period, any necessary adjustments are made, and a final long term schedule is published.

6. Equipment Installation (Users and Experimental Hall responsibility)

1. Install new equipment in experimental area.

(Note: The preliminary ESAD for the equipment must be approved by the DSO prior to installation of the new equipment. For complex systems this may be done in phases, with the installation of major subsystems following the review of the section of the ESAD that deals with that subsystem.)

7. Preparation for Running the Experiment

1. Submit to the Jefferson Lab DSO documentation on personnel and procedures at least one month before the start of the experiment:
2. Submit final ESAD.
3. Submit final RSAD.
4. Submit COO (Conduct of Operations Document). In the COO describe Experiment Responsibilities, Collaboration Organization, Operations Personnel, Training Required, etc.
5. Submit Safety Check lists.
6. Submit ERG (Emergency Response Guidelines).
7. Submit experimental procedures, both for shift leaders and shift takers (in the form of how-to's or on wiki pages) and for experts (in the form of an operations manual and/or OSPs).
8. Pre-operation checkout of equipment installation and procedures by experiment collaboration can be done with work control documents. This serves to verify operability after installation and to review integration to the extent possible without the use of beam.
9. Jefferson Lab review of the safety of the installed equipment prior to its use with beam.

(This review will be carried out by Division Safety Officer in collaboration with subject matter experts, further EH&S Personnel, and the assigned LERF APEL, verifying conformance to the ESAD and checking functionality of safety aspects of the apparatus and items and issues specifically identified on the Experiment Installation Checklist by the RC review.)

1. Experiment Readiness Clearance (ERC) issued by Accelerator Division AD.

(Note: This will include a verification that all reviews are in place, as denoted in the Experiment Readiness Checklist. It also verifies that the experiment installation check has been completed, as documented on the Experiment Installation Checklist, and that all issues and concerns have been satisfactorily resolved, as detailed in the Issue/Concern Checklist.)

8. Commission equipment (following written procedures documented in COO)

(Note: If planned EOE is outside the previous maximum for the Hall, commissioning procedures will incorporate radiation safety verification measurements as required by the Jefferson Lab Radiation Review Panel).

9. Run the experiment (following written procedures documented in COO)

1. The Hall Leader’s twelve month schedule is passed to the Operations Coordinator (?). The short term (two weeks) schedule priorities are determined by the Operations Coordinator and the Hall leader based on, the requirements of the experiment and the potential for the machine to meet those requirements. They also determine at that time the amount of maintenance time needed by the machine.
2. The LERF Run Coordinator develops and maintains the detailed program schedule for a two week period based on input given him by the Experimenters, the Operations Coordinator and input from the Operability and User Representatives. The LERF Run Coordinator’s two week schedule will be placed on the white board in the building 18 Conference area. Specific changes to the short term schedule will be made at the 08:30 meeting.
3. When the machine is unable to execute the primary experimental program, the LERF Run Coordinator has the responsibility to select an appropriate alternate program from Beam Test Plans or pass the time to the Operability Manager for use.
4. The LERF Run Coordinator sends his shift plan to CEBAF Program Deputy and the two shift schedules are merged. Any conflicts in the merged schedule will be resolved by the Head of Accelerator Operations or their designee.
5. The merged shift schedule is passed to the Crew Chief and the operations staff for execution. The Operations staff can then work with the Lead scientist or experimental staff to execute the shift plan.

10. Decommission the equipment (if appropriate) and store or dispose of any contaminated apparatus properly.