



U.S. DEPARTMENT OF
ENERGY

Office of
Science



LERF Readiness for Resuscitation Review

Arne Freyberger

Operations Dept.
Accelerator Division

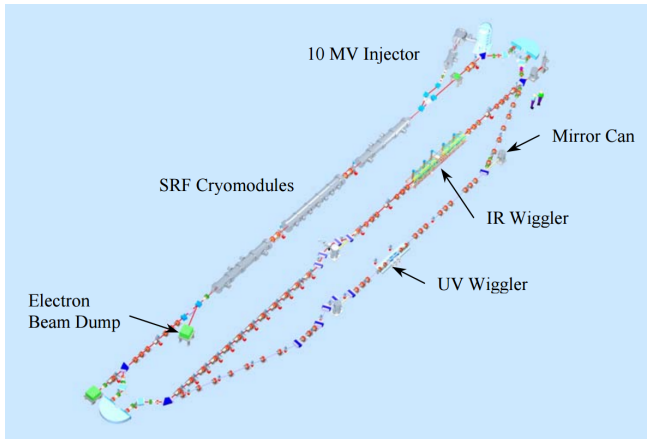
JLAB

September 28, 2015

Accelerator Operations Department

LERF and JLab

LERF Low Energy Recirculator Facility, formerly known as the Free Electron Laser (FEL).



LERF Origins

Aug. 2012 Last FEL beam operations

Jan. 2014 JLab restructuring, FEL Division eliminated

- Facility renamed as the LERF; facility is not just an FEL but has other potential applications (ie. NP physics, isotope production...).
- LERF Operations transferred to the Operations Department within the Accelerator Division.
- LERF Operations to be funded as a **project** not simply absorbed in to the Operations dept. budget.

FY14 LERF funding limited to completion of the F100 cryomodule, no beam operations.

FY15 LERF funding for system resuscitation in preparation for LERF operations in FY16.

FY16 LERF operations planned for the PAC approved DarkLight experiment.

Δ LERF(2015)-FEL(2012)

Organizational No longer a FEL division, rely on the matrix approach for system support and beam operations.

- New system owners, transfer of systems nearly complete.
- Plan for LERF operations as a *user facility* not a *R&D accelerator physics* experiment.

F100 New cryomodule, commissioned ready for beam.

What has not changed

PSS Certifications have been maintained throughout this period.

- Two PSS certifications per year.
- Changes to CEBAF PSS have been incorporated into the LERF PSS.

Why this review?

Hardware Aside from the F100, no other changes have been made. This is not a hardware readiness review.

Organization Large change in the operation and support paradigm. Are the proposed LERF Operations Directives appropriate?

Charge: Part One

In the Fall of 2015, the Low Energy Recirculator Facility (LERF) will be ready for resumption of beam transport. The LERF (formally the FEL) has been idle since August 2012. Prerequisites to the resuscitation of beam activities at the LERF are a thorough review of the LERF Operations, completion of the accelerator equipment Hot Check Out (HCO) process and authorization from JLab DOE site office and Laboratory Director.

The purpose of this review is to evaluate the plans for resuming LERF beam operations.

Charge: Part Two

The review committee is requested to review the integration of the various components based on the material prepared and presented. In addition to making comments and recommendations on this broad view, the committee should address the following charge questions:

- Are the beam resuscitation plans complete?
- Have the lessons-learned from commissioning 12GeV CEBAF, which followed the 12GeV Upgrade, and from recent incidents at JLab and other laboratories, been appropriately applied to the LERF and addressed in the path forward?
- Are the roles and responsibilities of the JLab staff, specifically Accelerator and Engineering divisions, clearly defined for the resuscitation effort?
- Is the LERF equipment Hot Check Out process sufficient for establishing that the LERF hardware is ready for beam operations?
- Is the documentation applicable to beam operations, LERF Operations Directives (LOD), RSAD, etc. complete and thorough?
- Are the plans to train operators appropriate for the resuscitation effort? For future LERF Operations?

The Committee

- Harry Fanning (Chair), Acc. and Eng. division safety officer
- Roger Carlini, Physics
- Bob May, EHS&Q
- Vashek Vylet, RADCON
- Andrew Kimber, Electrical Eng. Department

A presentation of the essential conclusions of the review is requested at a closeout immediately following the review. The committee is asked to deliver a written report within one week of completion of the review.

Thank you for your time and effort in participating in this review.