Operations Small Experiments, Big Test Plans Process

Arne Freyberger

Operations Dept.
Accelerator Division

JLAB

August 3, 2018

Accelerator Operations Department

Outline

Lessons Learned

Lessons Learned

DarkLight Phase-I (LERF)

- PAC Approved, ERR reviewed experiment
- Installation activities could have been better planned
- Work stand-down to address coordination issues contributing to degraded safety environment
- Work groups expressed desire to be more involved in planning/review process

Isotope Test (CEBAF)

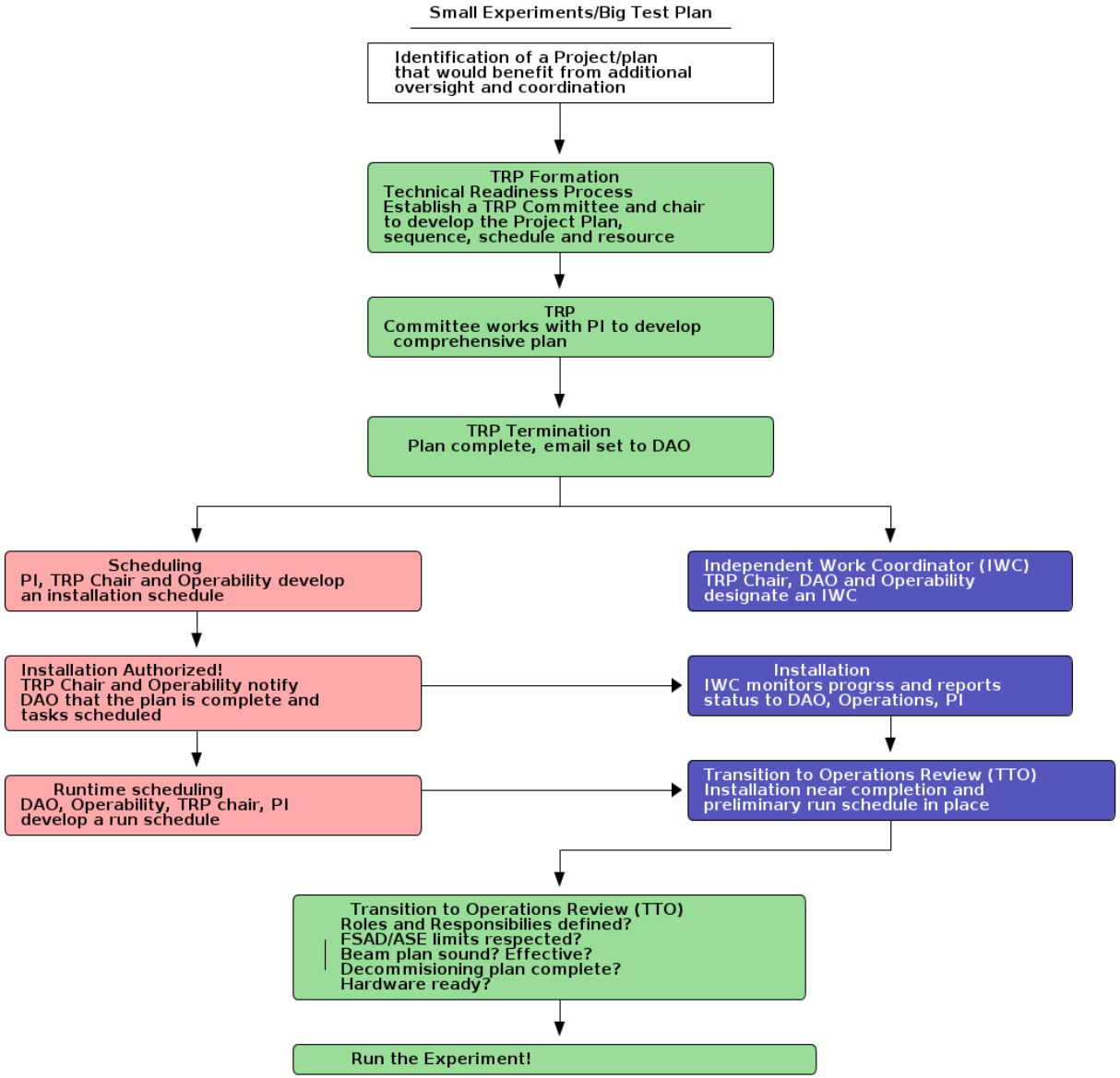
- Opportunistic use of CEBAF to test proposed production of ^{67}Cu from Ga target
- Operations Readiness review held to review readiness for **beam operations**.
- Installation task and schedule were never reviewed.
- Scope of work and schedule not consistent
- Work groups expressed desire to be more involved in planning/review process

Goals of the proposed process

1. Provide a well defined process for small experiments or big beam test plans to be executed within the **CEBAF Accelerator or LERF**
2. Grow plan first, schedule second approach to doing business at CEBAF and LERF
3. Provide a mechanism for strengthening the proponent (or PI) and resource group leaders relationship
4. **Provide a formal role for group leaders in developing and approving the work plan.**

The Proposed Process

Flowchart


Small Experiments/Big Test Plan
Identification of a Project/plan that would benefit from additional oversight and coordination
TRP Formation
Technical Readiness Process
Establish a TRP Committee and chair to develop the Project Plan, sequence, schedule and resource
TRP
Committee works with PI to develop comprehensive plan
TRP Termination
Plan complete, email set to DAO
Scheduling
PI, TRP Chair and Operability develop an installation schedule
Independent Work Coordinator (IWC)
TRP Chair, DAO and Operability designate an IWC
Installation Authorized!
TRP Chair and Operability notify DAO that the plan is complete and tasks scheduled
Installation
IWC monitors progrss and reports status to DAO, Operations, PI
Runtime scheduling
DAO, Operability, TRP chair, PI develop a run schedule
Transition to Operations Review (TTO)
Installation near completion and preliminary run schedule in place
Transition to Operations Review (TTO)
Roles and Responsibilies defined?
FSAD/ASE limits respected?
Beam plan sound? Effective?
Decommisioning plan complete?
Hardware ready?
Run the Experiment!

Step 1: Small Experiments/Big Test Plans

The Director of Accelerator Operations will decide if a proposal or test plan/ATLis is required to go through the following process beyond the nominal ATLis approval process.

- This process applies to small experiments and big test plans that are to be executed on the CEBAF accelerator or the LERF
- non-NP CEBAF programmatic related beam tests the require modification to the CEBAF/LERF accelerators or off normal CEBAF/LERF conditions.
- Engineering runs for PAC approved NP experiments (Bubble, DarkLight).

Identifying Candidates

- Self identification, proponent consults with Director of Accelerator Operations (DAO)and requests that the proposed experiment under go the Small Exp process.
- Work groups associated with an ATLis task request that the task be identified as a Small Experiment/Big Test Plan
- Opperability flags ATLis tasks that fit the above criteria.

Step 2: Technical Readiness Process (TRP)

Establishing a TRP Chair and Committee

- DAO designates a TRP Chair for the Small Exp.
- DAO, TRP Chair and Small Exp PI meet to discuss the process, proposal and develop the TRP Chair
- Small Exp. PI calls the first meeting of the TRP committee

TRP Meetings

- **Called by the Small Exp. PI**
- TRP Chair or designee **must** be in attendance
- Work group leaders and Small Exp. PI develop the work scope, task sequence, task durations
- Raise awareness to DAO and EHS&Q of potential USI issues and safety concerns in general
- Meeting summaries, written by the TRP chair, are emailed to DAO

TRP Termination

The TRP Chair submits a letter (aka email) of technical readiness to proceed to the DAO. The letter should include:

- Details of the scope of work.
  - Preferably an integrated task/sequence/duration in a project planning tool
  - Individual detailed group tasks/sequence/duration lists can suffice
- Proposed sequence and schedule for installation
- Proposed sequence and schedule for de-installation
- List of corresponding ATLis tasks that cover the proposed work

Independent Work Coordinator

The TRP Chair, DAO and Opperability will designate an **Independent Work Coordinator** for the project

- Monitor installation/deinstallation progress
- Notify DAO and Small Exp. PI intractable issues with the installation.

Installation Scheduling

Operability leadership, TRP chair and the proponent will work on integrating the installation tasks into the CEBAF schedule. Minimizing impact to the approved CEBAF program.

Inadequate Planning

If scheduling of the work proves to be difficult due to incomplete scope of work or integration of tasks, the TRP will be reconvened and the process will start over to address the issues identified during the scheduling process.

Installation Authorized

TRP Chair and Operability leadership inform the DAO that the plan is complete, ATLis task are submitted and the tasks have been scheduled. DAO authorizes work can proceed as scheduled.

Step 2: Installation

- Perform work as planned
- Independent Work Coordinator responsible for monitoring and reporting progress to Opperability and/or DAO. Preferably as ATLis comments and/or elogs.

Runtime Scheduling

The Director of Accelerator operations, operability and operations group leadership, TRP chair, and the proponent will schedule the experiment

Operations Readiness Review (ORR)

The Small Exp. PI, TRP chair and Operability leadership will assess the installation and preparation work and will inform (via email) the Director of Operations when preparations are sufficiently mature. At this point the experiment is ready for an Operations Readiness Review (next step).

Step 3: Operations Readiness Review

Step 1 (TRP) must be complete before holding the Operations Readiness Review. Installation of the experiment (Step 2) may be on-going at the time of this review, but should be on-track for successful completion within two weeks of the ORR.

The Director of Operations will arrange for the ORR once the proponent, TRP chair and Operability leadership have communicated that the preparations for the experiment are sufficiently mature.

ORR Committee

- Division Safety Officer
- Technical Readiness Process chair
- Operations Group Leader or Designee
- Engineering Support Representative
- EHS&Q representative
- RADCON
- Operability Representative
- TBD

ORR Nominal Charge

The charge for the ORR will be customized by the Director of Accelerator Operations for each experiment, but is likely to include the following charges.

Charge 1

Are the roles and responsibilities well defined?

Charge 2

Is the propose experiment within the FSAD/ASE limits?
Is an RSAD needed?

Charge 3

Is the beam plan well developed?
Is the use of beam time effective?
Is the beam time estimate correct?

Charge 4

Is the decommissioning plan complete? If not, return to TRP.

Steps 4-8

- Beam Operations (Run the Experiment/Test)
- Decommission
- Publish tech-note
- TRP committee reconvenes for a lessons learned assessment and communicates findings to DAO.
- ORR committee reconvenes for a lessons learned assessment and communicates finds to the DAO.

Closing Slide

- Desire to allow for PI to push the project: PI calls the TRP meetings
  - The TRP can be as short as one meeting for a very well prepared PI.
- TRP sign-off however makes it clear that the project does not advance until the work groups are *on-board*
- Scheduling of work is after the work scope has been defined in sufficient detailed for the work to be scheduled.
- Scheduling of beam time occurs when the work scope is mature and the project completion is predictable.