30 MeV future plans

Kate

Summary and current status

- Commissioning in Dec/January was very useful for establishing how the experiment is currently behaving

- More beam time would have been helpful, but we were able to learn a lot from what we got, even if it was only 2 weeks of really good beam in the end.

- Identified some issues that will need to be fixed before any future run, including at 30 MeV. This must be the collaboration's current task.

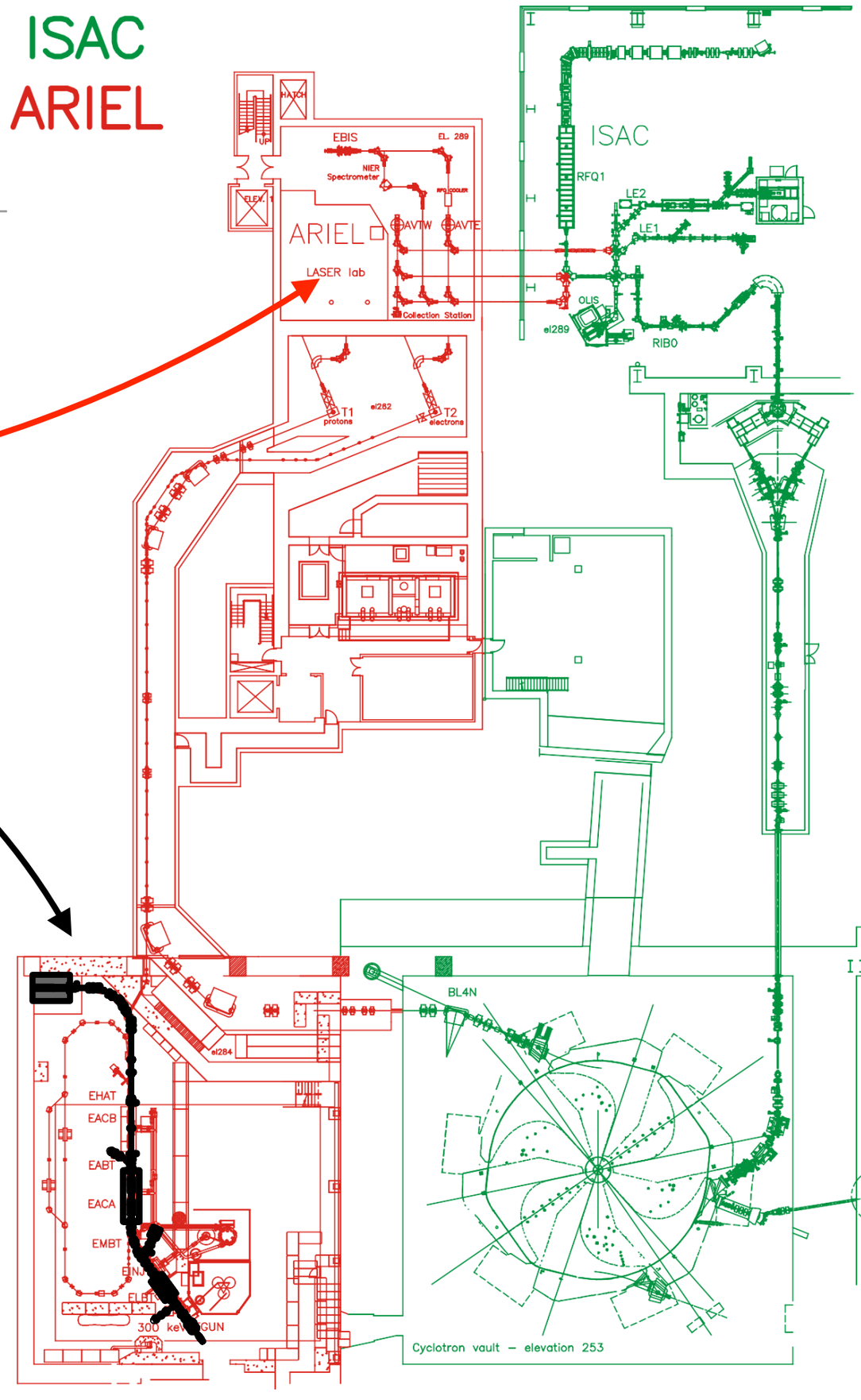
- TRIUMF now in "long shutdown" that will end at end of April 2027.

  - Goal of long shutdown is to complete ARIEL project. All TRIUMF technical personnel are focused on this.

  - E-linac may be the first machine to turn back on, but with the caveat that its primary goal at that time will be commissioning ARIEL, so we will take second place to their beam needs.

Aside/reminder/ clarification

- **The e-linac is not ARIEL**
- When we talk about ARIEL, we are talking about this
- The e-linac is this
- ARIEL is a radioisotope production facility of which one of three incoming beams is from the e-linac. There are many targets and beam lines to be finished and commissioned as part of this project. The e-linac is, comparatively, a minor thing and cannot receive much person power in the next year or two.



If we can get useful data, we should do a physics run at 30 MeV

- The “if” is an important caveat. But, for rest of this discussion, let’s assume the experiment will be in a good state to take data

- Then: we should aim to complete the 1000 h physics run at 30 MeV that we initially proposed.

- Will need to give an update and discuss proposal at next PP-EEC, which should be early in 2027

Configuration for 2027 startup

- Question: are we happy with the commissioning data on carbon that we have already, or do we want to take more?

- My tentative vote is to be happy with what we have and move on, but let's discuss and hear all opinions
    - Reasons: easiest to get time for magnet configuration swap during the shutdown when we have schedule flexibility. We will already have quite a bit of analysis done and hopefully some publication drafts in progress with existing data, and we probably want to get on with commissioning updated tracking detector system in realistic conditions

    - Note once we make the switch we will not be able to switch back

- Alternative is to keep current configuration a little longer and pick back up where we left off to get more data on carbon.

DarkLight tasks to be completed before next run

- If we decide to go straight to tantalum:
    - Insertion of high energy spool piece
    - Replacement of targets/new target ladder
- If we are using GEMs or equivalent:
    - Proper gas mixing system
- In all cases:
    - New support frames for lead shielding, and increased shielding on back and bottom of detector
    - (Ideally, but we must consider it a seriously “stretch” goal on this timeline) Upstream collimator. Might also be fixed by swapping cathode, which is end of life. Maybe we want to hold off and see how that looks anyway.

Anticipated 2027 timeline

- ….. has a lot of uncertainty.

- ARIEL will want beam right away for commissioning, but will only be able to take it sporadically. Anticipate significant time in between ARIEL beam requests when we can use it.

- The challenge, as usual, will be planning, since we won’t know in advance when these opportunities are going to pop up

- However, experiment running was pretty stable by the end of January, so we should be able to rely quite a bit on remote shifts and distribute the workload even if we don’t have a clear enough beam time plan to be able to send collaborators to TRIUMF

- Let’s stay flexible to ensure we can make use of the maximum amount of beam time next year.