Title: LBNL Respooling Machine Procurement Technical Review

Presenter: Elizabeth Lee (1 presentation only, estimated ~30 minutes + Q&A 30 minutes)

Reviewers: Melanie Turenne (mturenne@fnal.gov, FNAL, chair), Miao Yu (miaoyu@fnal.gov, FNAL), Hugh Higley (hchigley@lbl.gov, LBNL, retiree)

Observers: Katherine Ray, Jamie Blowers, LBNL Cabling Team

For Information: Giorgio Ambrosio, Soren Prestemon

Date of Review: 17th Feb 2022

Time of Review: 11 a.m. PST

Description

* Respooling is a critical step in Rutherford cable fabrication. At LBNL, the respooling station is a small modified solenoid winder that has been in use for decades. In the past, every year we made on average 10 cables, ~200 m each with ~36 strands. During the HL-LHC AUP, we have been making ~30 cables a year, and each cable has a respool length of 500 and 40 strands. The wear and tear on the respooling station is substantial. Towards the latter half of the project, in 2021, we suffered from issues with component failure, which had a schedule impact of a few weeks. Although repair was made to the failed components, it is becoming apparent that a new respooling station is desirable to mitigate risk to this 413.3b project as well as to improve the respooling efficiency and capacity for other projects. This review is to provide technical input to the choice of a replacement candidate.

Charge:

1. Has the team properly identified the requirements for a replacement respooling station?
2. Has the team identified the salient specification parameters for a respooling station?
3. Is the team pursuing the appropriate figure of merit with relevant selection criteria, including installation and maintenance considerations?
4. Is the recommendation an appropriate balance of cost and risk?
5. Will the preferred candidate provide a reasonable assurance for reliable respooling operation at least for another decade?