*Soren Prestemon*

*Director, BCMT*

*Oct. 18, 2021*

**HTS Test Facility Dipole Magnet (TFD)**

**Wire Specification Review**

**Review Committee:**

Lance Cooley (Chair), Bernardo Bordini, Melanie Turenne, Matt Jewell

***Observers:*** Steve Gourlay, Luca Bottura, Ken Marken, Daniel Clark

**Date:** Thursday, Oct. 28, 2021; 7am-11am PDT / 10am-2pm EDT / 4-8pm Europe

The US DOE Offices of Fusion Energy Sciences and High Energy Physics are investing in an HTS Cable Test Facility, to be located at Fermilab. A major element of the facility is a 15T large bore dipole magnet; the design and fabrication of the magnet is the responsibility of LBNL.

We would like your expert opinion on the wire specifications for the project. The project has obtained sample wire from CERN to enable the fabrication of a series of cable lengths with different parameters (development cable) and its electrical and mechanical characterization. A wire specification has been developed, largely based on the CERN wire, that meets the TFD magnet requirements and that is consistent with the magnet conceptual design; the latter was [reviewed](https://conferences.lbl.gov/event/359/) in June 2020. Sufficient length of the wire has been procured to enable the fabrication of a full-length prototype cable and magnet coil, which is scheduled for completion in the next ~5 months. To maintain project momentum and to leverage vendor production capability, the project intends to proceed as soon as possible with the procurement of the wire for the full project based on the specifications being reviewed here.

**Charge:**

1. Has the project properly identified conductor requirements for the TFD magnet, and identified and prioritized performance risks associated with the superconducting wire?
2. Has the project identified the proper wire specification parameters for the project?
3. Is the team pursuing the appropriate wire performance metrics? Do the data presented provide sufficient confidence in the wire specifications? Are there additional measurements that should be considered?
4. Are the wire specifications sufficiently well defined, and properly formulated, to balance project risk with efficient procurement?
5. Is a reasonable quality plan presented that will assure receipt of material meeting the specifications?