

February 16, 2021

LBNC March 3-5, 2021 Charge: Draft 2

As usual, the LBNC should construct a report in which it acknowledges, comments on, and where appropriate, makes recommendations following the presentations and discussions during the meeting.

The progress of LBNF-DUNE towards a baseline for the DOE project continues to critically depend on achieving a high degree of clarity with respect to the scope of the project and its components. In the presentations, LBNF and DUNE should pay attention to this aspect of its progress. In its report, the LBNC should explicitly address this issue with respect to both the Far Detectors' scope and convergence, and for the Near Detector scope and convergence.

The LBNC should hear about the general status of LBNF. Of continuing interest is the planning for a tailored approach to baselining following the recent DOE-IPR and the schedule for future DOE-IPRs. An understanding of the current schedule, and any options for early delivery of beam is important. The discussion of the beamline progress should be addressed in a breakout session shared with Technical Coordination.

The LBNC should hear from DUNE about its overall status and progress at a high level, which should provide a basis for the details which follow. The situation with respect to the IPR process and the approach to a Baseline review should be updated and clarified. The overview should include discussion of the strategic approach to the two technology variants foreseen for the first two Far Detector Modules. The development path for the second variant of the Far Detector technology should be discussed. Progress towards the Day-1 Near Detector baseline should be discussed. The LBNC should comment extensively on all these issues.

As the definition of the technical plans for the major pieces of the DUNE detector progress, it is important for DUNE to ensure that all aspects of the endeavor enjoy an appropriate organizational structure and management coverage. DUNE is expected to discuss its management structures in the DUNE overview talk, in the Technical Coordination and to a greater or lesser extent in the main Sub-detector sections. These structures should allow convenient mapping to the US-DUNE DOE project. In its reports from this meeting, the LBNC should include commentary on the current management implementation within DUNE including how well the major sub-systems Far Detector Modules, and Near Detectors are integrated.

In its previous reports, the LBNC has expressed concern with the breadth of the Technical Coordination activities both in terms of the scope and the available staffing. Based on the DUNE presentations, the LBNC should consider how well Technical Coordination is working and fulfilling its role as a major component of the DUNE management framework.

The LBNC should hear about the progress with the Far Detector Horizontal Drift SP technology. The presentation(s) should cover:

- a) Progress towards ProtoDUNE II SP (NP04).
- b) Technical progress on the SP Far Detector, APAs, assembly etc
- c) Progress on the TPC electronics development and the progress towards a choice.
- d) Physics analysis of the PD-SP data.

Time is reserved in the Computing Breakout for a presentation on the physics analysis and results.

Since the December LBNC Meeting, the Vertical Drift concept has been presented to the DUNE collaboration and adopted, has undergone a Director's Review, and has been presented to the

January 2021 IPR. The LBNC should hear about and comment on the current plans for this technology variant, the plan for near term R&D and the progress towards testing at scale in NP02. The LBNC should comment on the plans presented for development and delivery of documentation (CDR, PDR etc).

We understand that the LBNC is comfortable with the progress of the Near Detector CDR, has made its final comments and only awaits delivery of the final version before making a formal recommendation to approve to the Director. The LBNC has also recently held a review of the Day-1 Near Detector plan and progress. The LBNC should therefore hear and discuss the issues arising from each of the CDR and Day-1 Detector reviews and should comment thereon.

The LBNC has been pleased with the progress of the DUNE Computing consortium including the development of an international infrastructure to support its resource needs. The recent IPR report indicated some interest in defining the scope of the US contributions to those resources. A Computing CDR is under development, but apparently not ready yet for submission. The work to develop this document will be discussed at this meeting; the LBNC should provide a critique and commentary as appropriate.

The LBNC should develop a Closeout Report which it should deliver at 12:15 EST March 5, 2021. Subsequently this should be refined into a LBNC Meeting report.