

21 September 2017

LBNC Meeting: October 25-27, 2017  
DRAFT CHARGE for the Referee Groups

The LBNC is asked provide candid assessments of the scientific, technical, and managerial preparations and decisions for the Fermilab Long Baseline Neutrino Facility (LBNF), the long baseline Deep Underground Neutrino Experiment (DUNE), and some specific aspects of the Short Baseline Neutrino program. The LBNC referee groups are asked to focus on specific areas of these activities.

**Speakers:**

We ask the speakers to provide some general items for most talks/reports (where relevant):

- An update on previously agreed milestones in a standard format (comparing planned with actual or projected for example).
- An assessment of risks, mitigating strategies, and status of these strategies.
- An update on manpower planning and status of key scientific, engineering, or QA/ESH personnel.
- Status relevant recommendations (completed, not adopted for reasons, in progress and projected completion).

To allow for questions during the talks, speakers are asked to present on no more than one slide per 2 mins of presentation.

**Referee Groups:**

We ask the referee groups, for their focus areas, to:

- (i) Assess recent progress against key milestones and schedules. Identify any new areas that need special attention, and draft the associated recommendations, if needed.
- (ii) Assess the status of the actions recommended in past LBNC meetings. Identify any areas where progress may be insufficient.
- (iii) Consider issues and recommendations from recent U.S. and International funding agency reviews (for example, the recent DOE status review). Are there sound plans to address these issues and recommendations?
- (iv) Consider synergies with the SBN program (where applicable).

In addition, for each referee group there are some specific areas we would like the group to focus on for this meeting:

1. Plans for the DUNE TDR
2. protoDUNE-SP CE & TPC:
  - i) Results and a comprehensive plan for protoDUNE cold electronics.
  - ii) Status and a comprehensive plan for protoDUNE anode plane assemblies (UK and PSL)
  - iii) Results and a comprehensive plan for protoDUNE integration testing (APA->electronics->DAQ)
  - iv) A detailed endgame timeline for protoDUNE, including hard cutoff for final APA installation.
  - v) Status and plan for DUNE cold electronics development and testing.

For items (i)-(iii), "comprehensive plan" should be interpreted to cover:

- Detailed timeline, including critical path items
- Comparison to schedule shown at June LBNC meeting
- Decision points and decision process (e.g., number of APAs to install)
- How "lessons learned" (e.g., assembly, cost, schedule) will be applied to DUNE (e.g., TDR, BoE and assembly/test procedures)

3. protoDUNE-SP DAQ:

No special issues this time.
4. protoDUNE-SP schedule & planning:

Included in items listed under "protoDUNE-SP CE & TPC"
5. DUNE physics & reconstruction, and planning for joint SBN analysis
  - i) ND+LBL activities, post-ND TF activity
  - ii) LBL oscillation fitting tools
  - iii) Progress in FD event selections
  - iv) TDR Physics Volume: organization, planning
6. DUNE computing:
  - i) High level status report on offline computing emphasizing recent progress.
7. LBNF/DUNE planning for cryogenics:
  - i) Engineering details and experience with the current 1x1x3 Ar purification system.
  - ii) Status of the WA105.
  - iii) Path forward in resolving the pressure testing question from the LBNF Internal Cryostat review.

- iv) Status of last meeting recommendations: (Identifying a missing scope strategy, SP and DP common design issues study, CFD analysis for the LAr flow within cryostat)

8. LBNF management, schedule & planning:

- i) Update on managing cash-flow and procurement actions.
- ii) Clarification of responsibilities between SDSTA and LBNF.
- iii) Status and schedule of SURF maintenance and infrastructure improvements required for an efficient execution of LBNF work in SD.
- iv) Update on logistics planning and management for SURF and interfaces with CERN or other major collaborators.
- v) Status of engaging CM/GC and execution of the final design contract with ARUP.

9. LBNF/DUNE interfaces:

- i) Progress on logistics planning and cryostat penetration design effort planning. Is the protoDUNE work on the penetrations and detector/cryostat/cryogenics being captured/tracked sufficiently to understand the level of effort needed to deliver the final system for the single phase detector?

10. protoDUNE-DP technical, schedule & planning:

- i) Performance of the 1x1x3 and lessons learned for future DP design
- ii) Status of 1x1x3 plans to investigate CRP HV problems
- iii) Update on fall schedule
- iv) Status of parts procurements
- v) Review of manpower planning

11. DUNE management, schedule & planning:

- i) Update on progress in implementing new management structure, [including development of consortia and consortia management](#)
- ii) Update on establishing unified collaboration culture and decision making process.
- iii) Update on CD-2 strategy and decision processes.
- ~~iv)~~ [Integrated review plan for 2018-2019 and planning for documentation](#)
- ~~v)~~ [Plans for incorporating lessons learned, including calibration systems and operational experience, into DUNE TPC designs](#)
- ~~iv)~~ [vi\) Plans for converging on a ND design and strategy](#)