

Status & Plans

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Far Detector Technical Board Meeting

September 12, 2019

TDR

- Still expect one additional round of comments from LBNC by Sep. 15th (so far have only received comments on Executive Summary) that we will need to address and respond to
- After this next round, LBNC has said they expect to be able to recommend approval of most TDR elements
- DP volume will require further updates to incorporate ProtoDUNE experience and describe plans for further development
 - Focus of next LBNC meeting in December

RRB

- Next RRB meeting is September 19-20 at Fermilab
- Gina continues to work one-on-one with the consortia leadership teams to further develop cost estimates and responsibility matrices
- Neutrino Cost Group has begun the process of reviewing consortia cost estimates
 - Process is not expected to be completely converge prior to upcoming RRB meeting (next meeting April 2-3, 2020)

DOE Reviews

- DOE CD-2/3b review for the far site is still an important collaboration milestone in that it is needed to initiate the underground excavation at SURF
 - Originally targeted for December of this year but likely slipping to next April (status review Oct. 29th to Nov. 1st)
- DUNE requirements include:
 - Completing preliminary design reviews covering far detector sub-systems (need to flesh out schedule)
 - Well understood, reviewed consortia cost estimates and responsibility matrices (April 2-3 RRB meeting)

CERN Cold Box

- CERN Cold Box has been re-assembled and standalone cool-down test is planned for this month
- Targeting October for outfitting 7th APA and operating it in the Cold Box (starting week of October 6th)
- First meeting held this week to develop plan for getting needed people and materials to CERN at the correct times to make this happen (follow-up meeting next Monday)

Follow-up on June Workshops at CERN

- Continue to follow-up on the successful workshops held at CERN in June
- Executive Board has signed-off on guidance for how to move forward with Far Detector calibration systems at September 5th meeting
 - Reviewer Report on Calibration Workshop: DocDB 15812
 - Executive Board Guidance on Calibration: DocDB 16037
- Review Committee report on Cryogenic Instrumentation presented to Executive Board at September 5th meeting
 - Reviewer Report on Cryogenic Instrumentation Workshop: DocDB 16034

Follow-up on June Workshops at CERN

- Review Committee for Background Mitigation workshop has produced a draft report and is reviewing it internally
 - Plan to discuss report during upcoming collaboration meeting week
- Outcome of workshop on potential long-drift detector far detector configurations was also discussed at September 5th EB meeting
 - No official action but proposal is to remove long-drift configurations as a consideration for first far detector module and for the second module as well (unless we decide at some point to pursue multiple additional modules of this type)

Next Steps

- Expect follow-up workshops on cryogenic instrumentation and background mitigation strategies to address questions raised at the initial workshops
 - Likely on time scale of January 2020

Technical Issues

- In order to allow the APA consortia to proceed towards its final design review, the Technical Board needs to discuss and weigh-in on several technical issues over the next several weeks
- In particular,
 - Suggested removal of G-plane from design
 - Inclusion of electron diverters along edges of APA frames
 - Possible incorporation of optical fibers for photo-electron laser system and/or temperature monitors on APA frames

Proposal to Eliminate APA G-Plane

- Discussed at last Technical Board Meeting
- Status update given to the Executive Board at its September 5th meeting (see next slide)
- Expect EB to iterate on this topic over upcoming collaboration meeting week

Feedback to Executive Board

- Technical Board still has concerns about implementing this change and it not ready to recommend adopting it
- Timeline is complicated as we are pushing towards having a final APA design review on time scale of Spring 2020 (initiates fabrication of module 0 APA modules for ProtoDUNE-II)
- It would be useful to receive feedback from the Executive Board on next steps (whether we continue to pursue this option)

Feedback to Executive Board II

- Current conclusion of Technical Board is that additional work is required to assuage concerns
 - Can FE electronics inputs be improved to withstand higher current discharges?
 - Tests in ICEBERG to demonstrate equivalent front-end noise performance
- Question for Executive Board is whether to further explore this proposal (requires resources that may at some point eliminate potential cost savings)

This Week's Discussion

- APA consortia commissioned a task force to consider the need for electron diverters at the edges of the APAs
 - Tom Junk will update us on the task force findings
- Bo Yu will present additional information on the potential benefits of incorporating electron diverters
- Technical Board should weigh advantages and dis-advantages to see if we can converge on a consensus recommendation

Calendar

- RRB Meeting at FNAL (September 19-20)
- Collaboration Meeting at FNAL (September 23-27)
- Near Detector Workshop at DESY (October 21-23)
- DOE Status Review at FNAL (October 29-November 1)
- Module of Opportunity Workshop at BNL (November 12-13)
- LBNC Meeting at CERN (Early December [TBC])
- Collaboration Meeting at CERN (January 27-31)
- RRB Meeting at FNAL (April 2-3)
- DOE CD-2/3b Review at FNAL (Late April [TBC])