

# LBNE Reconfiguration Steering Committee 13<sup>th</sup> Meeting

July 2, 2012

Participants: See the lists at the end of this summary for those participating.

## Agenda:

- Recent Events
- Things to Be Done

## Recent Events

Brinkman letter of Friday, June 29, 2012

Pier Oddone received a letter from Bill Brinkman, Director of the Office of Science, The letter supported proceeding with the DOE Critical Decision (CD) process for the preferred LBNE reconfiguration option. A CD-1 review is tentatively scheduled for the end of October, with the aim of having formal CD-1 approval by the end of the year.

The letter is thought to be useful for discussions with potential collaborators from around the world, many such discussions expected to take place this week and next at the ICHEP meeting in Australia. The two years anticipated between CD-1 and CD-2 should allow exploration of how other collaborator contributions to LBNE can allow placing the 10 kT detector underground at Homestake and adding a capable near detector, both as part of Phase 1 of LBNE. Such collaboration is viewed as both desirable and scientifically needed. So, new participants would have important roles. In addition to the contacts to be made at ICHEP, a letter is planned to the European Strategy Group before their meeting in Cracow. A review near the end of the Cracow meeting will be given by each of the non-European regions, the Americas review by Andy Lankford.

## DPF e-mail asking for community input

Given the new July 20 date for submission of the final reconfiguration report to the DOE, it will be possible to include community input in reaction to the Interim Report. The DPF is in the process of setting up a blog site for such input, and sending out an e-mail inviting public input there, as well as inviting private input via e-mail directly to Young-Kee. After the meeting, the first version of this announcement went out, but without the blog site!

## Things to Be Done

### Community input

Depending on the amount of community input, the format and nature of inclusion in the report needs to be determined.

### Physics Working Group

Mel Shochet reported that there are four active efforts aimed at the main text or addenda for inclusion with the final Physics Working Group addendum to the Steering Committee Report:

- Backgrounds when operating a LAr detector on the surface: Nothing definitive is possible on the final-report timescale, but work will continue on this for the CD-1 review.
- Near Detector contributions to Phase 1 physics reach: A dozen authors are working on this document.
- Dependence of the mass-hierarchy and CP-phase sensitivity on other oscillation parameter uncertainties. Plots already exist for the dependence on the 1-3 mass difference and  $\theta_{23}$ .
- Figure of merit for optimization of distance to the far detector for determination separately of the mass hierarchy and CP phase. The neutrino beam flux is optimized separately for each distance in this study.

### Engineering/Cost Working Group

A new version of the Engineering/Cost Working Group addendum to the full report is expected soon. It will have an expanded risk analysis section. In response to a question of possible additional \$30M cost savings in the beamline estimates suggested earlier, Young-Kee offered to check.

#### Photon-Detector Design

To the extent that this may become a major issue, a design for the photon-detector system needs to be fleshed out. Costs for photo sensors and readout electronics are already included in the current costs, but segmentation of the detector for photon detection may be an issue. It is likely that this will also be a CD-1 time-scale effort.

There is a face-to-face meeting in Lead, SD, at the end of this month on the topic, as well as an LBNE Executive Committee meeting at that time. It may be that a background-reduction factor of 100 may be needed to avoid some of the angle cuts discussed earlier, This is thought to be possible.

#### HEPAP Meeting, August 27-28, 2012

There is expected to be a major discussion of LBNE at the upcoming HEPAP meeting. The format of the presentations is yet to be decided, but is the prerogative of the HEPAP chair, Andy Lankford. Clearly, it will be helpful for as many Steering Committee members to be at the HEPAP meeting as possible.

#### Final LBNE Reconfiguration Report to the DOE

In reviewing the Interim Report for the final report to the DOE, it may be that the wording should change somewhat, keeping the DOE response to the Interim Report in mind.

#### Committee Members Participating:

- Young-Kee Kim, FNAL, Chair
- Jon Bagger, JHU

- Charlie Baltay, Yale
- Gary Feldman, Harvard
- Kevin Lesko, LBNL
- Mel Shochet, U. Chicago (chair of physics group)
- Bob Svoboda, UC Davis
- Jeffrey Appel, FNAL, Scientific Secretary

Ex-Officio Members Participating:

- HEPAP Chair, NRC Study Chair: Andy Lankford, UC Irvine
- DOE's DUSEL Review Committee Co-chair: Jay Marx