Meeting Goals and Summary of the EB retreat

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Topics

- External events that have influenced our task.
- Brief tour around the experiment.
- Our timetable (list of tasks) since the September meeting.
- Executive Board deliberations and the outcome of the last retreat.
- Task for this meeting.

External events

- Tevatron continuation proposal was not accepted. An open letter sent by Dr. Brinkman.
- NRC review.
- NSB CPP decision not to fund the request for additional funds for DUSEL design work.
- Personnel changes at the DOE due to retirement of Dr. Kovar.
- Visits to DOE/NSF by RS and MD.

Tevatron termination

- Continuation of the Tevatron would have affected the availability of manpower for the beam work. Was not as much of an issue for the detector work. (FNAL technical manpower could be busy with the shutdown in 2012).
- Removes the problem of scientific attention and priority at DOE/HEP and FNAL.
- Positive for university support.
- Should be a positive effect on our CD schedule. We need to have an cost/sch analysis out to 2014.

NRC review

- A report has been commissioned from the National Research Council on DUSEL. This is a broad review.
- Meetings: Dec. 14-15, Feb. 3-4
- Andy Lankford (chair), Y. Alhassid, E. Coccia, C. Fairhurst, B. Filippone, P. Fisher, T. Kajita, S. Laubach, A. Nelson, R. Ong, F. Sciulli, M. Shapiro, J. Tiedje, D. Wark
- http://sites.nationalacademies.org/BPA/BPA_058955
- Presentations from Marciano, and Svoboda
- Interim PWG report made public for the NRC

NRC review charge

- The committee will undertake an assessment of the proposed DUSEL program, including:

- An assessment of the major physics questions that could be addressed with the proposed DUSEL and associated physics experiments,
- An assessment of the impact of the DUSEL infrastructure on research in fields other than physics,
- An assessment of the impact of the proposed program on the stewardship of the research communities involved,
- An assessment of the need to develop such a program in the U.S., in the context of similar science programs in other regions of the world,
- An assessment of broader impacts of such an activity, including but not limited to education and outreach to the public.

NSB/CPP etc.

- More will be said on this by true experts later. Just the facts here:
- Committee on Plans and Programs of the National Science Board did not recommend an additional $19M for design funding for DUSEL.
- They cited dislike of "the stewardship model" and concerns over "total costs".
- DUSEL design work on hold, alternate interagency models being explored. Delays...
- Collaboration must engage and resist delay.

Letter writing campaign

- DUSEL User's Research Association (DURA) (chairs: S.Elliott, R.Gaitskell) launched a letter campaign. Letters to be sent to NSF, DOE, OMB
- Letters from institutions: LBNE has sent ~30, a few more still working on. Total with DURA ~44.
- There have been a large number of individual letters.
- Feed back from DOE/NSF is rather positive.

DOE/HEP changes

- DOE HEP head Dr. Kovar retired and left.
- There is some interim arrangement, but a search has been launched with community participation.
- According to a few conversations, DOE would like us(the community) to nominate individuals for this job for the first time.
- Meanwhile, Dr. Tim Hallman (currently head of DOE/NP) has been asked to lead the discussion on DUSEL and DOE/NSF cooperation.
- Interlocutor: someone who informally explains the views of a government and also can relay messages back to a government

Informal communication

- Urgency and importance of the science case is not being questioned.
- The strength and quality of the collaboration (4 national labs, ~50 universities, strong intellectual leadership) is not lost on the DOE. LBNE will have a voice that is apart from the national labs.
- DOE is formulating a plan to see what may or may not be done. This will be presented after the president's budget request is revealed (Feb.14). There will be a stakeholder briefing and we will be asked for input.
- We think LBNE/DUSEL configuration will most likely follow a new model: simply individual experiments at a chosen site instead of a national facility for a range of science.

Further consensus and advice from the laboratory oversight group and discussion within the executive board.

- No decisions about technology choices, or even about whether DUSEL will continue as a DOE-funded project, have been made yet, and many options will be considered as DOE tries to work out the most cost-effective plan to get the three science programs (LBNE, double beta-decay and dark matter) done.

- For now, the most sensible thing for the LBNE project team to be working on is (a) re-evaluating civil construction costs that dominate present cost estimates, and (b) figuring out minimal-cost scenarios (and science impacts) for both WCD and LAr options at Homestake/DUSEL.

DOE/NSF meetings on collaboration funding matters

- Person responsible for most of the base for LBNE is Alan Stone.
- Two meetings at DOE headquarters concerning base and university funding. Each several hours and went through the coordinated proposal submitted last year. Dec. 7 and Jan. 7.
- There is a plan for ramping up Intensity Frontier/LBNE.
- Almost all of our travel request has been taken care of.
- The rest of our request is being addressed through supplements, continuation and renewals.
- There is a new proposal for support of a few inst. to NSF. Will hear about this in after March. This is indep. of DUSEL decisions.
- We are talking to individual PIs about their various requests.
- Please attend EPSCOR funding proposal meeting tomorrow.

PWG Highlights

- **Fall Report from Physics Working Group**
  - An impressive 105 page document with many contributors

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(Additional Contributors)

  - Significant contributions from non-collaborators, especially theorists
  - Progress in all aspects of LBNE science case so too much to summarize in one slide…instead a shout-out to some people

PWG Highlights

- PWG Conveners deserve special recognition, especially the early(-ish) career people
  - Sam Zeller & Mary Bishai, Long-Baseline Group
  - Roberto Petti, Short-Baseline Group
  - Hugh Gallagher, Atmospheric Neutrinos
  - Erik Blaufuss, Ultra-High Energy Neutrinos
  - Nikolai Tolich, Geo- and reactor neutrinos
  - Michael Smy, Solar Neutrinos
  - Mark Vagins, Supernova Relic Neutrinos
  - Kate Scholberg, Supernova Burst Neutrinos
  - Ed Kearns, Proton Decay
- And stellar work by post docs & students
  - Roxanne Guenette, Lisa Whitehead, Jen Raaf, D. Mohapatra, David Weber, Rachel Carr and new blood -> Andy Blake, Matt Bass, …
- Even undergrads and two high school students!
  - Farzan Beroz, Wesley Johnson, Alex Beck, Alexander Moss, Yi

LBNE Calendar

- DUSEL PDR completion Sep. 2010; There is a draft to be submitted in March. Will hear more about it here.

- http://lbne.fnal.gov/reviews/review_index.shtml
- Neutrino Beam Review Sep. 20-22 2010 at FNAL.
- Water Cherenkov Review Sep. 27-29 2010 at BNL.
- Near Detector Review Oct. 4-6 2010 in Santa Fe.
- Liquid Argon Review Nov. 1, 2010 at FNAL
- Conventional facilities review Nov. 3, 2010 at FNAL.

The review presentations, summaries, and recommendations are considerable sum of work and public from the LBNE website.

- Project team visited DOE Dec. 1, 2010
- Exec Board retreat Dec 6-7. 2010. (Lake Geneva)
- ND working group configuration meeting Dec 11 2010 at FNAL.
- Exec Board in person meeting Jan. 25, 2011 UCLA.
- Collaboration meet UCLA Jan. 26-29 2011

Quick tour since last meeting in Sep.

- Vast amount of work, but I will only make a partial list.
- Huge technical development in WCD on design and costs. PMT development has reached a new stage. Testing facility at NUWC ready.
- Substantial new engineering in LAR: a section of membrane cryostat at FNAL. LAPD progressing. New concepts for the 800 ton prototype.
- Novel ideas in the beamline design. Substantial simulation work. New concept to build beam above ground.
- Near detector hall move closer, narrowing down choices to get the best solution under cost.
- Conventional Facilities: Tracy Lundin has taken charge. He will be the hardest working guy at this meeting.

Conventional facilities cost reduction.

- A Successful Conventional Facilities Subproject review - November 2010

Contributors: E. McCluskey, T. Wyman, S. Henry, D. Taylor, L. Sujan, B.Kaufman, S. DeVries, J. Matthesen, D. Vardiman, R. Wielgos, L. Hammond, M.Andrews, and others.

- Development and Checking of Value Engineering Proposals - December 2010 & January 2011

Contributors: T. Wyman, M. Campbell, S. Henry, M. Andrews, E. McCluskey, J. Dolph, T. Russo, L. Sujan, J. Sefcovic, R. Rucinski, S. Childress, J. Johnstone, G. Koizumi, P. Hurh, K. Vaziri, D, Reitzner, V. Papadimitriou, B.Baller, J. Stewart, C.Mauger and others.

Background for EB meeting in Dec.

- During the mini-reviews, it became clear that the total cost exceeded the guidance from DOE: $1.1 by a large factor.
- It was important to create stronger interaction between the collaboration and the project team.
- We organized several small teams of Executive Board members to interact with the subprojects.
- The cost estimates for each subproject were presented in a series of meetings to the EB.
- The Dec. 5-6 meeting of the EB was held after this considerable amount of work: recorded in DOCDB and minutes.

EB meeting (1)

- The Executive Board met Dec 5-6 in New Haven, CT. All but two of the Board attended. There were discussions on the state of the costing of the various options for depth and technology for the far detector, the state of value engineering for all aspects of the project, and a discussion of mixed versus single technology options for the Far Detector. Slides from the Physics Working Group were presented on the progress of SN burst and beam physics sensitivity calculations.

There were in-depth discussions on the Far Detector configuration choice. There was a near consensus by the Board that the preferred option for us to pursue for a 200 WCE configuration, assuming that a funding cap is not considered - or the option can be made to fit within the cap, is one with a mixed water Cherenkov and liquid argon technology.

EB meeting (2)

- This recommendation was made considering many factors:

1. scientific potential versus single technology potential
2. timeliness versus single technology
3. community and international support
4. programmatic flexibility
5. potential for later upgrade and/or reconfiguration post-LBNE

The Board also considered whether a surface liquid argon-only experiment should be pursued at this time. It was recommended by a substantial majority not to pursue this option.

This recommendation was made considering the breadth of science that could be done, the impact on the physics community support, and the long-term science goals of the collaboration.

Meeting goals

- Many technical developments have been completed and will be presented.
- A thorough reexamination of the civil construction is in progress: Tracy Lundin is talking for a total of 2 hours.
- Considerable simulation progress on LAR and WCD.
- Need to discuss the scientific requirements and how to organize them.
- Engagement with European collaborators.

Potential new collaborators

- Potential new collaborators:
  - Syracuse,
  - A few individuals from India (previous members of Star at BNL)

Please welcome Andre Rubbia and Michael Wurm