

Minutes from the May 29, 2003 Meeting of the Linear Collider Subcommittee of the
Fermilab Long Range Planning Group

Present: M. Carena, J. Butler, S. Holmes, R. Kephart, H. Montgomery, R. Patterson, Y-K. Kin

Absent: S. Nagaitsev

Guests: V. Kuchler

Discussion of Siting and Conventional Facilities Studies

Vic Kuchler presented a report on the activities of the Civil and Siting Task Force undertaken under the auspices of the USLCSG/Accelerator Subcommittee. By way of introduction Steve pointed out that Vic is the Deputy Head of the Facilities Engineering Services Section at Fermilab, the leader of the Civil Construction Group within the NLC collaboration, and the lead engineer on the Civil and Siting Task Force.

All civil siting work to date has been in the context of “representative sites” in California and northern Illinois. Prior to this year only warm linacs were explored. This year we are also looking at superconducting linacs.

This year’s civil effort is focused on development of civil designs for the following technologies and sites:

- Warm and cold designs at representative Illinois and California sites
Both designed for 500 GeV initial with 1000 GeV upgrade => length = 35 km (warm), 48 km (cold)
CA warm = near LLNL
CA cold = NW of Sacramento
IL warm = west of FNAL, east of DeKalb
IL cold = ditto
(IL site is as far west as one can go and still tunnel in the Galena-Plattville dolomite with the Maquoketa shale overburden.)

Initial design iterations are all based on two tunnel solutions (one for linac, one for support equipment).

- One vs. two tunnel study
Will develop a single tunnel cold design for IL
Will undertake a one vs. two cost/benefit analysis

Mont: What happened to the Fermilab North-South alignment? Vic: That was completed previously and is in the file as a representative site.

Is the CA cold more expensive than the CA warm because its deeper? Vic: Tunnel=no, shafts=yes.

Deliverables

The report from the Accelerator Subcommittee is due in (approximately) September. The civil/siting contribution will include:

- Individual design summaries for each of the four technologies × representative sites.
 - Design summary for the cold single tunnel time if we have the resources
 - Two sets of drawings: one warm, one cold
 - Cost estimates
- ⇒ These will all be assembled in a common format
- Evaluation of one vs. two tunnels
 - Executive Summary

Resources

There are currently about 4.5 FTE at SLAC and 2.1 FTE + 4.5 consultants at Fermilab. In addition the Beams Division electrical and cryo groups are participating. A collaboration with the NIU Geology Department is in the formative stages.

Status

CA warm – design and cost estimate 95% complete, drawings 50% complete
IL cold – design, cost estimate, and drawings 90% complete
CA cold – getting started
IL warm – getting started
IL cold/single tunnel – later (resource dependent)

Ritchie: Are we looking at items beyond cost, like ground motion. Vic: Yes, there is a program of characterizing ground motion both at the sites and within the relevant strata.

Schedule

6/15	IL/cold, CA/warm in final draft
7/31	IL/warm, CA/cold in final draft Outline of Executive Summary
8/15	All summaries and ES complete for Accelerator Subcommittee review
9/1	One vs. two tunnel draft complete
??	IL/cold/one tunnel in final draft

Marcela: Are there warm/cold considerations with respect to detectors? Everyone: Nothing has really ever surfaced in this regard. We should raise this during the detector discussion.

Other Business

We reviewed and modified the schedule of upcoming meetings. The schedule now stands as follows:

<u>Date/Time</u>	<u>Topic</u>	<u>Coordinator</u>
6/19?	Physics	Carena

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

6/27 Accelerator R&D Kephart, Nagaitsev
(Dave Finley invited & can attend)

11:00-12:30 ---- NOTE TIME CHANGE

Room: Industrial Ctr Bldg (televideo)

7/10 Detector Butler, Paterson

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

7/31 Outreach and Holmes, Carena
Local Alliances

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

8/7 Bid to Host TBD

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

8/28 Organization & Resources TBD

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

9/5 International Lab Kim, Butler

10:30-12:00

Room: WH2NW/Black Hole (televideo)

9/12 Discussion of Report content and recommendations

10:30-12:00

Room: Comitium (sorry -----no televideo)

9/19 First Draft of Report content and recommendations

10:30-12:00

Room: WH2SW/Black Hole (televideo)

9/23 Finalize Report content and recommendations

10:30-12:00

Room: WH7 Crossover/Race Track (televideo)

Steve is relying on the assigned committee members to organize their assigned meetings.

Next Meeting

Look for e-mail from Michelle for date/time/location.

Agenda:

1. Physics – Marcela to organize