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DUSEL Site Independent Study Minneapolis Workshop

Our Vision

NSF announcement

Our S1 mission and deliverables

Goals of the meeting

Our Vision

Imagine together the future and help it emerge

in spite of :

- The inertia of mental models, fields, institutions etc.
- The tepid budgetary climate in Washington
- The chronic oversubscription of our time
- The disappointment/discouragement of some of us about the process

Even in a period of severe constraints, important to open new frontiers

Our intuition:

Scientific/engineering importance of the underground frontier

Individual fields: Some of the most important questions!

Synergies and new multidisciplinary endeavors

Education opportunities

A Deep Underground Science and Engineering Laboratory in the U.S.
with the proper mix of prime facilities is an essential tool to keep this frontier alive!

Announcement from NSF last night

News of the MPS site

http://www.nsf.gov/news/news_summ.jsp?cntn_id=104313&org=MPS&from=news

The National Science Foundation (NSF) has selected two site-specific proposals submitted in response to Solicitation NSF-05-506, entitled "Deep Underground Science and Engineering Laboratory Site and Conceptual Design." The two selected sites are the **Homestake Mine in South Dakota and the Henderson Mine in Colorado**. Each team will receive \$500,000 to produce a conceptual design for a possible DUSEL at those locations. The awards result from the second stage of a **planned three-stage community planning process that is providing input for NSF's future decision on whether to move toward construction of a DUSEL...** The confluence of scientific and engineering questions requiring a DUSEL have brought together the **Biology, Engineering, Geosciences, and Mathematical and Physical Sciences Directorates** of NSF to look into the merit of undertaking what would be a major construction project and suite of diverse research activities.

From a very strong field, the Homestake Mine and the Henderson Mine stood out as by far the most promising prospects for further consideration. The conceptual designs the teams associated with these sites will develop will lead to more detailed plans associated with a down-select to a single site in the third stage of the community-based planning process. Both the conceptual designs and the more detailed plans will aid the NSF in determining whether to support construction of a DUSEL and in **comparing its merit with the many other large projects being proposed by all the communities served by NSF.**

Congratulations to both teams

Let us help them carry the dream forward!

Let us also recognize the work of the other teams
which have helped shaped our thoughts

Especially Wick Haxton, who started the ball rolling again

Site Independent Study Mission

1) to unify the community

behind the idea of multidisciplinary, American Deep Underground Science and Engineering Laboratory.

This workshop is an occasion to get back together: For some of us, it means forgetting the disappointment, our passion for a given solution, or the desire to have a facility in our backyard

2) to develop a compelling scientific justification

for such a laboratory, cutting across our many disciplines

Clearly still very important in the overall competition with other projects considered by the NSF and other funding agencies

3) to specify the infrastructure requirements

for such a laboratory that will address the needs of a broad cross section of science over the next 20-30 years and complement other facilities worldwide.

We cannot afford not to have a prime facility, but we do not want to overload the boat.

Interactions with S2 process

It has always been awkward that S1&S2 processes were simultaneous

Desire at NSF not to delay the process too much

Hopefully:

- The S1 interactions helped in having better proposals
- The interim report informed adequately the S2 panel

But there obviously were several dangers:

- Difference between the criteria used explicitly or implicitly by the S2 panel and the direction taken by the site independent study
- Division of the community at the critical time when it has to make the case

Positive aspects

The science is stronger than ever!

An important milestone: we are going forward with the community based 3 -stage process

Recognition of the multidisciplinary nature of the project: Biology is in the mix.

We can now be more concrete!

Our present challenge

Let us focus on the Future

State **in full independence** the scientific goals and the infrastructure requirements for DUSEL

Focus on principles, not on implementation: there are always several engineering solutions to given specifications.

Identify what is missing, while recognizing that not everything can be done at same time!

Proposed approach

Use the pre-selected sites to ground our discussion: What do these sites need in order to become the prime facilities that we wish

From this concrete examination, extract specifications which should eventually be reached and a **development path** (cf LIGO)

S1 Deliverables

Glossy Report directed at generalists (government+funding agencies)
in the style of "Quantum Universe."

40 pages maximum, including graphics

The big science questions + roadmap of high priority experiments

Key infrastructure, modules and management requirements

International aspects

Web-based technical synthesis directed at scientific community
in particular, experts in the subfield and the corresponding program monitors

10-15 pages per working group

Justifications and support the main report.

These reports may refer to additional web-based appendices.

External review

Both the main report and the technical reports

Time table

Redefinition in March: Interim report April 22

Working groups-> Minneapolis workshop

Workshop focuses on missing elements

Writing August-September

Presentation to agencies early fall

Production till end of the year

Goals of this workshop

Let us embark on the next phase

Starting from the interim report
+ few texts from working groups

Solve the remaining problems in our argument

Fill the gaps in science/engineering and prioritize => roadmaps

Discussion in 3 groups early Friday afternoon

How do we speak convincingly about the unexpected and the ideas to come

International aspects (SNOLab, Megacavity, Earth Science)

Synergies

Infrastructure: what are the characteristics of a facility unique in the world? Discussion in 3 groups early Saturday afternoon

Staffing, management, integration of existing labs, collaboration with SNOLab etc....

A preliminary sketch of the glossy document

Small writing parties each of the two afternoons in parallel with other discussion

Refine the time scale

Begin to think beyond S1/S2

Workshops: e.g. to explore synergies

Creative approach to what is missing: e.g. sedimentary