

Henderson DUSEL

Unearthing the Secrets of the Universe Underground

HUSEP Overview and Workshop Charge

Chang Kee Jung
Stony Brook University

Physics at Henderson DUSEL Topical Workshop
Geoscience at Henderson DUSEL Topical Workshop
Fort Collins, Colorado, November 18, 2005

Henderson DUSEL: a bit of History...

- Henderson Mine was included in the survey of possible UNO detector site in 1999
 - It was considered too shallow relying on the outdated information
- In early 2003, alarmed by a possible closing of the mine in the near future the Arapaho community organization seeks possible usage of the mine as an underground facility for particle physics (underground Linear Collider?) and alerts the particle physics community
- Mar. 2003: a group of physicists including CKJ visits the mine informed by DOE

Continue: History...

- Convinced that Henderson is a perfect site for UNO, CKJ returns to the mine initiates a discussion for a possible site development
- Bob Wilson (Colorado State U.) was asked to lead local effort
- Aug. 2003: UNO Collaboration meeting in Denver
- Mar. 2004: NSF announces new DUSEL process
- Apr. 2004: HUSEP (Henderson Underground Science and Engineering Project) Collaboration, a national organization was formed for the purpose of establishing an underground science and engineering research facility at the Henderson Mine
- Feb. 2005: HUSEP submits Henderson DUSEL S2 proposal to NSF

HUSEP Collaboration

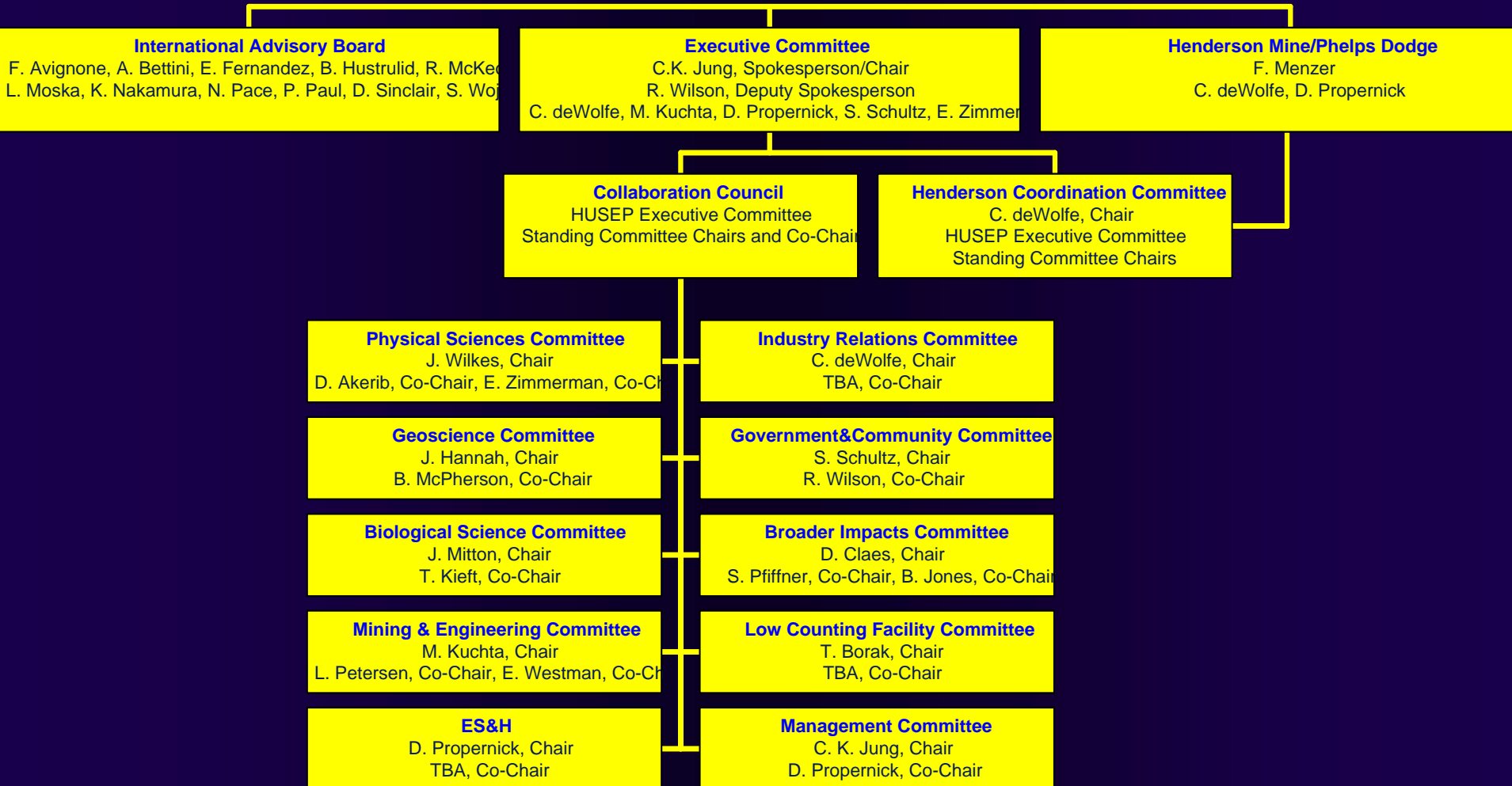
- Collaboration of Scientists, Industry Partners, Community Leaders and Members
 - Science-first
 - ⇒ broad representations in biology, geology, mining&engineering and physics
 - ⇒ a total of 78 scientist from 35 institutions from 6 countries
 - Strong Industry Partners
 - ⇒ Henderson Mine/Phelps Dodge
 - ⇒ Consultants
 - CNA Consulting Engineers
 - McIntosh Engineering
 - Dunham Associates
 - Miller-Dunwiddie Architects

State and Local Support for HUSEP

- Strong Support from Local Community
 - ⇒ Arapaho non-profit community organization
 - ⇒ Surrounding counties
- Strong by-partisan (non-partisan) Support from the State
 - ⇒ at all levels
 - ⇒ Creation of Colorado State Special Commission
- No opposition!

HUSEP Collaboration Organization Chart

HUSEP Collaboration



Henderson DUSEL Vision

- Create an underground lab that is unique and optimizes science output
 - Careful conceptual design to meet all science and engineering demands
 - Recognize other existing labs internationally
- Create a lab that is truly national and international and will last many decades
 - Long term stability and access
 - Dynamic scientific program
- Create a lab that will serve as an intellectual center
 - Permanent staff
 - Surface facility

Continue: Henderson DUSEL Vision

- Phased construction
 - Flexible “meet the need” approach
- Optimize the usage of the vast existing infrastructure and mining expertise
 - Cost effective facility
- Create a laboratory that is environmentally sound and absolutely safe
 - Utilize the tremendous amount of expertise that exists in the Henderson mine

Goal of the Workshops and Charge

- Develop and identify “Initial Suite of Experiments” and develop a long term science program specific to Henderson DUSEL
 - Encourage new ideas
 - ⇒ Flexible agenda/talks
 - Encourage discussions
 - ⇒ less formal and truly workshop like format
 - Inform Henderson infrastructure and current status of the conceptual design
 - ⇒ presentations by the engineering team and their presence for inquiries and discussions
 - Develop a strategy to deliver a successful report
 - ⇒ workshops are launching pads
 - ⇒ beginning of serious work

- Transmit experimental requirements to the engineering team
- Engage new people in DUSEL process
 - Especially young people
- Re-invigorate the existing DUSEL community
- Identify leaders for the sub-working groups
- Establish communication channels

Background Considerations

- Assume total project cost ~\$300M
 - ~\$200M for infrastructure and ~\$100M for experiments
 - ⇒ needs to be optimized
 - NSF accounting
- Science goals must be diverse and multi-disciplinary
 - Must include: physics, geology, biology, engineering and low counting
- Staged approach that allows scientific experiments to be carried out concurrent of the construction
 - Upper campus + experiments (within a year)
 - Central campus + experiments (within three years)
 - Lower campus + experiments (within five years)
 - Geo/bio Outposts + experiments

DUSEL Timeline

- S2 Award (Cooperative Agreement): Sep. 23, 2006
- Expected S1 report: ~Jan. 2006
- S2 Interim Report due: Jan. 27, 2006
- S2 Report due: June 23, 2006
- Expected S3 award decision: ~Fall 06
- Expected S3 report due: ~Fall. 07
- Expected DUSEL final decision: early 2008
- Expected DUSEL ground breaking: Late 2008 ~ 2009

Recent HUSEP Activities

- Collaboration Meetings
 - HUSEP05-Henderson Collaboration Meeting: August 24
 - HUSEP Collaboration Video Meeting: September 22
 - HUSEP05-Boulder Collaboration Meeting: October 20
 - HUSEP05-Fort Collins Collaboration Meeting: Nov. 18
- HUSEP Media Day at Henderson: October 6

Recent HUSEP Activities

- Workshops

- Henderson DUSEL Management Workshop: August 25
- Biological Science at Henderson DUSEL Topical Workshop at CU, Boulder: October 20-21
- Outreach Workshop at CU, Boulder: October 20
- Strategic Vision and Design Criteria Workshop at CU, Boulder: October 20-22
- Physics at Henderson DUSEL Topical Workshop at CSU, Fort Collins: November 18
- Geoscience at Henderson DUSEL Topical Workshop at CSU, Fort Collins: November 18
- Outreach Workshop at CSU, Fort Collins: November 18

Future HUSEP Activities

- HUSEP05-Golden Collaboration Meeting
 - Dec. 15, 9 am - 12 noon
- Engineering at Henderson DUSEL Topical Workshop at CSM, Golden
 - Thur. Dec 15, 1 pm - 5 pm, Fri. Dec. 6, 9 am - 5 pm
 - All are invited to attend
- Outreach Workshop at CSM
 - Thur. Dec 15, 4 pm - 8 pm
- Science and Engineering at Henderson DUSEL Capstone Workshop at Stony Brook, New York
 - May 4 - 6, 2006

Typically a great success is achieved when one is at the right place and the right time.□

With the Henderson mine and the DUSEL process, I believe we are at the right place and the right time.□

I am looking forward to hearing exciting and stimulating discussions.

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are needed to see this picture.

The End