



Brief news from Boulby

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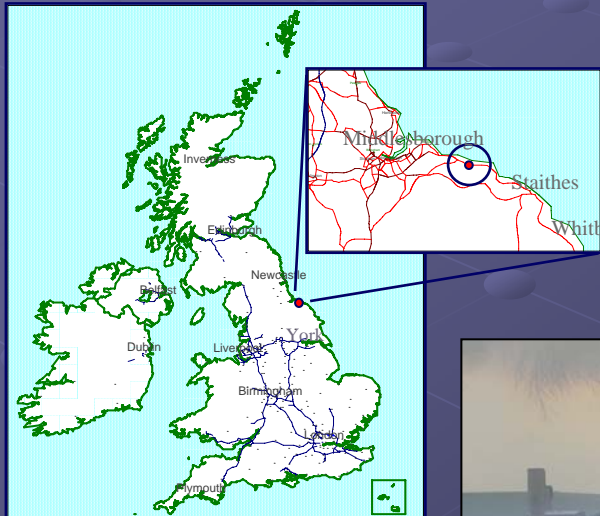
ILIAS - N2 General Meeting
Paris 14th Feb 2006

Underground Science Facility @ Boulby mine

- Working Potash & Rock Salt mine
- 1100m deep (2805 mwe)
- >1000kms of tunnels



Potash



Boulby



Mine Shafts

Existing 'JIF' lab

Excavations

Underground Science Facility @ Boulby mine

The 'JIF' laboratory

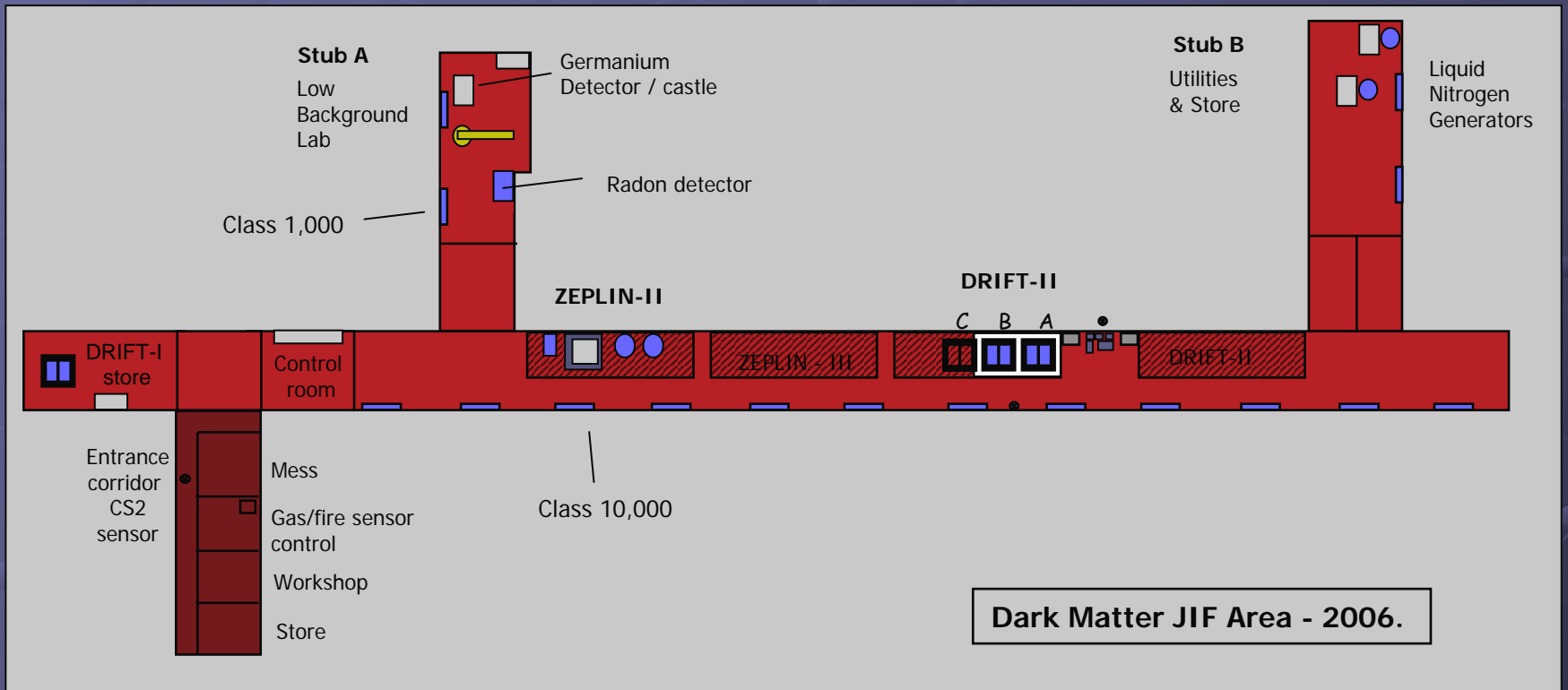
- >1500m² fully equipped & support lab space.
- Cranes, workshop, coms (tel, web), storage, cleanroom, mess area, AC, ventilation.



JIF main expt. hall - Jan 2004

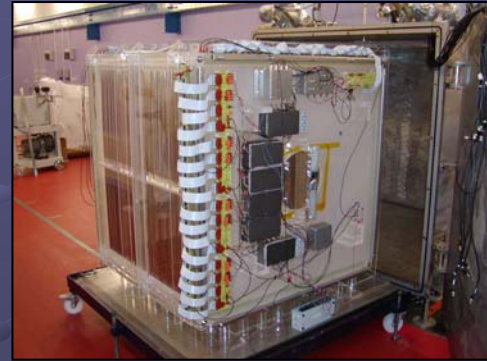


The JIF lab - Jan 2006



DRIFT-II

- Low pressure gas TPC DIRECTIONAL Dark Matter detector
- Multi-module detector:
 - DRIFT-IIa: installed + operational from Aug 2005
 - DRIFT-IIb: April 2006



May 05



Oct 05

ZEPLIN-II

- 2 phase liquid Xenon Dark Matter detector
- 30kg fiducial mass
- Installed December 2005
- UG commissioning underway.



Background Studies

Low Background Lab



Ge detector castle



Radon detector

NUTs
Gd loaded scintillator
neutron monitor



How we are organised...

- Facility owned by Sheffield, operated by Sheffield & CCLRC (RAL)

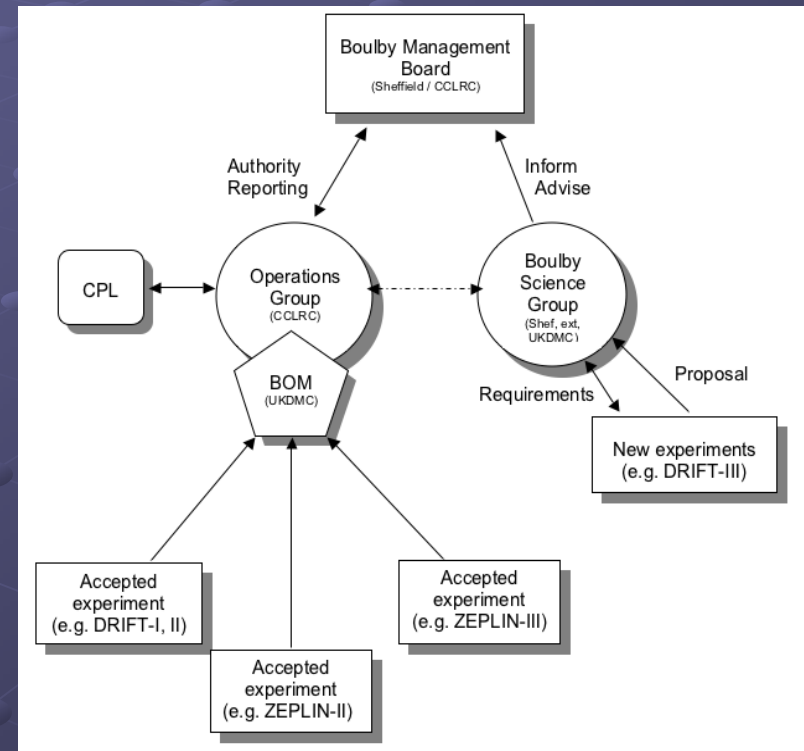
- Operation & science issues separated:

Facility Staff (J. Mulholland) & Boulby Operations Team (BOM).

- Operations
- Safety
- Maintenance

Boulby Science Group (Shef, ext)

- Science outlook
- Background Studies
- Outreach, media etc.



Operations / Safety - Update

Operations

- Since 2005 1000 LB lab
- Now containing 3 working exper
- Last 6 months:
 - Completion of remote environ oxygen, smoke/fire)
 - 2 liquid nitrogen generators i
 - Upgrade to 1Gbit optical data

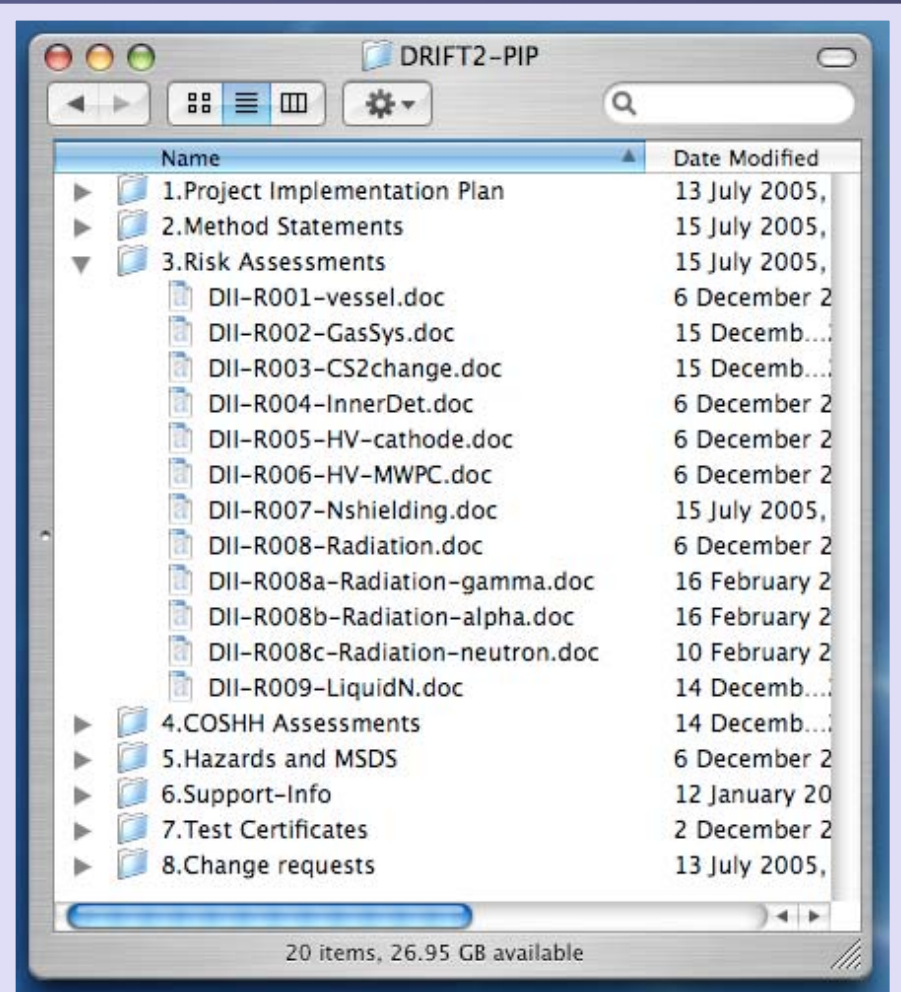
Health & Safety (PIP) documents for DRIFT-II

Safety

- Complete overhaul of safety syst
- No incidents to report to date

Recent activities:

- Updated UG regs in place (d
- Continued training of facility u
- Upkeep of experiment H&S o



Background / Activity Studies

Background Studies (JRA1)

- Installed radon detection system (Burrige Rad 7)
(Detailed study & report to follow)
- Rock (gamma, neutron) background studies underway
 - Open germanium detector tests.
 - NUTs - Neutron detection
 - DRIFT NITPC neutron background study.

TARI visit 2005
Ge & Rn study
Jan Kisiel et al.

Activity testing (JRA1).

- Completion of Ge LB facility (inc castle + shroud) expected April 06.
- Numerous mass spec studies (rock, wood, plasterboard).
(<http://hepwww.rl.ac.uk/ukdmc/Radioactivity/Index.html>)

Outreach and Media

ILIAS N2 tasks:

- Boulby Brochure complete
- New website
(<http://www.shef.ac.uk/physics/research/pppa/boulby/boulby.php>)
- Webcam installed - firewall and political issues to be addressed

General outreach/media in the last 2 years:

- Schools/Misc undergrounds visits ~15
- Schools/Misc surface trips: ~20
- Misc events / talks: ~10
- National TV - Sky @ Night (2004), Horizon (2006),
National Geographic (expected 2006)
- Radio play (2) - expected
- Art Underground - 3D sound project - (under review).

Outreach @ Boulby Mine

East Cleveland schools visit to the underground science facility of Boulby Mine. Part of the Boulby outreach program hosted by Sheffield and Durham Universities, PPARC, CCLRC, ILIAS and Boulby Mine.



For contact details & more on outreach @ Boulby see:
<http://www.shef.ac.uk/physics/research/pppa/boulby/boulby.php>

Prospects for Expansion

Do we need more space?

- Need to assess market for UG space.
- What are requirements? (space / facilities)
- Need a 'Call for LOIs' (ILIAS)

Prospects for expansion @ Boulby are GOOD

3 options:

- Outfit existing tunnels
- Dig new tunnels (<€1m / 1500m²)
- Possible further excavation into poly-halite layer ~100m below salt. Harder rock => larger lab possible

Needs thought and discussion / negotiation with mine operators (CPL)

