



DEEP EXPLORATION TECHNOLOGIES CRC

Uncovering the future

What is the DET CRC?

The Deep Exploration Technologies Cooperative Research Centre (DET CRC) will deliver research programs in more successful, cheaper, safer and more environmentally-friendly ways to drill, analyse and target deep mineral deposits. With \$112M of cash and in-kind funding from the Australian Government and its Participants, the DET CRC is the world's best-supported independent research initiative in mineral exploration.

The DET CRC will manage an 8 year program funded by \$28M cash from the Australian Government, \$21M cash (and \$12M in-kind) from Industry Participants, and \$50M in-kind from its research providers. The inaugural Participants in DET CRC are:

- Barrick;
- BHP Billiton;
- Boart Longyear;
- Gold Fields;
- Newcrest;
- South Australian Government (PIRSA);

and also the research providers:

- CSIRO;
- Curtin University;
- Geoscience Australia;
- University of Adelaide, and;
- University of Western Australia.



Why Was DET CRC Created?

The DET CRC has been established to address the most significant challenge to the future of the minerals industry, i.e. the reduction in the mineral resources inventory due to high production rates and low mineral exploration success. In the Australian context, mineral resources constitute approximately 50% of the nation's exports. However, 80% of Australia's mineral production is from mines discovered more than 30 years ago.

"Our ability to mine profitably at depth currently exceeds our ability to explore successfully at depth."

Robbie Rowe, Director of Exploration, Barrick Australia Pacific

The vast majority of Australia's existing mines are located where basement is outcropping or shallow. In order to ensure the future of mining in Australia, and indeed in all the more heavily explored countries of the world, new technologies must be developed to explore to greater depths, and under cover, in the vast, prospective areas of deep, covered basement.

"The DET CRC is an industry-initiated and industry-driven response to the key long-term challenge facing the minerals industry, that being the need to replace, through exploration, the ever-more rapidly depleting existing stock of mineral resources"

Joe Cucuzza, Director Project Delivery, AMIRA International

More successful, cheaper and safer methods of deep exploration require research and development in the drilling, in the logging and in the targeting of exploration holes. The DET CRC is concerned with the technologies of exploration and its results will directly impact on the hardware and workflows of the mineral exploration business.

Vision of DET CRC

"The vision of DET CRC is to ensure Australia's mining future by delivering transformational technologies that permit safe, successful and cost-effective exploration under cover"

Richard Hillis, CEO, DET CRC



The long-term vision of DET CRC is one where automated rigs using lighter drill strings and novel bits drill cheaply and safely to great depth. Real-time downhole logging of the chemistry and mineralogy of holes will permit cost-effective drilling of development holes immediately following exploration holes, without lab-based assay or rig remobilisation. Holes may be steered, logged and analysed remotely. The role of technologies from the petroleum industry such as downhole motors, coiled tubing and multilaterals will be investigated. Brownfields exploration will be routinely undertaken from exploration and development holes using in-hole seismic and EM techniques. The achievement of DET CRC's vision will be facilitated by its National Drilling Testing and Training Facility in the Adelaide Hills. The drilling will be guided by next generation seismic and magnetotelluric acquisition and processing (e.g. joint inversion) and by new technologies providing vectors to mineralisation from the geochemistry of both basement and cover rocks (especially in condensed, near-unconformity sequences).

Governance & Management of DET CRC

The DET CRC Ltd is a not-for-profit company limited by guarantee, with Participants in the DET CRC as company members. It operates under the following legal agreements:

- Commonwealth Agreement between DET CRC and the Commonwealth Government;
- Participants Agreement between DET CRC and the Participants, and;
- DET CRC's Company Constitution.

Under the Participants Agreement and Constitution, Participants have key rights and controls over the Company. Within the limits of those rights and controls, the company is governed by an independent, skills-based board comprised of:

- Tom Whiting (Chairman) & Richard Hillis (CEO);
- Bruce Brook (Governance, Audit, Risk and Finance);
- Mike Etheridge (Mining and Mining Exploration);
- Tony Macpherson (Drilling);
- Lindsay Gilligan (Government Agencies);
- Phil Harman (Commercialisation), and;
- Ross Large (Research and Education).

The CEO of DET CRC is Prof. Richard Hillis, formerly Mawson Professor of Geology and Head of the Australian School of Petroleum at the University of Adelaide. The DET CRC's headquarters will be embedded with industry at Boart Longyear's new regional headquarters being constructed at Adelaide Airport.

"I led the industry team that developed the DET CRC proposal and took that proposal to the Australian Government. I have accepted the offer to Chair the Board of DET CRC because DET CRC is addressing the critical issues facing exploration over the coming decade and has the right structure and governance to solve those issues."

Tom Whiting, Chair, DET CRC Board of Directors

