

2021 YEAR IN REVIEW

MinEx CRC South Nicholson NDI drill site.

KEY NUMBERS

9/9

Commonwealth Milestones
achieved.

2

National Drilling
Campaigns completed.

0

reportable WHSE incidents.

50/50

gender split on MinEx
CRC Board of Directors
(excluding CEO)

3967_M

drilled during the East Tennant
NDI Campaign in collaboration
with GA and NTGS.

1750_M

drilled during the South
Nicholson NDI Campaign in
collaboration with GA and NTGS.

244/261 (93%)

quarterly project milestones achieved on time.

30

Higher Degree by Research students aligned with research
projects and with end-user supervision.

1% AHEAD

of cumulative research targets as Phase 1
draws to a close.

RESEARCH MANAGEMENT

Six new projects commenced, each designed to explore new methods of collecting, analysing and visualising data from drilling;

- Improved prediction of mineralogy using coupled XRD and chemistry
- Distributed optic fibre sensing for mineral CT drilling
- Fluorescence for real-time field identification of minerals
- Recovery of lithological and stratigraphic data from drillhole databases
- Immersive analytics for drilling data
- Getting the most out of 40Ar/39Ar thermochronology.

RESEARCH FOCUS

MinEx CRC remains focused on delivering 1) safer, more efficient, environmentally friendly drilling technologies, 2) in-field sensing and data science to enable informed decisions while drilling, and 3) pre-competitive geoscience data to de-risk exploration in frontier mineral provinces, delivered by the National Drilling Initiative.

COMMUNICATIONS

- MinEx CRC's third Annual Conference: Frontier Exploration was held in a combined online and in-person format on 10-11 November 2020 with over 200 delegates spanning 43 organisations.
- Mid-year Science Review held in April 2021.
- Project Integration Workshop held in June 2021.
- Ten videos were published to MinEx CRC TV, including four quarterly vNews episodes.
- Four press releases and one Federal Ministerial release distributed.
- The preliminary data release for the South Nicholson NDI Campaign was officially announced by The Hon Keith Pitt MP, Minister for Resources, Water and Northern Australia, at the Northern Territory Annual Geoscience Exploration Seminar (AGES) in April 2021.

ADVANCING TECHNOLOGY

Prototype *iFluid* systems for Diamond and CT drilling have been completed. CT-*iFluid* has been incorporated in the HPS and deployed in field drilling trials.

Improved formulation of *Liqi-CTrol* fluid additive has improved performance, is easier to manage and contains no hazardous ingredients.

Build of the Hydraulic Processing System (*HPS*) is complete, and the system has been deployed in field drilling trials. The *HPS* is an all-in-one, truck-mounted fluid management system for CT drilling - including fluid additive mixing and dosing, solids removal and solids sampling.

Prototype coarse-fraction sampling technology, selective interval coring tools, downhole positioning, 'Smart BHA' and drill string power and communications cable have been deployed in field drilling trials.

Our laboratory prototype LIBS downhole geochemistry tool is complete. Experiments to simulate different borehole conditions and response to varying rock types will continue in 2022.

Our field prototype downhole total count gamma tool is complete and has been deployed in drilling trials with the CT drill rig.

We have designed and built a remotely operated DAS seismic system, which can be deployed at any site by non-experts and operated by our expert team based in Perth.

TomofastX software for extraction of geological information from inverted and forward-modelled geophysical data has been released in open source.

National Drilling Initiative (NDI) campaigns in the East Tennant (10 holes for 3967m) and South Nicholson (one 1750m deep hole) areas of the Northern Territory are complete.

Hundreds of samples from the Northern Territory NDI campaigns are the subject of geological and mineral systems characterisation, including detailed petrology, whole rock geochemistry, stable isotope geochemistry, mineral chemistry, geochronology and thermochronology.

>200

Annual Conference attendees

125

press articles generated

3K+

YouTube views

15K+

website visitors

RESEARCH ENGAGEMENT

- **IMDEX** and **Minalyzer** technologies utilised in NT National Drilling Initiative (NDI) campaigns.
- **Datacode** are a participant in our 'Stratigraphy from drillhole data' opportunity fund project.
- Distributed acoustic sensing (DAS) seismic trials at Pilbara field site with **BHP**.
- **Sercel** DAS interrogators utilised in seismic trials.
- Drilling optimisation field trials with **Mackay Drilling**.
- **Sandvik** drill rig incorporated in Curtin experimental drilling platform.
- **EPIROC** and **LKAB Wassara** tools integrated into Coiled Tubing (CT) drilling bottom hole assembly.
- **Alpha Laval** and **IFM** technology integrated into Hydraulic Processing system (HPS) for CT drilling.
- CT drilling trials at **EnviroCopper** field site, Kapunda SA.
- **Encounter Resources**, **Inca Minerals**, **Middle Island Resources** and **Strategic Energy Resources** are supporting PhD projects in the East Tennant area, NT.
- **Minotaur Exploration** are supporting a PhD project in the northern Gawler Craton, SA.
- **Lodestone Mines** are supporting a PhD project in the Adelaide Rift Complex, SA.
- **BHP** and **Matsa** are supporting a PhD project assessing the value of exploration data.
- **Geological Surveys of South Australia**, **Western Australia**, **New South Wales** and **Victoria** involved in preparations for upcoming NDI drilling campaigns.

GENDER DIVERSITY

- The Diversity and Inclusion Committee was established to drive equality, diversity, and inclusion actions across MinEx CRC.
- The MinEx CRC Board (CEO excluded) comprises 50% male and 50% female members.
- The MinEx CRC Executive Management Committee, including the CEO, comprises eight members, five male and three female.
- There are nine male and two female research Leads for the nine primary research projects.

REVENUE & EXPENDITURE (\$'000)

Revenue	FY21	FY20
Commonwealth Funding	5,798.5	6,597.0
Participant Contributions	7,023.0	4,811.8
Affiliates Contributions	185.1	285.0
DET CRC Unspent Participant Contributions	-	-
Non-financial asset acquired for Nil Consideration	-	850.0
Interest Income	112.9	300.5
Other Income	9.6	122.2
Total Revenue	13,163.2	12,966.5

Expenditure	FY21	FY20
Research Program Expenditure		
- Program 1	2,576.7	2,121.4
- Program 2	1,610.1	1,524.6
- Program 3	10,405.2	1,859.8
- Opportunity Fund & Other Projects	204.8	-
Total Research Program Expenditure	14,796.8	5,505.8

Education & Training	504.4	384.5
Management Expenses	440.2	492.3
Salaries & Wages (incl Directors Fees)	1,143.9	996.9
Total Expenditure	16,885.3	1,873.7

Restricted Surplus/(Deficit)	3,722.1	5,587.0
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Majors, METS and Survey Participants



Research Participants and Affiliates



MinEx CRC Kapunda field trial drill site.

