

A large-scale underground block caving mine. The image shows a deep, multi-level excavation with steep, rocky walls. Several yellow mining vehicles, including drills and trucks, are visible on different levels of the mine. The lighting is dramatic, with a mix of cool blue tones and warm orange/red tones, highlighting the rugged textures of the rock and the industrial equipment.

CaveTracker

Real-time measurement of
fragmented rock and its flow
in underground block caving

MONITORING REDEFINED





About Elexon

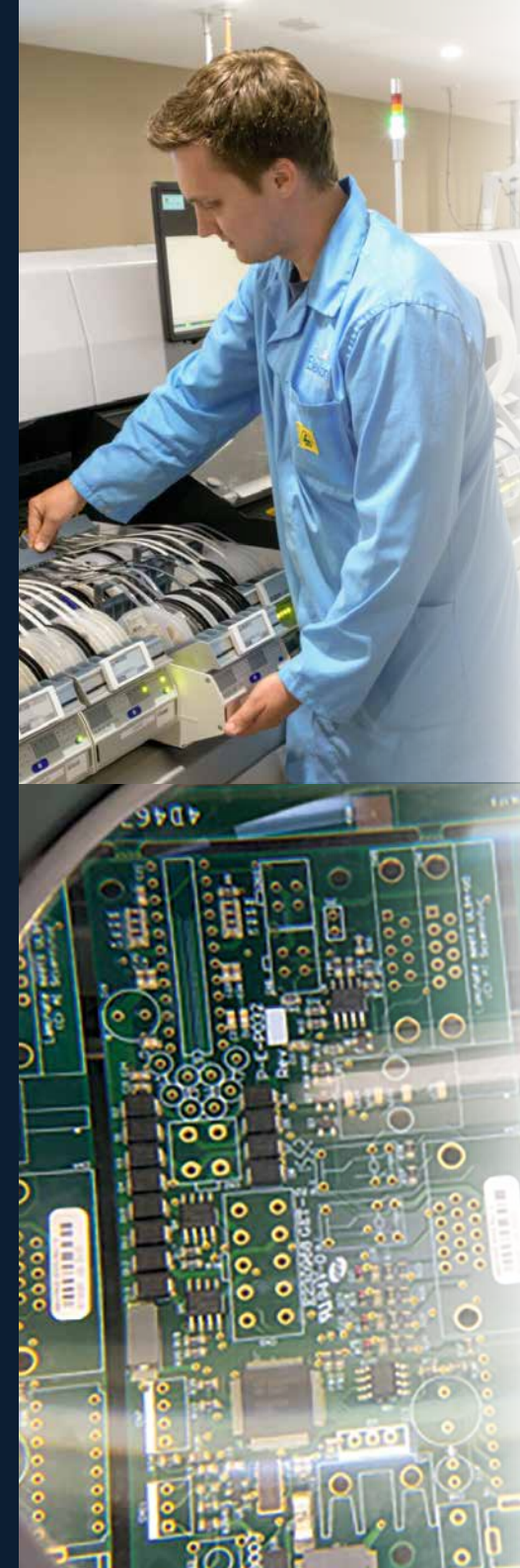
"At Elexon Mining, we offer the most advanced wireless monitoring solutions for above-and below-ground mining applications. We design, develop and manufacture our systems right here in Australia."

Our CaveTracker and Geo4Sight systems are used by mines around the world, and we are committed to constantly improving outcomes for our valued customers."

From Elexon's humble beginnings in 2006, to the global leader we are today, we are proud of our team and the partnerships we have built with miners, geotechnical engineers, geologists and researchers."

Collaboration is key and we invite you to join us on this exciting journey."

- Pieter Kuiper Managing Director & CEO



The CaveTracker history

Development of Elexon's CaveTracker system began in 2012 in collaboration with Newcrest, CRC Mining (now Mining3) and Rio Tinto.

In 2014 the first system was installed at Argyle Diamond Mine. In subsequent years, the system has evolved to what it is today. It remains the only system of its kind, providing mines with wireless 3D tracking of their ore flow.

The CaveTracker system is used in cave mines all over the world.



Our systems are utilised by industry leaders globally in:

- Over 50 Mines
- Over 15 Countries
- Across 6 Continents

The CaveTracker System

is comprised of resilient, wireless, electro-magnetic beacons installed in the cave and monitored by detectors around the orebody. These detectors trilaterate these signals and send onto a central cave tracking unit, which measures the 3D location in real time.



World first wireless capability



Monitoring where others can't



Increased confidence in decisions

and how it works

Beacons

- Each beacon spins its magnet at low frequency to transmit through rock.

Detectors

- Detectors listen for and record each Beacon signal detected.

Software

- Converts the signal magnitude into range (metres).
- Uses an algorithm to calculate 3D Beacon positions.*

Data Output

- Data can be visualised in Elexon's GeoHive.
- CSV exports to use in software of your choice.

*Some human processing required.



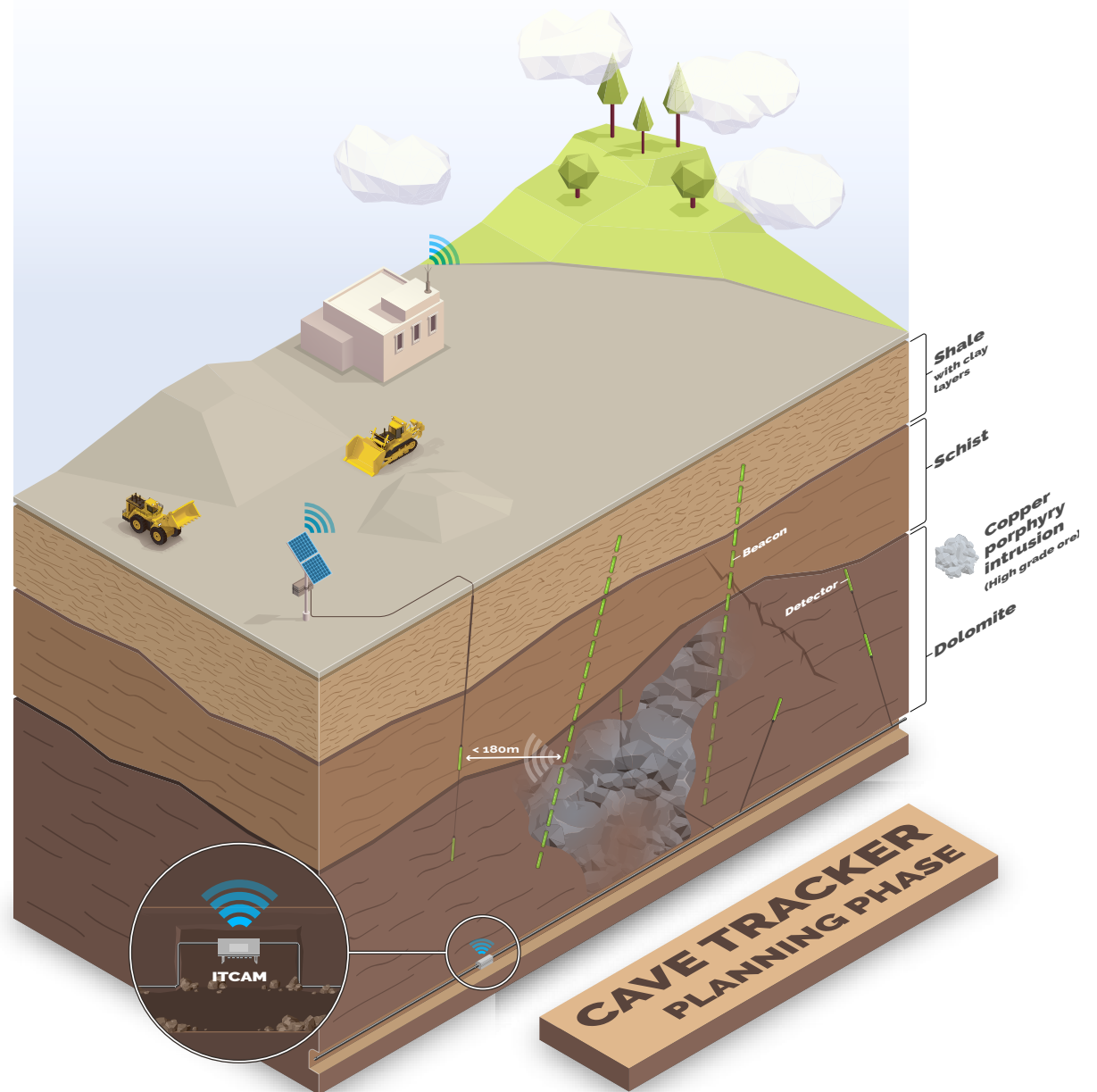
PLANNING WITH CAVETRACKER

The wireless CaveTracker system can help monitor:

- Near real-time tracking of ore flow to extraction point
- Flow vectors
- Common caving concerns such as:
 - Dilution
 - Holdups
 - Rat-holing
 - Chimneying
 - Rilling
 - Mixing

Integrates well with the **Geo4Sight System** (caveback and propagation monitoring).*

* Refer to Elexon Mining's Geo4Sight Brochure



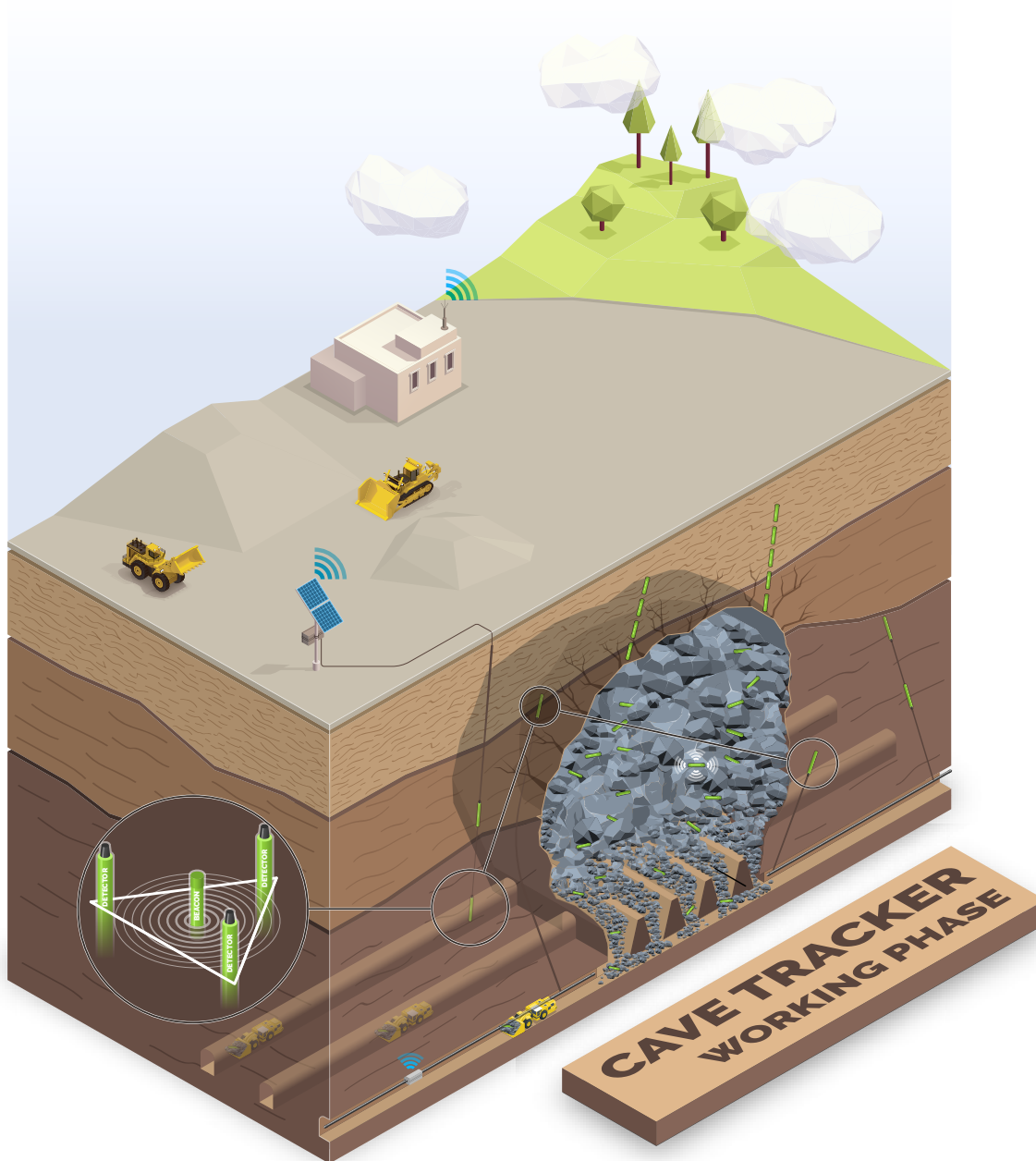
WORKING WITH **CAVETRACKER**

Installation

- Beacons are installed in regions of rock to be monitored for flow.
- A Detector array is installed in the periphery of the mine in static locations.
- The system requires 3 or more in-range Detectors to 3D track a Beacon as it travels through the mine.

System Details

- Detector In-range = $<180\text{m}$
- Tracking accuracy = $\pm 5\%$ of tracking range (Detector to Beacon distance)

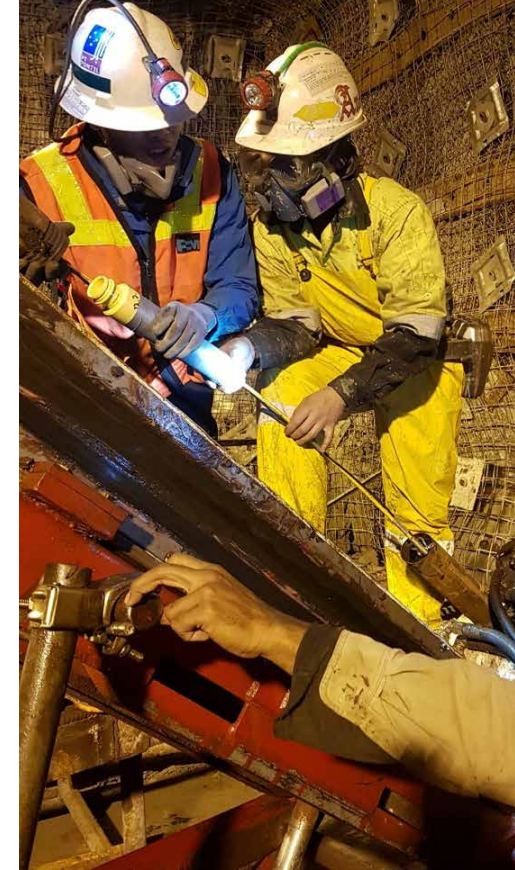


CaveTracker System Installation

Can be installed in:

- Upholes and downholes.
- PQ sized drillholes, cased or uncased.
- Detectors and Beacons are installed by taping/fixing to rodder, rope or grout tube.
- Grouted in place.
- ITCAMs (power and communications supply unit for Detectors) can be installed outside of prohibitive areas, up to 500m away from Detector locations.

*Installation procedures to suit your needs can be provided by Elexon Mining.





CaveTracker Specifications

Specifications

Beacon Length	450mm
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Beacon Diameter	76mm
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Beacon Weight	4.3kg
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Beacon Power	Internal
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Detector Cable Length	Up to 1200m
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Operating Limits

Operating Temperature Range	- 0°C to +40°C
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Beacon Battery life	Up to 10 years**
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Maximum Detector to Beacon Distance	180 metres
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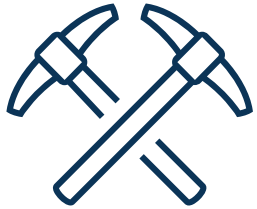
Detector Range to Beacon Accuracy	± 5% of distance between detector & beacon.
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Beacon Max. Rated Pressure	20MPa
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*Full system specifications available on request

**Based on quarry volume.

Service & Support



Elexon Mining provides comprehensive support, installation assistance, system maintenance and data distribution and reporting to our clients as part of our system offerings.



We consider your success to be our success.
We stand behind all of our products and consult with you to ensure you have a tailored solution for your project and a smooth transition from feasibility to delivery.



Great results depend on proper installation. Elexon Mining works hard to deliver simple procedures and training. Our skilled team can explain and aid with installation, boosting your confidence and outcomes.

Design of tailored solution

System installation & support

Ongoing monitoring & data evaluation for the life of project



Data and software

Elxon Mining created **GeoHive** to automatically extract and manage your CaveTracker data.

This hosting interface correlates and stores system data for the end-user and allows for visualisation.

GeoHive facilitates data exports in CSV format, allowing operators to feed it into their preferred visualisation and monitoring tools, such as **Voxler**, **Canary**, **Maptek**, and **Vulcan**.

“ Your **eyes**
into the mine ”



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