

CASE STUDY

detectORE™ greenfields gold discovery



BACKGROUND

Over a 3 week period from mid June 2022, Australian-based and ASX-listed Calidus Resources Limited (Calidus) analysed soil samples from its remote field base using the patented detectORE™ process commercialised by Portable PPB.

The analysis was conducted in-field and results obtained within 48 hours of the samples being collected. Field follow-up, including in-fill soil sampling and geological mapping, proceeded in the same field campaign guided by the detectORE results. Field duplicate soil samples were sent to a laboratory for traditional analysis.

On 2 August 2022, Calidus announced a zone of strong gold-in-soil anomalism defined over >3km strike length within the Blue Spec Fault Zone located in the Pilbara, Western Australia. Based on these results, a maiden drilling program was undertaken.

"These results clearly demonstrate that there is potential for additional gold deposits along strike to the west of the Blue Spec and Gold Spec deposits. Our exploration team is now on the ground following up these anomalies with on ground mapping and sampling to enable a drill programme to be designed in the near future."

CALIDUS MANAGING DIRECTOR, DAVE REEVES – 2 AUGUST 2022

HIGHLIGHTS

First gold discovery using unique detectORE™ process

Compressed timeframe from inaugural sampling to drill discovery by 7–8 months

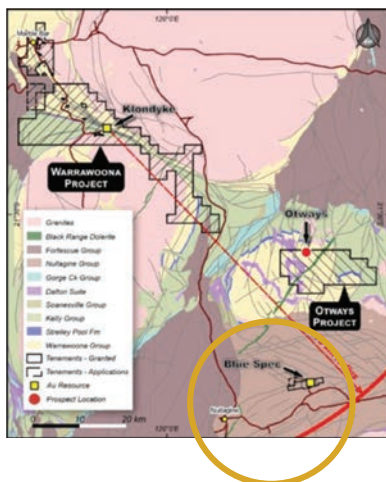
Assay results in less than 2 days compared to ~90 days for laboratory-based results

Sustainability benefits including a reduction in GHG emissions

Ability to base decisions on daily assays, accelerating discoveries and reducing operating costs



On 28 November 2022, Calidus announced an 'extremely exciting' gold discovery and highlighted detectORE™'s impact on compressing timeframes.



"The soil samples were analysed by Calidus field personnel for Au using the novel detectORE™ method developed by Portable PPB within 48 hours of the samples being collected. This has allowed the entire timeframe from sampling to approvals granted to be compressed so that drilling could be carried out before the end of the field season in the Pilbara."

CALIDUS MANAGING DIRECTOR, DAVE REEVES
- 28 NOVEMBER 2022

THE detectORE™ IN-FIELD PROCESS

A small orientation survey analysed two size fractions (<1mm and <180µm) from 31 samples using detectORE™, revealing the <180µm fraction as optimal for anomaly detection, prior to the main survey being undertaken. Finer material leaches more completely in a 6 hour leach time.

Calidus staff used ~250g of -180µm soil to which GLIX-20 reagent and a detectORE™ collector device was added prior to being tumbled for six hours. On completion the collector device was removed, rinsed in water and dried prior to reading with a pXRF. The limit of detection with a 250g sample is ~12ppb Au.

QAQC ensures reliable information

Rigorous QAQC is at the heart of the detectORE™ process. This included two geochemical reference materials per batch of 90 samples. Bar codes on collector devices were scanned into pLIMS software before assay to prevent data entry errors. Sample weights were recorded, facilitating the generation of gold concentrations in ppb. Additionally, frequent checks on the pXRF using five calibrated collector devices with known gold concentrations (0 – 1,000 ppb Au) were completed.

ASSAY RESULTS IN <2 DAYS RATHER THAN ~90 DAYS

The detectORE™ process significantly reduced analysis time, with on-site soil sample collection and analysis completed in 36 days compared to approximately 90 days for laboratory-based FA/AR ICP-AES. The rapid detectORE™ results, received within 48 hours, facilitated immediate decision-making and follow-up activities.

A drilling program based solely on detectORE™ Au-in-soil results was completed before commercial laboratory results were received.

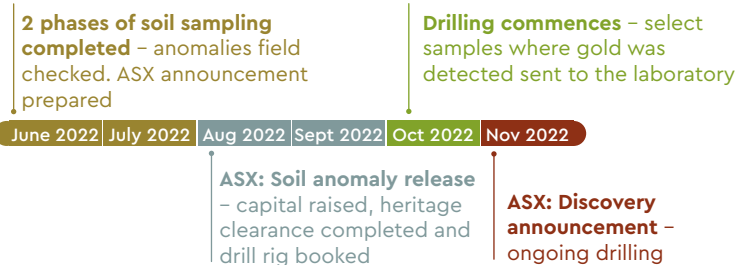
Noteworthy drill intercepts, such as 6m @ 40.15 g/t Au and 41m @ 2.37 g/t Au, were identified in structures successfully highlighted by the soil results.

DetectORE™ results within 48 hours also allowed for samples on infill lines and extensions to existing lines to be collected while the sampling crew was still in the field, eliminating the need for a further crew mobilisation months later.

Without detectORE™, delays in heritage surveys and the wet season hiatus would have postponed infill sampling into 2023 and drilling until June or July 2023, a delay of seven to eight months.

8 MONTH TIME SAVING

TIMELINE – detectORE™ PROCESS



TIMELINE – TRADITIONAL LABORATORY PROCESS



GREENER GOLD

detectORE™ provides a sustainable gold analysis solution with many environmental and economic benefits.

With very low energy requirements and the ability to operate only on solar power, it reduces carbon emissions associated with energy consumption.

The use of non-toxic reagents enhances operator safety and minimises environmental risks.

By limiting the number of samples sent for traditional laboratory analysis, the method reduces logistical demands and associated environmental impacts.

Additionally, detectORE™ lowers costs by minimising and mobilisation and demobilisation, making it a cost effective alternative to conventional techniques. The simple process can create employment opportunities in host countries, aligning with a socially responsible approach to resource exploration and mining.

Run entirely on solar power

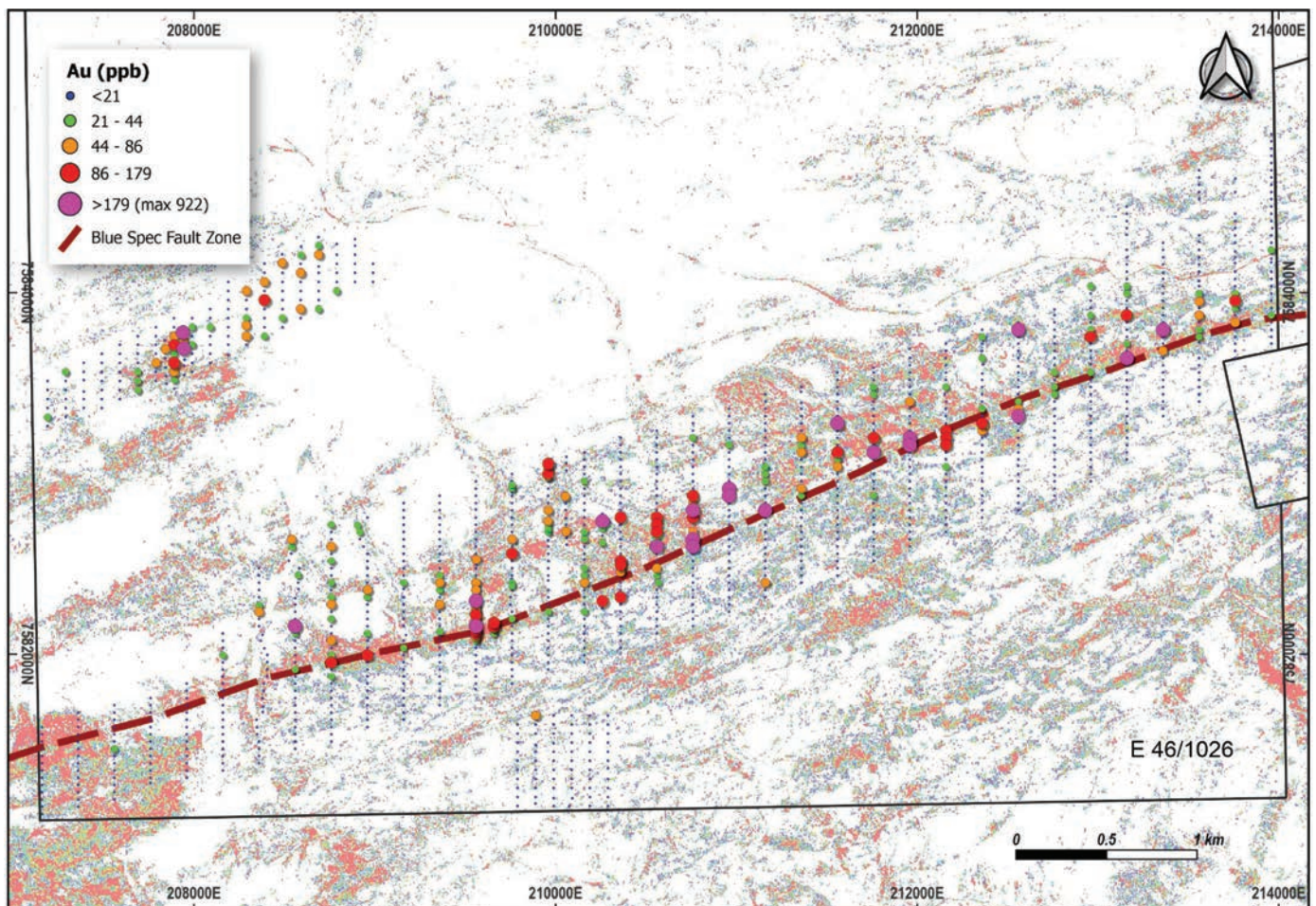
Utilises non-toxic reagents

Reduces the number of samples shipped for traditional laboratory analysis

Reduces rig mobilisation and demobilisation

Provides a low-cost alternative to conventional techniques

Provides employment opportunities for host countries.



Map of E46/1026 showing the detectORE™ gold values in ppb on a background of paragonite hyperspectral data. Symbols above 21ppb are 90, 95, and 98 percentile values (44, 86, and 179 ppb respectively).

Western Australia
Innovator of the
Year
2023 Overall
Winner



www.portableppb.com

CONTACT US

simon.bolster@portableppb.com.au

ABOUT detectORE™

The patented detectORE™ technology was invented by Australia's National Science Agency, CSIRO and has been exclusively licenced for commercialisation to Portable PPB Pty Ltd.

This unique technology enables geologists to obtain gold results at low concentrations using an optimised portable XRF device. Unlike existing instruments in the industry, the detectORE™ process reliably records parts per billion gold concentrations.

The detectORE™ process utilises a single-shot consumable, featuring a proprietary non-toxic and non-hazardous reagent (GLIX-20™, a container, a bar-coded collector device, and customised software developed by Portable PPB to manage the entire process. The process involves leaching and collecting gold over a 6-hour period, with results obtained in as little as 8 hours.

Ensuring quality assurance and control, detectORE™ incorporates robust QAQC systems and software. After completion, gold results are exported for use by geologists.

This versatile process works on various sample types, including soil, stream sediments, and drill samples covering diverse weathering states and gold mineralisation styles. Extensively tested in Perth, Western Australia, with samples from global sources, detectORE™ has gained validation through partnerships with 26 gold companies, including major producers and a mix of mid-tier and junior explorers.

Portable PPB's original founders Simon Bolster and Peter Williams, both veterans in the gold industry, recognised the potential of Dr Mel Lintern's detectORE™ invention to transform gold exploration and mining.

Simon Bolster (Managing Director) brings over three decades of expertise in gold exploration and geochemistry across 5 continents. He has a track record for creating and introducing new technologies to enhance mineral exploration.

Peter Williams (Chairman) has over 30 years of technical experience in major, mid-tier, and junior start-up companies. Peter has co-founded successful technology firms including as HiSeis, Intierra, and EMIT.

detectORE™
explore smarter, discover faster