ana-min

PORTABLE QUANTIFIED MINERALOGY

GeoMin™ Analysis

"… THE FIRST TRULY PORTABLE MINERALOGICAL ANALYSIS SERVICE AT THE WELLSITE…"

ANA-MIN INTRODUCES THE GEOMIN™ SERVICE FOR CRITICAL DRILLING DECISIONS AT THE WELLSITE, THROUGH RAPID MINERALOGICAL PROFILING

At every stage of your project, whether in a laboratory or wellsite based, GeoMin™ provides the analytical data to reduce risk and increase certainty of the decisions made during all drilling and geocentric activity.

ADVANTAGES

- Encompasses a broad range of data comprising comprehensive, quantified mineralogy.
- Truly portable wellsite service, easily mobilised.
- Direct measurement of mineralogy, providing credible data which does not require interpretation. GeoMin™ does not infer - it measures.
- Cost efficiency allows for a quantified profile of an entire well to be conducted, where every cuttings sample can be analysed if required. The complete geology is available, which increases certainty of outcomes.
- Priced to meet tight budgets, delivering the most comprehensive, accurate, quantified data-set at the most affordable price on the market.

THIS IS THE FIRST WELLSITE BASED, QUANTITATIVE MINERALOGICAL SERVICE AVAILABLE

USING FOURIER TRANSFORM INFRARED SPECTROSCOPY, GEOMIN™ IS SAFE, PORTABLE AND COST EFFECTIVE

One instrument and one technology for mineralogy. This reduces the footprint, personnel requirements and cost, whilst increasing certainty.

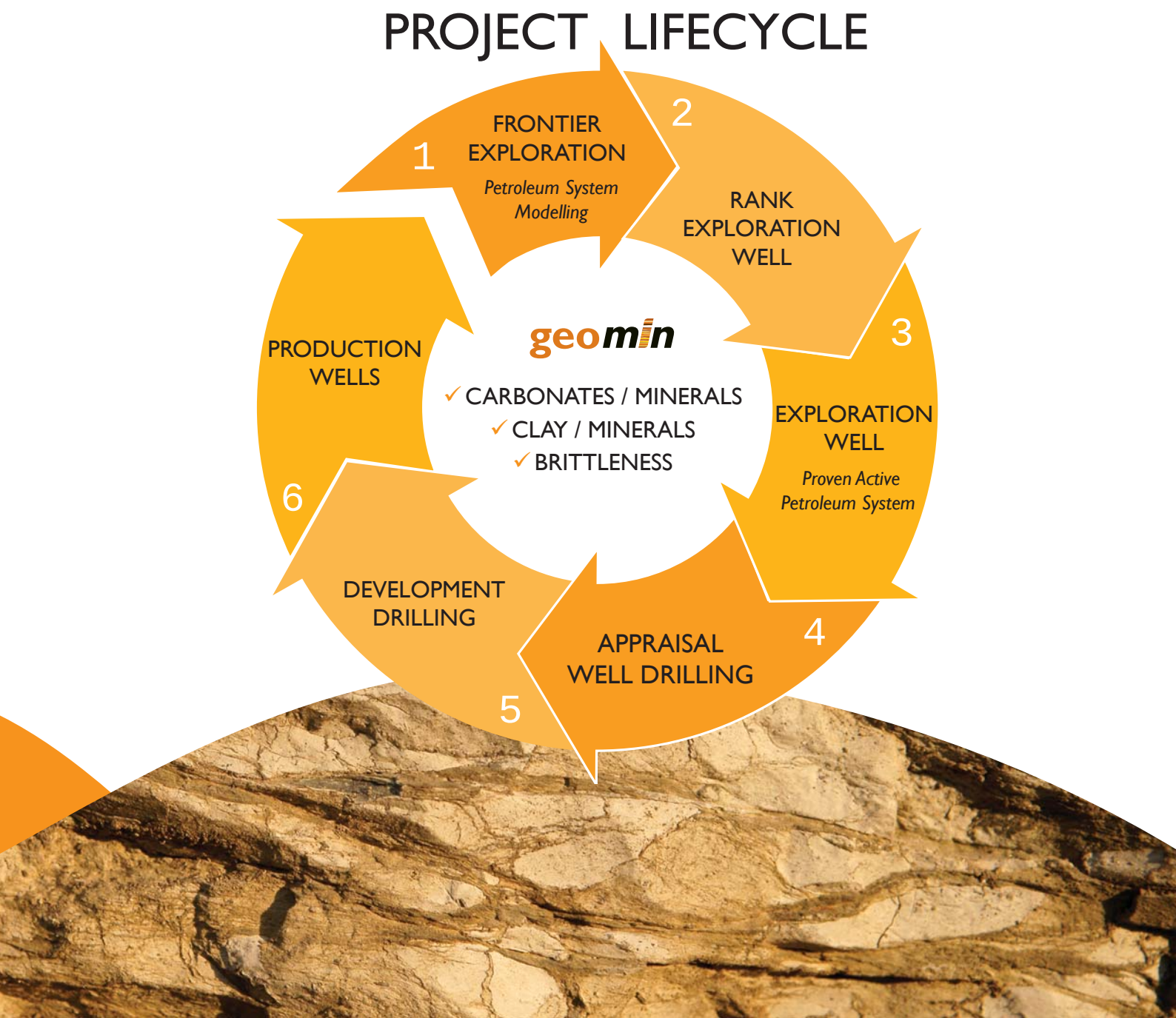
GEOMIN™ PLAYS A KEY ROLE IN DECISION MAKING AT EVERY STAGE OF THE PROJECT LIFECYCLE

CRUCIAL DATA FOR THE ENTIRE PROJECT

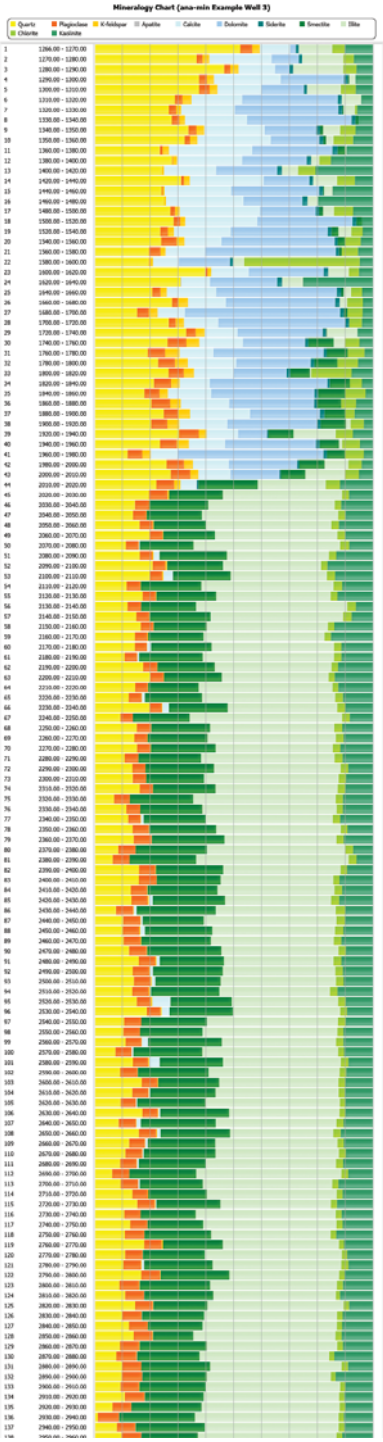
Every project goes through distinct stages in its lifecycle from the pre-planning modelling of the petroleum system to development and production of a commercial discovery.

At every stage, the GeoMin™ service provides crucial quantitative data, that increases the certainty of decisions and decreases the risk of making incorrect interpretations. This has a measurable and beneficial impact on the project's viability.

In a world where monetisation and commercialisation of a petroleum asset is the goal, GeoMin™ is one of the most important services available to increase successful outcomes.



WHETHER CONVENTIONAL OIL & GAS, SHALE GAS, SHALE OILS OR TIGHT SANDS, GEOMIN™ DELIVERS HIGHLY VALUED DATA TO DECISION MAKERS



PHASE 1

Frontier Exploration – Petroleum System Modeling

When searching for evidence of a viable petroleum system, it is valuable to analyse legacy rock samples through GeoMin™ . The profiling of mineralogy for assessment of reservoir characteristics adds certainty to the model.

PHASE 2

Rank Exploration Well

Ana-min provides mineralogical profiles as the well is drilled. This crucial data can demonstrate when the well has drilled the prospective sections and assesses any risk of formation damage. In addition it delivers a powerful correlation tool and facilitates coring and casing point decisions.

While drilling, GeoMin™ also delivers value refining the basin model and significantly increasing the certainty of high cost drilling decisions.

PHASE 3

Exploration Well in Proven Active Petroleum System

GeoMin™ delivers a mineralogical profile while drilling enabling correlation between offset wells, reducing uncertainty in stratagraphic position.

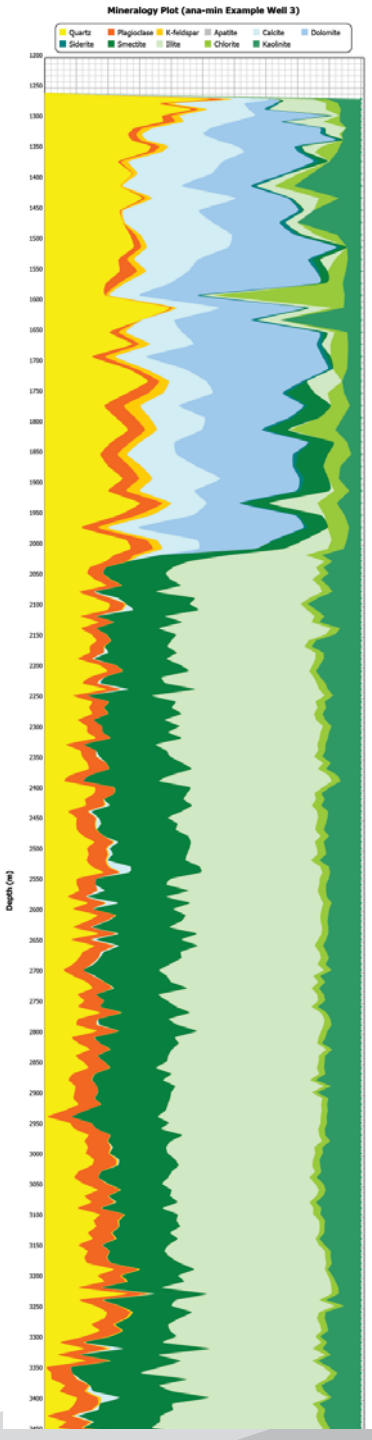
During this phase GeoMin™ is also used to assess the extent of seal closure and integrity.

Conventional Hot Shot

SAMPLE TAKEN AT 1000FT → SENT TO LAB → SAMPLE ANALYSED → DATA INTERPRETED → RESULTS TO WELLSITE → CASING PLACED

3 days

PROVIDING VALUABLE INSIGHT INTO COST EFFECTIVE DESIGN AND OPTIMISING RETURN OF DEVELOPMENT AND PRODUCTION PROGRAMS



PHASE 4

Appraisal Well Drilling

The mineralogical data that GeoMin™ identifies characterises reservoir properties and reduces uncertainty in petrophysical analysis.

Quantitatively analysed through GeoMin™, this assists with drilling fluid design optimisation for field development and completion design specifications.

PHASE 5

Development Drilling

Building on all the analysed data obtained by GeoMin™, and associated interpretation from the previous phases, continuation of GeoMin™ analysis during development drilling further refines and streamlines decisions with the consistency of the same technology.

PHASE 6

Production Wells

Ongoing validation using GeoMin™ obviates the need for logging tools once the correlation model has been established and the reservoir has been characterised.

At a much lower cost than alternatives, GeoMin™ continues to provide valuable mineralogical information

GeoMin™

DATA INTERPRETED → RESULTS TO WELLSITE → CASING PLACED

3 hrs

LAB BASED DATA ANALYSIS IS MOVING TO THE WELLSITE. GEOMIN™ IS AT THE FOREFRONT OF THIS NEW CHAPTER IN WELLSITE TECHNOLOGY

MOBILISATION & AIR TRAVEL READY

The GeoMin™ unit is packaged in a robust travel box and has proven to be easily transported on commercial airlines, simplifying mobilisation logistics.

SAFE & PORTABLE

At considerably less than 20kg, with no harmful chemicals or x-rays, the GeoMin™ analysis unit is a truly portable service, readily transported across international borders.

AFFORDABLE ON ANY BUDGET

GeoMin™ is delivered at a price point that makes profiling mineralogy and geochemistry for the entire well readily affordable.

DIRECT MEASUREMENT, QUANTIFIABLE RESULTS

All data delivered by GeoMin™ is directly measured, quantified and not dependent on the petroleum model.

SINGLE MEASUREMENT, SINGLE TECHNOLOGY

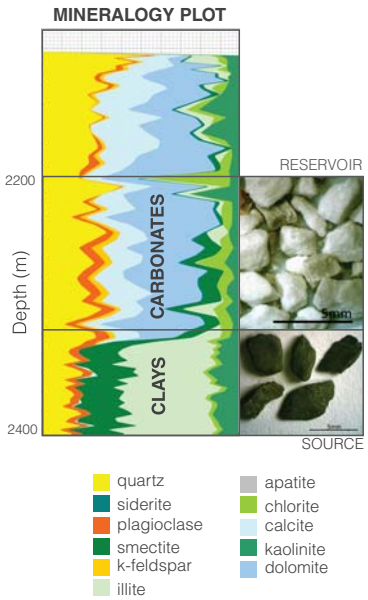
The same equipment and analysis is used for all components of the service. Laboratory based pre-well studies and rigsite analysis are completed using one technique, ensuring consistency of all data delivered.

TRAINED ANALYSTS

Delivered as a complete wellsite package, the GeoMin™ service comes with a trained specialist that liaises with Ana-min's QC team to ensure quality results and meaningful, high value deliverables.

Easy to carry and safely packed for transportation, with no need for chemicals or x-rays onsite

CASE STUDIES OF PROVEN SUCCESS IN INTERNATIONAL DEPLOYMENTS



OFFSHORE INDONESIA

200m of drilled intersection was profiled at an offshore wellsite by the GeoMin™ FTIR analysis of 38 cuttings samples for mineralogical profiling. A total of 38 samples were washed, dried, subsampled, ground to a powder and analysed in 6 hours.

Method

After washing and drying, a representative subsample of each cuttings sample of approximately 5gm was ground with an agate mortar and pestle to a fine powder. A small portion of each powdered sample was analysed using a Bruker Alpha benchtop FTIR spectrometer, producing a spectrum within approximately 30 seconds of analysis.

Results

A distinct break at 2350 m in mineralogical composition from quartz and carbonate dominated, to clay dominated, determined the base of the reservoir to within a few metres and correlated to features observed in logs run in offset wells.

ONSHORE AUSTRALIA

700m of drilled intersection was profiled at an onshore unconventional asset well by the GeoMin™ FTIR analysis of 289 core micro samples for mineralogical profile. A total of 289 samples were analysed over a 2 day period in the core store.

Method

A high speed masonry drill was used to take micro samples from slabbed core. A small portion of the sample is then analysed using a Bruker Alpha benchtop FTIR spectrometer, producing mineralogical and geochemical results within approximately 30 seconds of analysis.

Results

At 1320m there is a clear transition from mineralogy dominated by quartz and carbonate to one predominantly characterised by carbonate and clay. This transition marked the reservoir base to an accuracy of less than 2 metres. Log comparison confirmed GeoMin™ data.

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