Q&A with Kavango Resources' Mike Moles on how it's all to play for at Ditau (KAV)

Last week the market reacted adversely to Kavango Resources' (LSE:KAV) assay results from the two holes it recently drilled at its Ditau project. As disappointing as the announcement was, there were some indications that perhaps the market might have overreacted. We put questions to the company's director and chief geologist, Mike Moles, to help clarify some points. His answers are well worth reading.

Before beginning the Q&A, it is worth reminding of the back-story. During H1 Kavango drilled two holes at Ditau. Initial XRF readings were encouraging and the company released preliminary figures, with indications of elevated levels of certain rare earth elements. The company sent the results for assay analysis, but when it received the results decided to seek confirmation of the results from a second firm.

The second set of results confirmed the first and Kavango announced it had "not identified economic mineralisation".

As is always the case in the hyper-competitive world of public company announcements, as soon as a firm uses such a blunt, negative turn of phrase in an RNS, investors seize on that and sell. Share prices invariably crash.

However, in this instance the results were perhaps not as bad as the market interpreted. Just prior to releasing the final assays, Kavango announced it had significantly increased its footprint at Ditau by securing another 916.4km2 license immediately to the southwest. If Ditau were such a bust, then why would the company have done this?

Over to Mike to tell us more about the results…

Q: In previous public announcements, we were led to believe that the drilling at Ditau contained anomalous values of metals including cobalt and rare earth elements. It would appear from the recent RNS that the assays show no enrichment in these elements. What is your explanation for this?

A: During a drilling campaign it is common practice to use a portable XRF analyser (Niton) to obtain readings from the core to get an idea of what one might expect to find from the laboratory assays. In previous RNSs, the company explained that this instrument was not entirely reliable for evaluating core samples and made it clear that the values generated by the Niton were only indicative. Having said that, Kavango's geologists were surprised to find that the assays showed only slightly elevated values above what might have been expected from unmineralised intersections of these rock types. This prompted the re-submission of 33 samples for assay checks to the same laboratory and a similar number to an independent (referee) laboratory. The checks and repeats confirmed, within an acceptable margin, that the original (Genalysis) were correct.

In the quest to explain what might have contributed to the poor performance of the Niton, there are a number of factors which need to be considered and noted:

1. Kavango's geological team have used the Niton on numerous occasions in their careers as a guide to the anomalous values that one might expect in drill core. Whilst there is no doubt that the Niton can often over or under estimate values, our geologists have never before encountered a situation where the values reported by the Niton exaggerate the actual (assayed) values by such a degree.

2. The Niton had recently been serviced and calibrated correctly by the manufacturer's agent in Johannesburg.

3. The operator of the Niton had been properly trained by our geologists and was supervised during most of the readings.

4. The higher Niton metal values appeared to coincide with the areas of greatest alteration. This appeared to confirm the Niton's ability to determine metal values.

5. Kavango had not used or tested this exact model of the Niton previously on core samples but it had been tested with the standards supplied by the manufacturer.

6. We have recently become aware that a number of Niton users have reported that the instrument occasionally has difficulty in distinguishing cobalt (Co) from Iron (Fe). See “The Influence of Spectral Interferences on Critical Element Determination with Portable X-Ray Fluorescence (pXRF)” by Gallhoffer & Lottermoser, in Minerals. July 2018.”

7. It does appear that the high values of cobalt identified by the Niton coincided with high values detected for iron. But the very high levels of iron detected by the Niton (up to 39%) were not repeated in the assays.

8. Investigations into why the Niton was consistently over estimating metal values in the core are being conducted both by Kavango’s geologists and technicians from the Niton’s agent in Johannesburg – Spectrometer Technologies.

9. As yet there seems to be no clear explanation as to why the Niton consistently predicted Nd and Pr values at over 0.2 and 0.1% respectively, whilst assay results showed average values of 23.15ppm and 6.27ppm respectively (a difference of several orders of magnitude).

10. However, Kavango believe that one possible explanation is that ions of REEs and other metals dissolved in hydrothermal fluids were precipitated onto the surface of grains within the (permeable) sediments but did not penetrate into the interior of these grains. The Niton is only able to detect the elements that are reflected back to the instrument from the surface of the grains, whilst the full assay method requires the entire sample to be crushed and pulverised into a fine powder and is thus more representative of the “whole rock”.

11. The erroneous Niton values for Nd and Pr together with exaggerated values for a number of other REEs, led Kavango to suggest that Ditau alteration zone might contain economic resources of rare earths.

Naturally, the Company has determined not to use this tool for predicting metal values in core for future drilling campaigns until (and if) a satisfactory explanation for the inconsistencies found in the Ditau drilling can be fully explained and mitigated.

Q. Why did it take Kavango so long to publish the assay results from the Ditau Project?

A. The final batch of assay results were received from Genalysis Laboratories in Australia on the 26th June. It took several days for the company to evaluate the results and to determine why there was considerable inconsistencies between the assays and the values suggested by the Niton. At that stage the company were not able to publish the results because checks and repeats were necessary to determine whether Genalysis might have reported incorrect results. The results of the Genalysis repeats were received on the 19th July but the check assays submitted the referee laboratory (SGS) were not received until the 29th July. The public statement concerning the results of the check assays was issued on the 2nd August.

The company deemed it essential that no public announcement concerning the assays was made until its technical staff were confident that they had been properly checked.

Q. What now for Kavango’s Ditau Project? Given the results from the first two holes, does Kavango intend to continue with the exploration or farm it out (if it can)?

A. Ditau still remains a highly prospective target. The two holes are 1.8km apart. The alteration extends from around 140m to at least 550m in depth. This suggests that a very large volume of rock has undergone alteration, much more than would expected from the intrusion of a normal mafic rock (gabbro) or even a granite. The most likely explanation is that the rocks intersected at Ditau have been altered by large volumes of alkali rich hydrothermal fluids and gases, a process called “fenitization”. Fenitization is the (often extensive) alteration “halo” that is produced by the intrusion of Carbonatite (sometimes extrusive). Carbonatites are an extreme form of alkali magmatism consisting predominantly of calcium/magnesium carbonate and alkali minerals (sodic or potassic).

These carbonatites typically form “ring structures” due to their lithological complexity and their tendency to “dome” the surrounding geology leading to apparent “rings” after erosion has worn down the overlying formations. Ten of these ring structures can be seen from the magnetic maps of the original Ditau prospecting licence (PL).

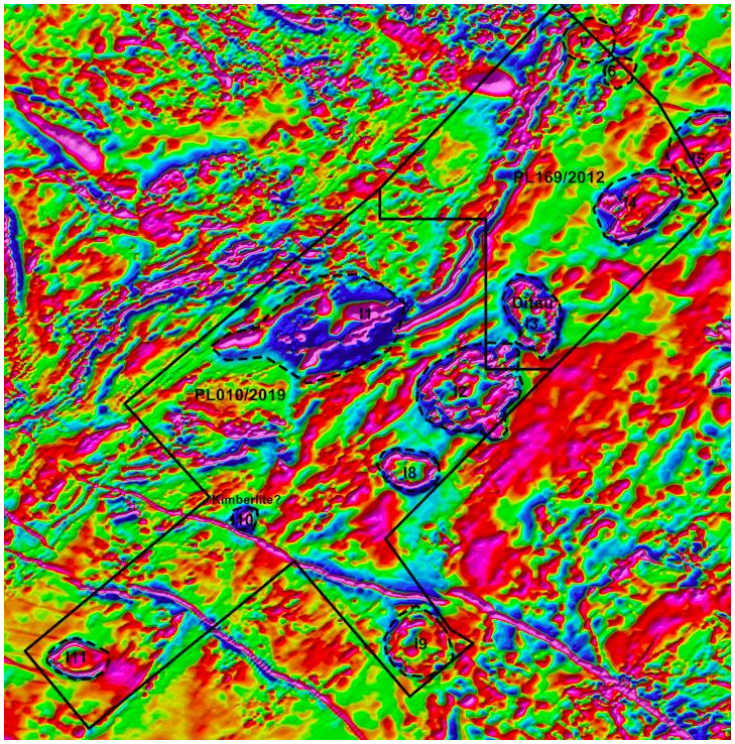

Fig.1. PL169/2012 showing the "ring structures"

Carbonatites have been mined in many locations around the world for phosphates, magnetite, strontium, niobium, rare earth elements and even copper. See Carbonatites: related ore deposits, resources, footprint, and exploration methods: George J. Simandl & Suzanne Paradis. Applied Earth Science: 2018. The article quotes

"Carbonatites and alkaline-carbonatite complexes are the main sources of rare earth elements (REE) and Nb, and host significant deposits of apatite, vermiculite, Cu, Ti, fluorite, Th, U, natural zirconia, and Fe. Nine per cent of carbonatites and alkaline-carbonatite complexes contain active or historic mines, making them outstanding multicommodity exploration targets".

It has recently come to the notice of Kavango that the Canadian mining company, Falconbridge discovered 3 carbonatites within 10km of Ditau in 1973. Apparently 2 boreholes were drilled. The company's geologists are currently trying to track down all the data related to this discovery and if possible locate the original drill core. It is also known that several kimberlites have been discovered close to Ditau. Kimberlites are often found in association with Carbonatites.

Kavango has recently been granted a new Prospecting Licence (965km2) - contiguous with the Ditau PL, which appears to contain another 5 "ring structures". It would seem therefore that there are at least 10 "ring structures within Kavango's ground (excluding the Falconbridge discoveries). This would suggest the presence of a, hitherto unrecognised, alkali igneous complex within which mineral deposits may be located.

Importantly, the alteration identified in the recent drilling at Ditau strongly suggests that the carbonatites associated with these "ring structures" are most likely to be of late Karoo age and therefore close to surface. In all probability they would be found just below the Kalahari-Karoo interface (15 -25m from surface) and thus available to open pit mining techniques.

So there is no question of Kavango losing interest in the Ditau prospect. On the contrary, there is a great deal of work to do. Firstly to confirm the presence of carbonatite (or rocks related to carbonatite) in the upper Karoo and then to evaluate as many carbonatites as possible within the ground held by the company. This will certainly require more detailed geophysical surveys and probably fence lines of shallow holes.

This work has already begun.

However, Kavango recognises that given its commitments to the exploration of the Kalahari Suture Zone (KSZ), a major exploration program to search for mineralisation associated with carbonatites at Ditau is currently beyond the financial resources of the company. This is why the company has initiated discussions with potential partners with a view to a JV on the Ditau project.

This article marks the second in a series of quarterly Q&A sessions between MiningMaven and Kavango on the behalf of Kavango's investors. If you have any questions you would like answered in the next piece then please feel free to contact MiningMaven at info@miningmaven.com or via our Twitter feed @theminingmaven.

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