SPECIAL REPORT ON EXPLORATION OF RARE EARTH ELEMENTS DEPOSIT

(North-Western Kaokoland, Namibia)

PHOENIX MINERAL RESOURCES PTY LTD
Reg.N 2010/0476

LIST OF CONTENT

ATTACHMENTS:

1. Laboratory assays of 8 samples from 2012
2. Calculation of TREE, distribution, RoM, etc

The report contains 2 attachments and 15 figures.

1.Introduction

The area is located in the northern Kunene Region in North-Western Namibia, immediately south of Kunene River. The tenements consist of 3 granted mining claims with total area 900x1800 m, covering the main ore body, and 5 adjusted to them mining claims, covering the area 1500x3000 m which are ready for approval (environmental clearance has been issued). The application for surrounding the claims Exclusive Prospecting License (EPL 6448) with total area 19833 hectares, was submitted on 15th of September, 2016, and currently has pending status. The mining of the ore can be started immediately within the mining claims, while granting the EPL will greatly increase the resources base (see chapter 6).

2.Background

The new deposit of rare earth elements (REE) and uranium minerals was discovered by “Phoenix Mineral Resources” Geosciences Consulting and Exploration Company. It is located in the West-Northern part of Namibia.

In 2011 the geologists of “Phoenix Minerals Resources” have been presented by the local dealer with the big piece of unknown ore material, apparently brought from Marienfluss area. In 2012-2013 “Phoenix Minerals Resources” while working as a principal subcontractor to conduct exploration for uranium on adjusted EPLs 3778, 3779, owned by Russian-based “Renova Holding” through its Namibian subsidiary “Petunia Investments Three”, frequently visited the area and purchased a number of different samples from local prospectors - members of Marienfluss conservancy. High prospectivity of the samples was recognized, and eight of them were sent to analyse in Bureau Veritas laboratory, Swakopmund. In 2013 the locality of deposit was established and initial inspection undertaken. The exceptional importance of discovery was realized; however, complex geology, absence of historical data and remoteness of the area, together with budgetary constraints, were serious obstacles for further researches. The attempts to find reliable partners with solid financial background and good reputation were not successful.

In August 2016, Mr. Johannes Phillipus had received three mining claims (69857, 69858 and 69859) for semi-precious stones, covering the main known deposit. Mr. Johannes Phillipus entered into Exclusive Operational Agreement with Ms Elena Repina, director of “Phoenix Mineral Resources” and requested her to evaluate the mining claims and surrounding area for potential of REE and Uranium minerals. As Operational Agent and been in possession of none-exclusive prospecting licence, Elena Repina together with Dr Sergey Paraketsov undertook exploration of the claims No 69857, 69858 and 69859 in August-September 2016. Local people – the members of Marienfluss Conservancy - have been hired during the field trip, for technical work, scouting and various assistance.

Furthermore, “Phoenix Mineral Resources” as representative of Mr. Johannes Phillipus entered into verbal agreement regarding conditions of further development of the REE deposit with traditional authority and members of headmen of Marienfluss Conservancy, with the aim to benefit local community.

As the result of the exploration the presence of major REE deposit with extraordinary high grade within the claims has been confirmed. Application for five more claims has been submitted to MME by Mr.

Johannes Phillipus, as well as amendments for base and rare metals and other mineral groups. Simultaneously, the application for EPL 6448, encompassing the claims, has been submitted.

Fig.1. *September 2016. "Phoenix Mineral Resources" had a warm welcome by the headmen, elders and members of Marienfluss Conservancy – to such extent that the cow was slaughter, and a big chunk of delicious meat was presented to us!*

3.Regional Geology and Structure

The area is occupied by the rocks of Epupa Metamorphic Complex comprising granitic, para- and ortho-gneisses, migmatites, amphibolites, marbles, quartzites and schists. Miller indicated Archaean sources for these rocks ranging from 2.5-2.8 Ga in age. Gneisses and migmatites give ages 1884 +- 39 and 1826 +- 48 MA respectively, and 1686 +- 69 for intrusive granites as an emplacement age. They are intruded by minor, strongly foliated, red gneissic granite veins, ranging in the age from 1370 to 1450 MA. Epupa complex is overlaid to the west and south of tenements by metasediments of Swakop Group, Damara Sequence (Miller, "Geology of Namibia", 2008).

Structurally the area belongs to the eastern margin of Central Kaoko Zone (CKZ), separated from 20 to 40 km wide, mainly granulite facies domain of Orogen Core of Western Kaoko Zone (WKZ), by Purros Mylonite Zone (PMZ) – ***Fig. 2*** (Corner in Miller,2008).

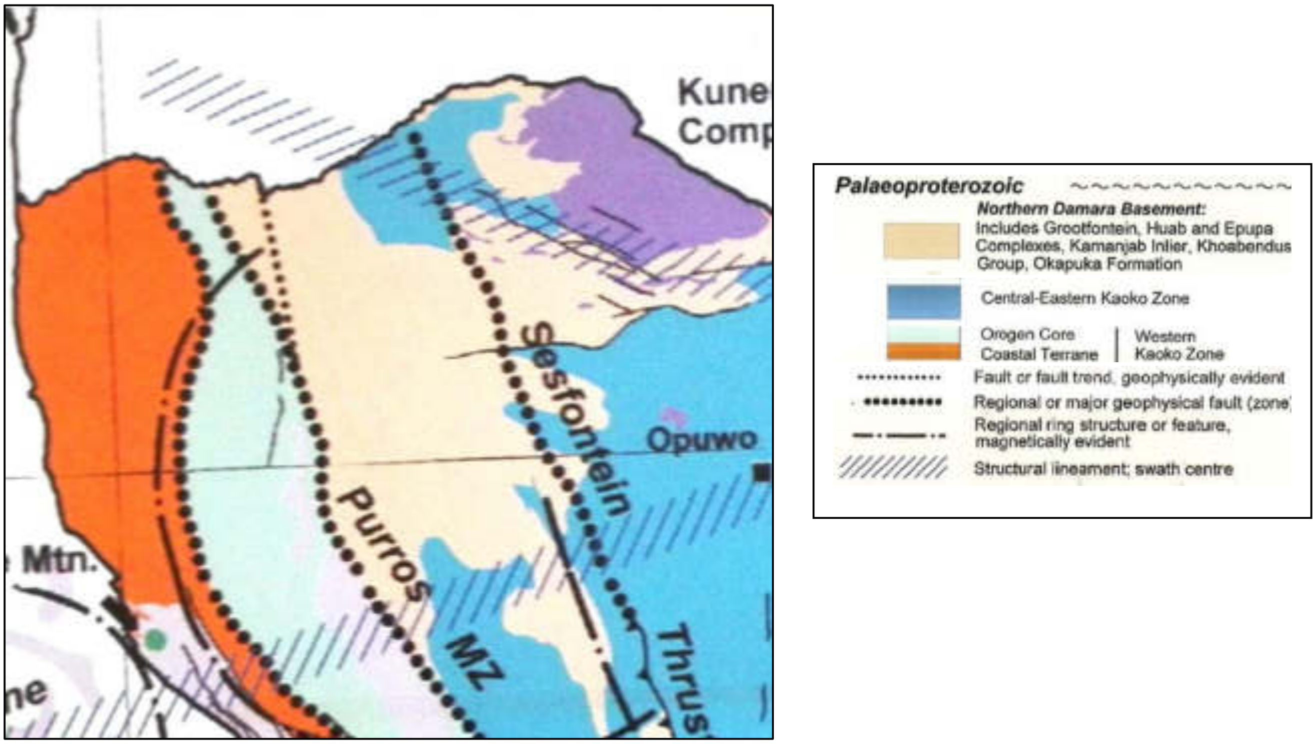


Fig. 2. *Geophysical map (Corner, 2008)*

4.5 km-wide PMZ with predominant mylonites and ultramylonite extends into Angola for at least 500 km; this crustal-scale, ductile shear zone form the boundary between high temperature - low pressure sillimanite-garnet facies rocks of WKZ and low-temperature – high pressure kyanite facies of western CKZ (***Fig.3***: Miller, 2008)

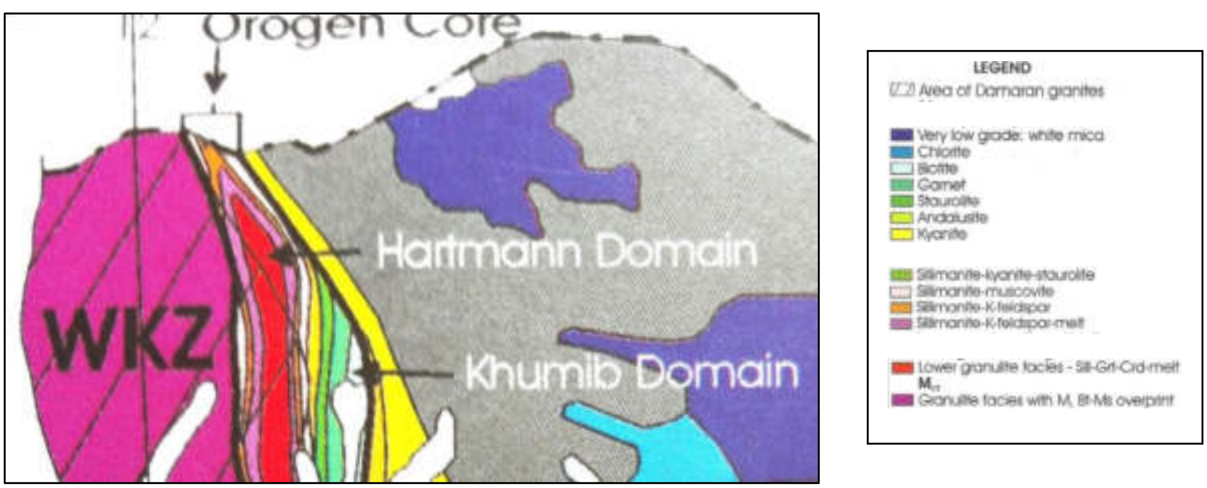


Fig. 3. *Metamorphic zonation for semi-pelitic and pelitic rocks* (Miller, 2008)

During the field work, within Epupa Complex metasediments of biotite and amphibolitic schists, quartzites, amphibolites and conglomerates, and its ultra-metamorphic equivalents - red porphyroblastic gneissic granites and grey migmatic gneisses were identified, intruded by younger red gneissic granite bodies and veins. The grades of metamorphism were observed as ranging from amphibolite facies (with kyanite and spessartine garnet as indicators) - to a lower granulite facies (presence of amazonite).

The influence of 5-km wide Mylonite Zone accompanying Purros Lineament was found evident in geological structure of the studied area, demonstrated in numerous zones of tectonic faults and shear zones, intensive foliation, as well as the presence of cataclastits and mylonites within the tectonic zones. Another major fault which can affect the area of interest is the fault bifurcated from Purros Lineament into the North direction (***Fig. 2***); it separates the elevated mountain landscape from the lower hypsometric level of Marienfluss valley.

The matrix is extremely folded; up to 5 orders of folding has been recognized. Numerous faults of different magnitude cross the area in various directions. Pegmatitic, feldspar and quartz veins of uncertain origin are abundant in the host rocks – crossing the latters or conformant to them.

4.Exploration Methods

Exploration comprise the following types of researches:

1. Selective geological mapping.
2. Interpretation of various spatial data and structural analyses in the field.
3. Radiometric and spectroscopic survey of the area by means of RS-125 Gamma-Ray Spectrometer/Scintillometer for detecting radioactive anomalies controlled by high content of uranium, which indicates the presence of REE.
4. Trenching and open pitting.
5. Geochemical sampling of the area, including chip, grab, channel and stream sampling. Samples were taken from host rocks, ore bodies, and different pegmatitic, feldspar and quartz veins – crossing and conformant. Altogether 50 samples were collected; samples were analysed by "Auroch Minerals" in Bureau Veritas in Swakopmund and Perth (Australia); the results should yet to be received and incorporated into the report.
6. Electromagnetic (magneto-telluric) ground survey by means of Stratagem EH4 system within claims No 69857, 69858 AND 69859.

The Stratagem EH4 is a unique magnetotelluric (MT) system used for measuring the electrical resistivity of the earth over depth ranges of a few meters to greater than one kilometer.

An MT sounding provides an estimate of vertical resistivity beneath the receiver site and also indicates the geoelectric complexity at the sounding site.

Because this battery-powered system is compact and portable, it is productive even on rough terrain and also may be operated successfully in fairly hostile environments. The speed and portability of the Stratagem system allows for a flexible survey design. Surface impedance results are immediately displayed as a resistivity sounding and may also be processed in groups of soundings and viewed in section while on site.

This flexibility enables the investigator to alter the survey design on site based on preliminary processing and examination of measurement results.

Applications of Stratagem EH4 system include:

• Minerals Exploration

• Groundwater Exploration

• Engineering Studies

• Academic and Scientific Research

Fig. 4. *Data acquisition with Stratagem EH4 EM (MT) system.*

5. Discussion of the Results

5.1. Geological structure of the area of Interest

REE deposit is located within relatively small (1.8 km x 1.2 km) isolated tectonic block, which is apparently uplifted because of granitic intrusion, exposed to the North-West of it.

Fig. 5. Uplifted tectonic block with REE deposit constrained by numerous faults.

The gneissic granitic rocks and schists are forming here monocline dipping to West-South-West with the angle of approximately 20 to 40 degrees. The rocks are slightly folded and the monocline itself most probably represents remains of a flank of major isocline fold disturbed by faulting.

Major fault with West-North-West strike and South-West dip between 20 and 40 degrees crossing almost the whole tectonic block from East-South-East to West-North-West. It is accompanied by prominent shear zone with width about 260 m at the West-South-West and about 150 m at East-North-East. It is roughly conformant to bedding of hosted rocks - the observed displacement alongstrike the fault is negligible.

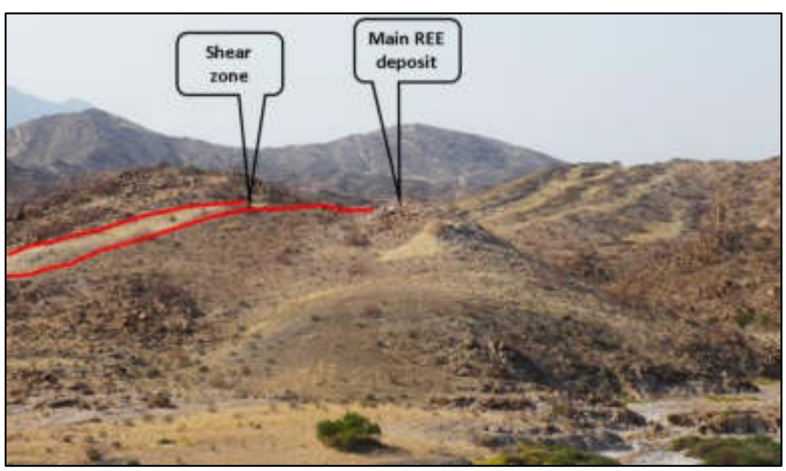


Fig. 6. *Shear zone, view from the West.*

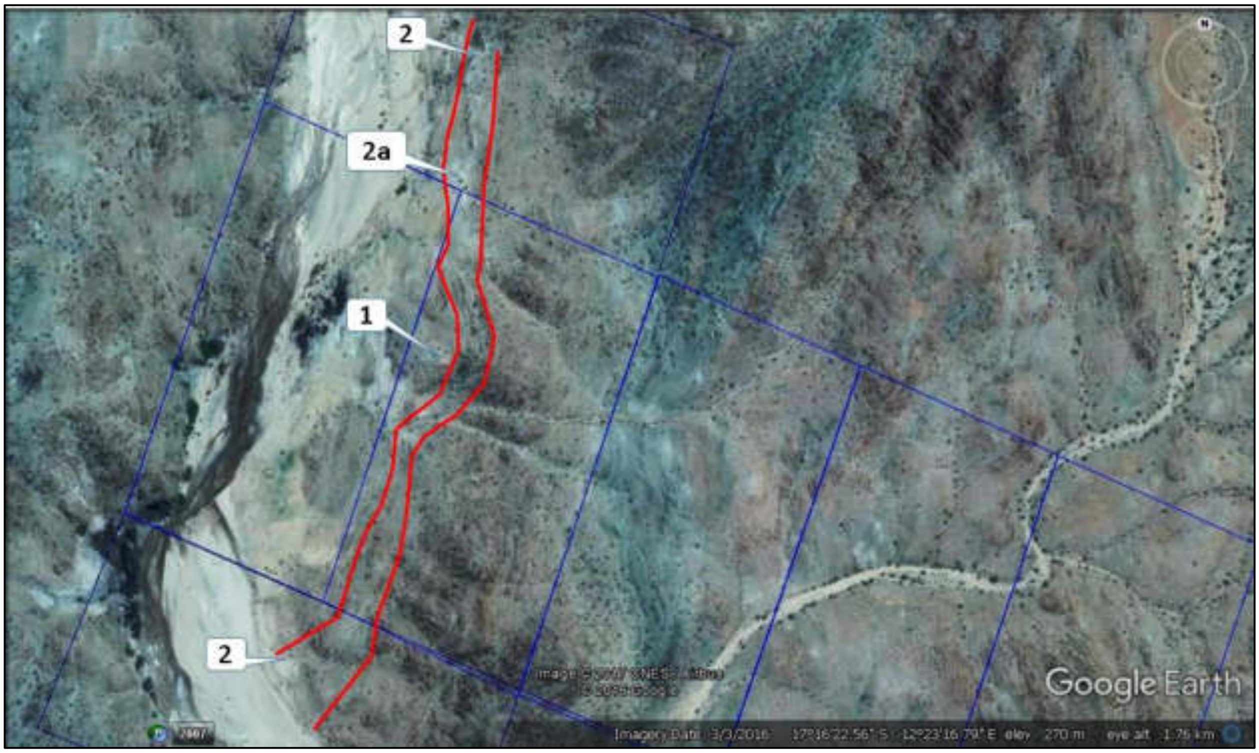


***Fig.7**. Shear zone on satellite image: 1- main REE deposit; 2 – outcrops of quartz-feldspathic veins with indication of REE mineralization (2a – visible REE mineralization).*

Several minor parallel faults have been observed within the tectonic block to the East from the major one.

5.2. Description and mineralization model of REE deposit

Visible REE mineralization is hosted in big (up 6+ m thickness) quartz-feldspathic veins of possibly hydrothermal origin. These veins are observably controlled by above mentioned major fault and shear zone.

Major quartz-feldspathic vein with extremely high grade of REE mineralization is exposed approximately in the middle of the shear zone. Its outcrops have been traced for 270 m and its maximum thickness is more than 6 m.

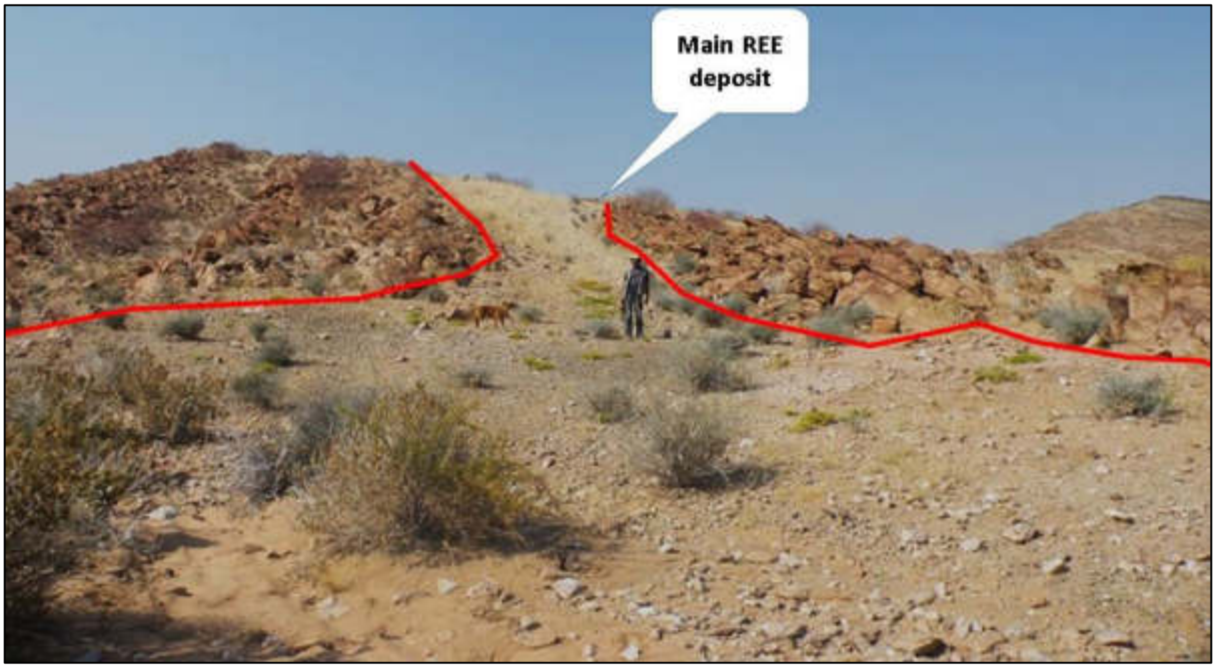


Fig. 8. *Shear zone, general view from the North.*

However minor outcrops of quartz-feldspathic veins with indications of REE mineralization have been observed along the strike of the shear zone to the North of the main deposit on the distance over 800 m.

Minor quartz-feldspatic veins (up to 60 cm thickness), roughly parallel to the main zone, presumably containing REE mineralization, have been detected to the East of the major REE deposit on as far as 1 km.

Fig. 9. *Minor quartz-feldspatic vein with indications of REE mineralization in approximately 700 m to the East from the main REE deposit.*

The ore minerals are disseminated in thick quartz-feldspar veins, often forming the pockets. Up to date, at least seven such pockets were found. During trenching in 2016, new pocket was discovered, with the thickness of the ore body up to 15 cm; its length was traced on at least 3 m.

Fig.10, 11. *Main ore mineral with total radiation in cps.*

Fig. 12. *Uranium content of the ore is extremely high - 7465 ppm.*

The mineral euxenite $(Y,Ca,Ce,U,Th)\ (Nb,Ta,Ti)_2O_6$ was visually identified (density 5.5, hardness up to 6.5, together with other characteristics), though, due to very high radioactivity, the presence of other minerals is suggested. Different assemblages of heavy and light REE in association with anomalous values of other elements from laboratory assays, as well as different geological settings of other mineral occurrences in the region, indicate the presence of various REE minerals. Other rare earth oxides such as fergusonite, aeschynite and samarskite have very similar properties to euxenite and are often associated with each other, compounding the problem. Specimens of samarskite with a high uranium content are typically metamict and appear coated with a yellow brown earthy rind.

Fig. 13. *Euxenite*

Fig. 14. *Disseminated REE minerals in Q-Fsp vein.*

An economically viable source should contain more than 5 percent rare earths, unless they are mined with another product—e.g., zirconium, uranium, or iron—which allows economic recovery of ore bodies with concentrations of as little as 0.5 percent by weight.

According to the samples collected during the previous visits, there are evidently more REE and rare metals occurrences on the distance of about 10-15 km from the studied deposit. From all the samples collected and purchased between the years 2011-2016, up to ten different REE-Uranium and rare metals minerals were visually recognized in the area of EPL. Furthermore, similar vein structures with elevated total radiation within analogous geological settings (pre-Damara metamorphic basement) were recognized in 2011-2012 on EPLs 3778, 3779 (regrettably, the exploration was strictly on uranium; thus the obtained samples were never analyzed on REE specifically). The idea that the old pre-Damara formations of the Northern-Western Kaokoland might have REE-rare metals specialization, thus are highly potential for Uranium, REEs and rare metals, getting more evidences for approval.

5.3. Electromagnetic (magnetotelluric) survey data

Electromagnetic (magnetotelluric) survey comprise five stations of Stratagem H4 system placed alongstrike the shear zone and slightly off it. EM (MT) survey covered total distance of 200 m within claims No 69857, 69858 AND 69859.

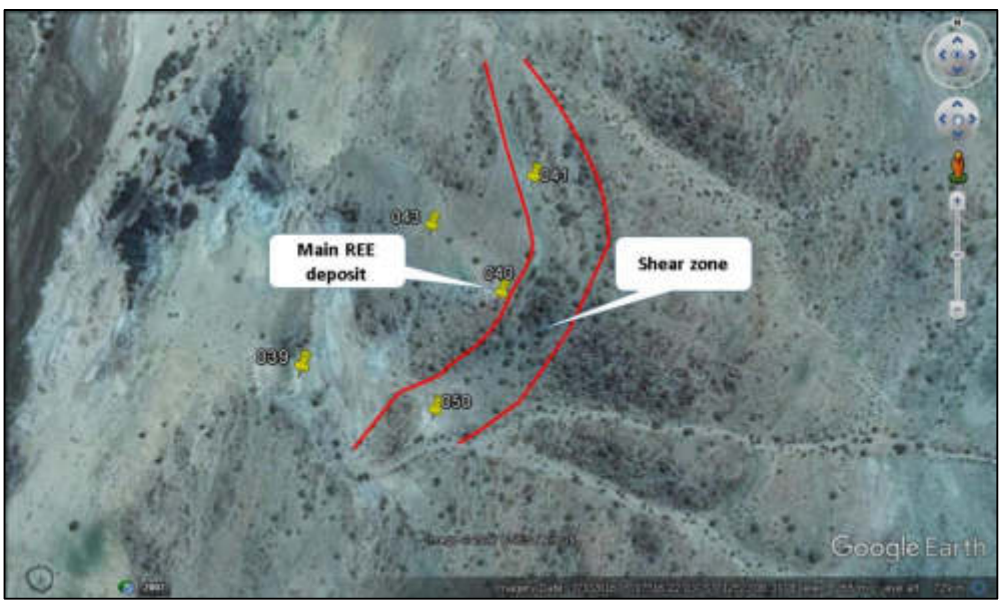


Fig.15. *Location of Stratagem EH4 EM (MT) system stations.*

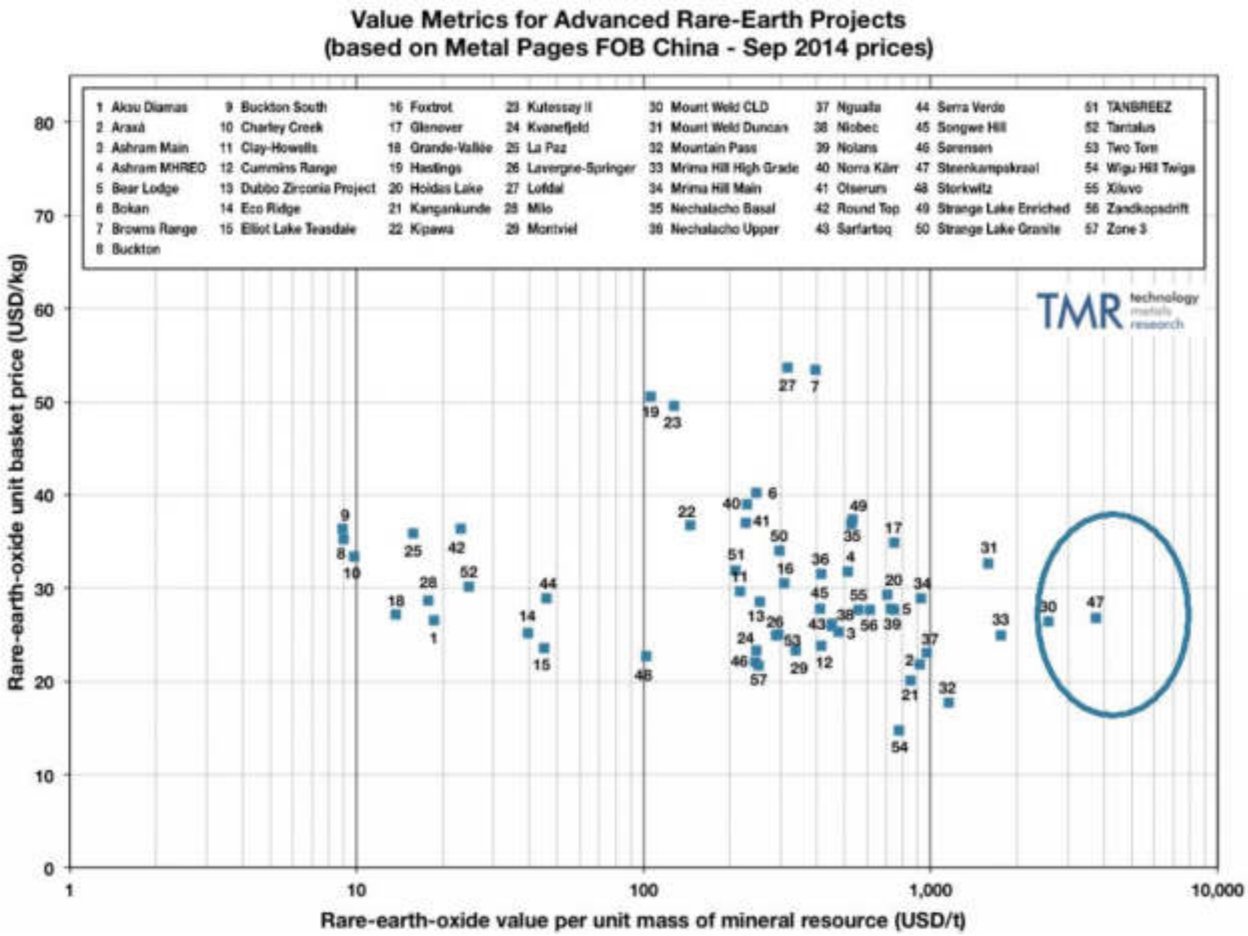
Acquired EM (MT) data allowed to trace the major fault and shear zone to the depth of at least 200 m. It is characterized by low resistivity values and prominently dipping to South-West with the angle between 20 and 40 degrees.

Number of extremely low resistivity readings has been obtained *at depth 20 m, 40 to 80 m and around 120 m. It is proposed that these low resistivity anomalies may correspondent to the ore horizons or large pockets with extraordinary high grade mineralization of REE, because certain REE minerals (e.g. euxenite group) are conductive.*

The 2D and 3D models of interpreted geophysical data are in progress and will be incorporated in the report shortly.

6. Feasibility study: Comparison with other known worldwide REE projects, calculations of TREE, RoM, etc.

The following work was conducted by TMR group of consultants from South Africa.



Above is appended a graphic indicating the rated values of various REE projects around the world, which highlights the significance of our discovery.

Point 47 reflects the Steenkampskraal prospect. Points 30 and 31 show the LYNAS Mount Weld project in Australia. Both of these have a high grade deposit with a good unit REE price. Point 27 is the current Lofdal project in Namibia, which has a low grade deposit with a relatively high unit REE price.

The open circle represents the range of values indicated by the sample data from the laboratory report. The samples have a very high relative grade and a good unit REE price.

The further important calculations of Total REE, distributions and RoM are contained in attachment to the report.

7. ***Resources estimation***

The following calculation of the resources is done for the area of mining claims only, with no reference to the expected-to-be-found new occurrences of similar type of mineralization.

For accurate resources calculation there is not enough data, but rough estimation of resources has been done according to four different scenarios based on different assumption on possible geological settings. To be on the safer side, all calculations were made for the depth of 20 m, despite of the geophysical EM (MT) data indicating extension of mineralized horizons down to at least 120 m. Also, a very conservative factor of mineralization discontinuity (5 %) has been applied for estimation of resources.

Scenario 1 (Optimistic):

Length: 812

Thickness: 150 m (The whole shear zone)

Width of ore-bearing body down to a depth 20m: 258 m

812 x 150 x 258 = 31,424,400 cubic meters

Factor of discontinuity (5 %)

Total ore: **1,571,220 cubic meters**

Scenario 2 (Realistic):

Length: 812

Thickness: 4 m (Average thickness of visible mineralized zone)

Width of ore-bearing body down to a depth 20m: 258 m

812 x 4 x 258 = 837, 984 cubic meters

Factor of discontinuity (5 %)

Total ore: **41,899.2 cubic meters**

Scenario 3 (Pessimistic):

Length: 812

Thickness: 2 m (Visible mineralized zone pinching out on strike)

Width of ore-bearing body down to a depth 20m: 258 m

812 x 2 x 258 = 418,992 cubic meters

Factor of discontinuity (5 %)

Total ore: **20,949.6 cubic meters**

Scenario 4 (Visible and sampled only):

Length: 270 m

Thickness: 4 m (Average thickness of visible mineralized zone)

Width of ore-bearing body down to a depth 20m: 258 m

270 x 4 x 258 = 278,640 cubic meters

Factor of discontinuity (5 %)

Total ore: **13,932 cubic meters**

Density: Assumed - 3 – based on density of host rocks (approximately 2.7 and ore density of around or above 4)

Grade: 16,540 ppm (according old samples): it is about 49,620 g/t according to the total density of ore bearing mineral (~ 4+).

Scenario 1 (Optimistic):

Tonnage of ore: 4,713,660 ton

REE concentrate: 233,892 ton

Based on available in Internet prices for REE (http://www.rockstone-research.com/index.php/en/research-reports/64-The-REE-Basket-Price-Deception-and-the-Clarity-of-OPEX) 31 USD per kg can be different now):

VALUE: 7,250,652,000 USD

Scenario 2 (Realistic):

Tonnage of ore: 125,697.6 ton

REE concentrate: 6,237.1 ton

Based on available in Internet prices for REE (http://www.rockstone-research.com/index.php/en/research-reports/64-The-REE-Basket-Price-Deception-and-the-Clarity-of-OPEX) - 31 USD per kg (can be different now):

VALUE: 1,933,501,000 USD

Scenario 3 (Pessimistic):

Tonnage of ore: 62,847 ton

REE concentrate: 3,118.5 ton

Based on available in Internet prices for REE (http://www.rockstone-research.com/index.php/en/research-reports/64-The-REE-Basket-Price-Deception-and-the-Clarity-of-OPEX) - 31 USD per kg (can be different now):

VALUE: 96,672,512 USD

Scenario 4 (Visible and sampled only):

Tonnage of ore: 41,796 ton

REE concentrate: 2,073.9 ton

Based on available in Internet prices for REE (http://www.rockstone-research.com/index.php/en/research-reports/64-The-REE-Basket-Price-Deception-and-the-Clarity-of-OPEX) - 31 USD per kg (can be different now):

VALUE: 64,291,443 USD

NOTE:

1. ***Above is very rough estimation, which should be adjusted after analyzing all the results of the last field trip, especially lab results of 50 samples, geophysical 2D and 3D modelling and gridded spectroscopic survey. The incorporation of these data into the report will lead to the resources increase.***

2. ***To increase further the resource base, more exploration work is required - such as mapping, sampling, trenching and drilling.***

3. ***Should geophysical interpretation, which predicted the extension of mineralized zone down to the depth of 120 m (and not to 20 m as in current resources estimation), be confirmed by drilling program, the resources will be increased in few times!***

8. <u>Conclusions</u>

1. The new deposit on REE was discovered in North-Western Kaokoland.

2. According to TMR group, which provided the initial feasibility study, the discovered deposit may have one of the highest values among the worldwide known REE deposits.

3. The deposit is ready to mine on small scale, however metallurgic test needs to be done and business plan to be finalized. Additional extensive exploration program is required to increase the resources and convert the claims into mining license.

4. The estimated resources were calculated using the most conservative coefficients. The resources will be largely increased provided more exploration work (e.g. drilling) is done on the area of the claims.

5. The more deposits on REE of similar origin are expected in the vicinity of the claims within EPL 6448, as well as outside the EPL.

6. The area of EPL is highly potential on uranium, as well as on rare metals and other mineral commodities.