

**EXPLORATION INCENTIVE SCHEME**

**2014-2015 PROGRAM**

**FINAL REPORT ON KALGOORLIE PROJECT,  
DIAMOND DRILLING, HOLE NUMBER KPDDH 008**

**David Reed Syndicate.**

**P26/3910, Kalgoorlie-Boulder, WA.**

**June, 2015.**

**Bryan Smith Geosciences Pty Ltd.**

## Bibliographic data sheet.

**Project Name:** Kalgoorlie Project.  
**Reporting Number:** na  
**Tenement Number:** P26/3910  
**Tenement Holder:** David John Reed  
**Tenement Operator:** Bryan Smith geosciences Pty Ltd.  
**Report Type:** EIS Innovative drilling Final Report  
**Report Title:** Final Report on Kalgoorlie Project Diamond Drilling KPDDH 008.  
**Report Period:** June, 2015.  
**Date of Report:** 26<sup>th</sup>. June, 2015.  
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**1:250,000 Map Sheet:** Kalgoorlie SH 51-9  
**1:100,000 Map Sheet:** 3136  
**Geodetic Datum:** GDA94  
**Project Zone:** 51J  
**Target Commodity:** Gold  
**Prospects Drilled:** Kalgoorlie Railway Station.  
**POW Number:** 53418  
**List of Assays:** Au, Ag, Al, As, Ba, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sn, Sr, Te, Ti, Tl, V, W and Zn.

### ABSTRACT

**Location:** The drill hole was located on Lot 4852 in Forrest Street, Kalgoorlie.  
**Geology:** The hole intersected Devon Consols Basalt, Kapai Shale, Williamstown Dolerite, Hannan's Lake Serpentine and paring Basalt of the Kalgoorlie stratigraphic succession.  
**Drilling:** Diamond hole KPDDH 008 was drilled at an azimuth of 80 degrees and a dip of 60 degrees to a down hole depth of 1183 metres.  
**Results:** No gold mineralization was intersected.  
**Conclusions:** There was no mineralization in the north trending faults that were intersected.

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## 1. Introduction.

The drilling program was designed to test for gold mineralization along N/S trending structures that transect the Golden Mile Greenstone stratigraphy near Mt. Charlotte. The N/S structures postdate the emplacement of gold mineralization and the N/S structures have resulted in dextral displacement of the greenstone stratigraphy. These structures were considered to be targets for gold mineralization and there are a number of old winzes and shafts from the turn of the century located along these structures. Gold would have been remobilised along these N/S structures during the later metamorphic events. Mineralization along these structures would be indicated by quartz/carbonate/sericite alteration and bleaching as well as the presence of sulphides. The gold resources that are associated with N/S structures in the Kalgoorlie field have been significant. Another deposit model was the Fimiston lode type of very fine-grained gold and gold telluride in veins marked by sericite alteration and the presence of sulphides. The Mt. Charlotte type of gold mineralization was another target type where gold is associated with strong quartz veining, bleaching and sericite alteration as well as the presence of sulphides.

## 2. Tenement.

The drilling was carried out on P26/3910 and the location of the tenement is shown on Figure 1. The tenement details are set out below.

Tenement No.	Holder	Area	Grant date	Expiry date	Rent \$	Commitment \$
P26/3910	David John REED	193.00 HA	21/3/13	20/3/17	463.20	7,720.00

## 3. Diamond drilling.

The collar of diamond hole KPDDH008 was located on Lot 4852 to the east of the Kalgoorlie Railway Station, property of the Minister for Works. The location of the drill hole is shown on Figure 2. The drill hole collar was next to the railway reserve opposite the Kalgoorlie Primary School and was accessible from Forrest Street. Drilling which commenced on 2/3/15 and completed on 21/4/15 was carried out by Westralian Diamond Drillers working on day shifts only from 7AM to 7PM excluding Sundays.

The coordinates of the hole collar are 30° 44' 40.3" S and 121° 28' 09.0" E. The hole was drilled at a dip of 60° and an azimuth of 080°mN. The hole was completed at a depth of 1183.19 m downhole when the boundary of PL26/3910 and the Charlotte Mining Lease was reached. KCGM continued the hole on to 1313 metres down hole within their Mining Lease. At the tenement boundary the drill hole had lifted to a dip of 51.6° and had also swung to the south due to rotation of the drill string to an azimuth of 109.6°mN. The survey details of the hole are set out in Table 1 in the Appendix. A cross section of the drill hole and the projection to surface of the hole are shown in Figures 3 and 4.

The core was oriented where the core was competent using a Reflex 2 instrument after each run (generally 6 metres). Core marks were able to be made on about 90% of the core. The core orientation line was marked along the lower side of the core. The down hole direction and one metre core intervals were also marked onto the core.

#### **4. Geological and structural data.**

The drill hole core was logged and the logging is set out in Table 2 in the Appendix. Structural measurements of the alpha and beta angles of a number of the quartz veins were also made. All of the core was photographed (wet and dry) by the DMP Core Library staff and the photographs are available from the Core Library.

#### **5. Magnetic susceptibility measurements.**

Magnetic susceptibility measurements of SI units were made at 2 metre intervals along the core using a Fugro MS2 hand held instrument. The results are set out in a Table in Appendix and plotted in Figure 5.

#### **6. Geochemical analysis.**

179 samples were taken at points of interest along the core where it was considered that alteration observed may be indicative of gold mineralization. The core was quarter sawn for sampling and the samples taken were recorded on core blocks inserted into the core trays.

The samples were analysed by Intertek Laboratories. The core was delivered to the receival depot in Kalgoorlie and transported to the Maddington Laboratory in Perth. The samples were crushed and pulverized to <80#. Then a 50g split was taken for fire assay analysis of Au using a Pb prill. Most of the samples were analysed for a suite of elements (Au, Ag, Al, As, Ba, Bi, Ca, Cd, Ce, Co, Cr, Cu, Fe, K, La, Li, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sn, Sr, Te, Ti, Tl, V, W and Zn) by optical emission spectrography following a four acid digest using HCl, HNO<sub>3</sub>, HF and H<sub>2</sub>SO<sub>4</sub>. The results are in Tables 4 to 11 in the Appendices 4A to 4H.

#### **7. Geological description.**

The pre-collar was drilled through oxidized material with a blade bit to a depth down hole of 14.2 m. No samples were taken through this interval although it was noted that rounded ferruginous nodules of ironstone were common within the clays indicative of a paleo channel known to be located in the area. The limit of oxidation was at about 120 metres. The oxidized metabasalt had some darker coloured rings and markings indicative of pillow margins. The saprock was therefore interpreted to be Devon Consuls Basalt. In the fresh rock strong alteration was apparent with the mineralogy dominated by amphiboles, chlorite, clinozoisite, carbonate and the veins comprised of quartz, carbonate and chlorite. There were also occurrences of leucoxene, epidote, talc and pyrite/pyrrhotite. Large accumulations of varioles were observed and some sections were dominated by large angular clasts. The fresh metabasalt was also interpreted to be Devon Consuls Basalt.

Carbonaceous Kapai Shale occurred from 149.5 to 153.5 metres down hole with up to 20% sulphides. An inter-fingered 30 cm slice of Devon Consuls Basalt occurred from 151.3 metres. Devon Consuls Basalt continued to another intersection of Kapai Shale from 187.9 to 208.7 metres down hole with up to 20% sulphides and sulphide nodules which had been deposited by primitive bacterial communities. There was another 70 cm insertion of Devon Consuls Basalt from 188.6 metres. Devon Consuls Basalt was interpreted to continue on to 280.1 metres down hole when rocks with doleritic textures interpreted to be Williamstown

Dolerite occurred with the contact being marked by angular clasts and quartz carbonate chlorite veining. The rocks were strongly carbonated and were also comprised of amphiboles including clinozoisite, epidote, chlorite and quartz. There were numbers of quartz/carbonate veins. Another fault occurred at 331.1 to 331.25 metres down hole with the zone being quartz filled and sheared.

A change was made to NQ2 coring from HQ at 229.5 metres down hole when the rock became more competent.

A fault zone was intersected from 294.1 to 300.9 metres down hole as indicated by badly broken core and clay. The rocks then became more komatiitic with some spinifex textures and were interpreted to be Hannan's Lake Serpentine. The rocks were brecciated with sub-rounded clasts and pyrite accumulations up to 20%. Another fault was intersected from 357.4 to 358.0 metres down hole as shown by severe fracturing. There was further faulting from 361.5 to 363.6 as indicated by strong fracturing and shearing.

Then faint varioles were observed and a gradational change to Devon Consuls Basalt was interpreted from 370.0 down hole. There were occasional occurrences of groups of varioles, spinifex textures and pillow margins as well as brecciation and sub rounded clasts. The Mystery Fault was interpreted to occur at 708.0 metres down hole as shown by broken core. Many pillow margins and pillow margin fragments were observed from 847 to 861 metres down hole. The sequence was still interpreted to be Devon Consuls Basalt. Quartz carbonate veins were pervasive from 870 to 990 metres down hole. There were also patches of disseminated pyrite from 2 to 5%. Also there were broken pillow margins from 970 to 980 metres.

Broken core occurred from 992.7 to 994.5 which indicated a fault. There were quartz-carbonate veins broken fragments of pillow margins and sub-angular clasts down to another fault at 1026.5 metres interpreted to be the Charlotte Fault. This fault was marked by sheared and broken core with a shear angle of 30°.

The rock type to the end of the hole at 1183.19 metres at the tenement boundary was interpreted to be Paringa Basalt. No varioles were evident. Quartz/carbonate veins were common and fragments of pillow margins were also common from 1080 metres to the end of the hole. There were some zones of clinozoisite and epidote as well as sub-angular clasts of altered chloritic basalt.

KCGM continued drilling the hole from 1183.19 and then terminated the hole at 1346 metres down hole. A fault was intersected from 1206.7 to 1211.5 and there was a change in the rock type from Paringa Basalt to Golden Mile Dolerite.

## **8. Alteration and Structures.**

The basalts were strongly carbonated. The primary minerals were completely altered to mainly chlorite, calcium amphiboles, talc, clinozoisite, epidote and leucosene. Varioles were common in the sections interpreted to be Devon Consuls Basalt and the volcanic lavas were interspersed with intact pillow margins, angular fragments of margins, breccia zones and angular clasts. Quartz carbonate veins were common. They were generally steeply dipping to the west with a strike orientation of NNW/SSE. There were also some larger flat

lying quartz veins. Where shearing was observed the dip was also usually found to be steep west with a NNW/SSE strike direction.

There were a number of faults intersected in the drilling previously interpreted to have dextral movement. There is a general correlation of the geology in the current drill hole with the stratigraphies of the two holes to the north of KPDDH008 as shown in Figure 4. DCD0003 is 250 metres to the north and DCD0002 is 500 metres north.

## **9. Geochemical analyses.**

The gold results were disappointing being generally in the range of 1 to 4 ppb Au. Slightly higher results were obtained in the Kapai Shale of 25 to 110 ppb Au. The Ca analyses generally ranged from 3 to 8%, As from 3 to 20 ppm, K from 0.2 to 0.8%, Mg from 4 to 7%, Cu from 40 to 120 ppm and Zn also from 40 to 120 ppm. Te values were generally less than 0.05 ppm.

## **10. Magnetic susceptibility measurements.**

The magnetic susceptibility measurements were generally very low and for the Devon Consuls Basalt were in the range of 5 to 50 SI units  $\times 10^{-5}$ . The Kapai Shale, Williamstown Dolerite, Hannan's Lake Serpentine and Paringa Basalt had slightly higher values of 50 to 100  $\times 10^{-5}$  SI units. In the Paringa Basalt close to the tenement boundary and the contact with the Golden Mile Dolerite the magnetic susceptibility readings increased to 50 to 2000  $\times 10^{-5}$  SI units.

## **11. Future exploration.**

The stratigraphic units are known to dip at about 70 degrees to the west so there is a case to explore the prospective Golden Mile Dolerite as it can be expected to dip back into the tenement below 1100 metres from the surface.