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Pine Creek Drilling Report 2004

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Two diamond drillholes, PC04DD01 and PC04DD02, were planned for October 2004 to recover core for sampling of gold and platinum group mineralisation at the Gold Ridge and Sargents North prospects, respectively, in the central Pine Creek Orogen (PCO). The Gold Ridge target was a high-grade gold/PGE intersection in a mylonite/quartz breccia shear zone within the Fenton Granite, 20 km west of Fenton Airstrip on Oolloo Road. The Sargents North prospect is a gold/PGE intersection in Hematite Quartzite Breccia (HQB), approximately 8 km south of Batchelor township.

The Sargents North hole, PC04DD02, was drilled first, due to access problems at Gold Ridge. This vertical hole did not intersect HQB as anticipated; instead ferruginised saprolite, possibly after shale and dolerite, was encountered to a depth of 40.7 m, then Coomalie Dolostone occurred from 40.7 m to the termination depth of 51.6 m. The Gold Ridge hole, PC04DD01, had a proposed depth of 100 m and was drilled at 60° towards 270°. It was intended to intersect the mineralised zone at around 70–80 m. Due to the fractured natured of the ground, the drill rods became stuck at 60 m and could not be freed. During attempts to free them, the rods at around 30 m stripped out and broke off. The hole was abandoned at 60 m.

A third hole, PC04DD03, was collared 30 m closer to the target zone and again drilled at 60° from horizontal towards 270°. The hole reached 15.3 m after wedging off numerous times. It was agreed to terminate the hole due to the high probability of again losing rods.
INTRODUCTION

This 2004 drilling program was intended to obtain samples of mineralised core for petrographic studies from the Gold Ridge and Sargents North prospects, in the central Pine Creek Orogen (PCO). The aim was to obtain an understanding of an entirely new style of Au-PGE mineralisation in the Pine Creek Orogen in order to enhance the exploration and mining opportunities.

GOLD RIDGE DRILLING

The Gold Ridge gold prospect is located about 23 km southwest of Hayes Creek Inn on Tipperary pastoral leases (Figure 1). Gold mineralisation was discovered and drilled by MIM Ltd in 1991–92 (McGeough 1992). A small inferred resource of 32 000 t grading 4.5 g/t Au, 0.3 g/t Pt and 0.5 g/t Pd to a vertical depth of 36 m is present. The gold, platinum and palladium grades are similar to those at Coronation Hill (4.8 Mt @ 4.3 g/t Au, 0.2 g/t Pt and 0.65 g/t Pd).

The prospect lies in a roof pendant of Wildman Siltstone (Kruse et al 1990) within the Fenton Granite at MGA 746530mE 8485860mN. On the surface, a northwest-trending (335°) quartz breccia-filled fault zone that dips 50–55° to the northeast can be discontinuously traced over 500 m. Some 30 percussion holes have been drilled and 12 costeans excavated in this vicinity. Au-Pt-Pd mineralisation is largely confined to a fine-grained, dark brown to black, graphitic (±pyrite) mylonite unit, above the vein quartz breccia zone.

Significant Au-Pt-Pd mineralisation is present over a strike length of 150 m and to a vertical depth of 55 m near costean 4. Drillhole PP4 intersected 2.7 m @ 2.76 g/t Au, 0.32 g/t Pt and 0.66 g/t Pd from 62 m (about 55 m below the surface). This represents the deepest mineralised intersection at Gold Ridge. Drillholes above (PP1 to 3) and along strike (PP6 and PP17) from PP4 also intersected significant Au-Pt-Pd mineralisation. Depth of weathering in the vicinity

![Figure 1](image.png)
extends to 70 m below the surface (according to drill logs of hole PP4). This style of mineralisation is quite different from the known gold systems in the area and represents an attractive exploration target.

PC04DD01

The first hole in the program, PC04DD01 (Figure 2), was drilled at a declination of 60° and an azimuth of 270° during the period 21–23 October 2004. The proposed total depth was 90–100 m, with the gold/PGE intersection anticipated between 70 and 80 m. The first 24.6 m consisted of fractured Wildman Siltstone, consisting of sandstone, quartz breccia, weathered mica schist and quartzite. The rest of the hole consisted of alternating fractured granite and mica schist. Schist intervals from 35 m to 55 m contained sulfides (mainly pyrite). The total depth of the hole was 60 m, at which point the drill rods became stuck and were lost down the hole while trying to free them. Due to the fractured nature of the ground and possibly too much pressure on the bit, wedging off was common and runs were generally between 0.5 m and 1.0 m. The hole had deviated 3° to 57° after only 30 m. At about 35 m, the drilling rig had moved off line due to extra head pressure and had to be re-aligned. This happened again at 60 m, but this time, it was a major shift of about 35 cm. At this time, the bit had become bogged and was unable to be freed. About 27 m of rods were lost down the hole, which was then terminated.

PC04DD03

It was decided to drill a second shorter hole, PC04DD03, about 30 m to the west of PC04DD01 (closer to the target), which would intersect the gold/PGE target between 50 and 60 m depth. This hole was terminated at 15.3 m due to the fractured nature of the ground and the probability of again losing rods down the hole.

SARGENTS NORTH DRILLING

PC04DD02

The Sargents North prospect is a gold/PGE prospect, 8 km south of Batchelor (Figure 3). It was explored and drilled by Normandy Mining in the mid 1990s and significant Au-Pt-Pd values were reported in several RC holes. A potential shallow resource of 20 000–30 000 t @ 3–4 g/t Au with associated PGE was suggested (Williams 1999a, b). This prospect is located in a 45° east dipping succession of tremolite chlorite schist assigned to the Coomalie Dolostone. The characteristics of this interesting and high-grade mineralisation (up to 13 g/t Au, 2.42 g/t Pt and 2.66 g/t Pd) are not

Figure 2. Gold Ridge prospect target zone, showing previous RC holes and NTGS diamond holes.
known. Normandy’s efforts to obtain a representative sample for mineralogical and petrographic studies by an angle diamond drill were hampered by very poor recoveries. The proposed intersection for PC04DD02, at about 60 m, had previously been intersected by Normandy Mining RC hole SNRC10.

PC04DD02 was a HQ3 vertically drilled diamond hole. Drilling commenced on the 18 October 2004 and was completed on the 19 October 2004. The total depth of the hole was 51.6 m.

The first 24.6 m was drilled with a HQ blade bit which gave no recovery. Due to the approaching depth of the target and the failure to hit any substantial rock, it was decided to switch to diamond coring to try and collect a sample. The geology from 24.6 m consisted of clay with quartz and dolostone fragments to a depth of 40.7 m. Recovery from this interval averaged around 50%, but did get as low as 10%.

A sample collected from very ferruginised material (possibly gossanised sulfide-rich vein), intersected in the interval 30.6–33.6 m, assayed 360 ppb Au and 36 ppb Pd. Pt was less than 5 ppb.

Coomalie Dolostone was intersected from 40.7 m to termination depth of 51.6 m. Recovery from this interval was above 95%; however the hole was terminated as the mineralised intersection had been passed.

The geology of this prospect had previously been interpreted as being Hematite Quartzite Breccia (HQB), but this unit was not encountered. Instead multi-coloured clay with quartz fragments was present. In the interval 33.6–41.0 m, the clay is yellowish brown and appears to be weathered dolerite.

**REHABILITATION**

All three drill sites were rehabilitated after drilling was completed. All sumps were backfilled, holes were plugged 0.3 m below ground level with a concrete plug and a metal plate attached to a chain was left in the ground at each collar location.

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**Figure 3.** Location of Sargents North prospect and drillhole PC04DD02.
The following photographs (Figures 4–9) show the drill sites before and after drilling:

**Figure 4.** Gold Ridge prospect, PC04DD01 drill site.

**Figure 5.** Gold Ridge prospect, PC04DD01 drill site after rehabilitation.

**Figure 6.** Gold Ridge prospect, PC04DD03 drill site.

**Figure 7.** Gold Ridge prospect, PC04DD03 drill site after rehabilitation.

**Figure 8.** Sargents North prospect, PC04DD02 drill site.

**Figure 9.** Sargents North prospect, PC04DD02 drill site after rehabilitation.
DRILL CORE PHOTOS FROM GOLD RIDGE PROSPECT, PC04DD01 (Figures 10–16)

Figure 10. Gold Ridge prospect, PC04DD01, 5.8 m–13.3 m.

Figure 11. Gold Ridge prospect, PC04DD01, 13.3 m–23.9 m.

Figure 12. Gold Ridge prospect, PC04DD01, 23.9 m–32.0 m.

Figure 13. Gold Ridge prospect, PC04DD01, 32.0 m–39.8 m.

Figure 14. Gold Ridge prospect, PC04DD01, 39.8 m–48.4 m.

Figure 15. Gold Ridge prospect, PC04DD01, 48.4 m–56.45 m.
Figure 16. Gold Ridge prospect, PC04DD01, 56.45 m–60.0 m.

Figure 17. Sargents North prospect, PC04DD02, 24.6–43.1 m.

Figure 18. Sargents North prospect, PC04DD02, 43.1–51.6 m.

Figure 19. Gold Ridge prospect, PC04DD03, 4.9–13.8 m.

Figure 20. Gold Ridge prospect, PC04DD03, 13.8–15.3 m.
REFERENCES


<table>
<thead>
<tr>
<th>Depth Interval (m)</th>
<th>Recovery</th>
<th>Geological Description</th>
<th>Formation</th>
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<td>NQ blade bit. No recovery</td>
<td>Sandstone scree</td>
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<tr>
<td>5.8</td>
<td>6.35</td>
<td>Purple sandstone</td>
<td>Wildman Siltstone</td>
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<tr>
<td>6.35</td>
<td>6.5</td>
<td>Quartz breccia</td>
<td></td>
</tr>
<tr>
<td>6.5</td>
<td>18.2</td>
<td>Fractured sandstone and quartz breccia (67% loss between 15.5 m–18.2 m)</td>
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<td>18.2</td>
<td>20.2</td>
<td>Weathered mica schist</td>
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<td>25.9</td>
<td>Grey quartzite (24.4–24.6 m granite vein)</td>
<td>Wildman Siltstone</td>
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<td>34.9</td>
<td>Red biotite granite. Chlorite alteration in fractures</td>
<td>Fenton Granite</td>
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<tr>
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<td>40.9</td>
<td>Dark grey schist with sulfide bands</td>
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<td>41.6</td>
<td>Fractured quartz vein with biotite</td>
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<td>56.1</td>
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<td>Fresh red granite, fractured</td>
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<td>8.7</td>
<td>Fresh red granite, fractured with 200 mm band of weathered granite</td>
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<td>9.3</td>
<td>Weathered granite/mica schist</td>
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<td>10.9</td>
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<td>Weathered fractured granite with pegmatite lenses</td>
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### NTGS DIAMOND DRILL HOLE LOG

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<td>Dark brown clay</td>
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<td>27.6</td>
<td>Grey brown clay with minor quartz and dolostone fragments</td>
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<td>30.6</td>
<td>33.6</td>
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<td>Yellow brown sandy clay. Possible weathered schist?</td>
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<td>39.6</td>
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<td>40.7</td>
<td>Yellow brown sandy clay +dolostone fragments</td>
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<td>Light grey dolostone</td>
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<td>51.6</td>
<td>Light grey dolostone</td>
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