Hyperion – understanding the geology of one of Prodigy Gold's key deposits

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Introduction

Gold mineralisation in the Tanami Region is typically associated with complex structural settings. In the case of the Hyperion deposit, mineralisation seems to be controlled by structures related to the Hyperion Shear. The Hyperion deposit is situated along strike of the Central Tanami Mine Corridor, which has a long gold mining history and currently hosts over 1.7 Moz of gold as reported mineral resources. This corridor includes the Groundrush deposit, which currently contains around 1.1 Moz of gold[4] and lies ~20 km southwest of Hyperion (**Figure 1**). The Hyperion deposit lies along the Supplejack Shear corridor, a key structural feature in the region. Prodigy Gold (Prodigy) has tenements covering roughly 60 km of strike length within this highly prospective terrain.

Prodigy recently announced an updated Mineral Resource Estimate of 8.64 Mt at 1.5 g/t Au, totalling 407 000 oz, reported at a 0.6 g/t Au cut-off grade[5]. This resource update incorporates data from the 2023 drilling program. Drilling conducted in 2024 yielded promising results, including

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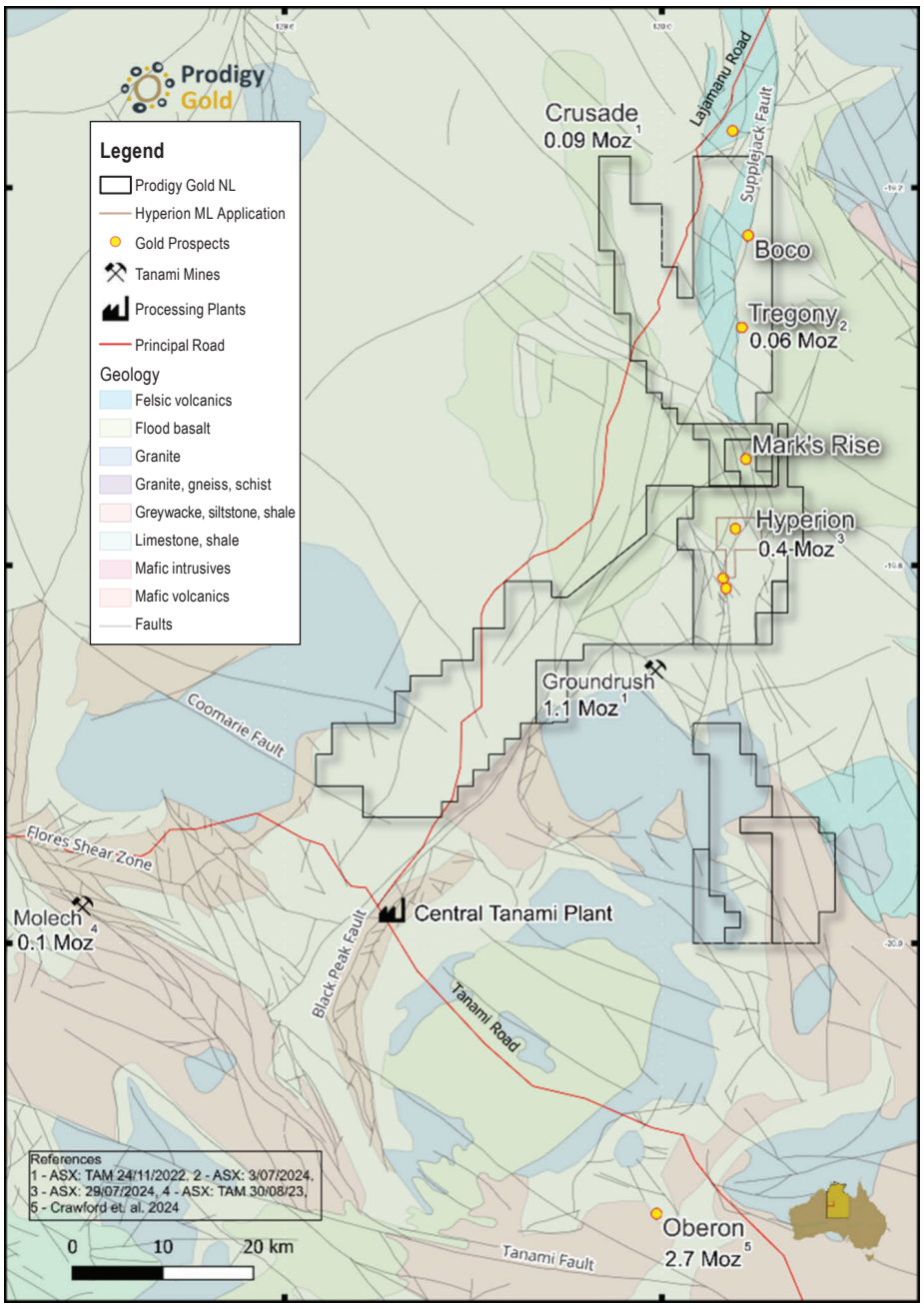

Figure 1. Location of Prodigy Gold's Tanami North project.

10 m at 15.9 g/t Au in drillhole HYRC24004 (177–187 m)[6]. These high-grade intercepts highlight the potential for both open-pit and underground mining scenarios. Furthermore, metallurgical testing has demonstrated gold recoveries exceeding 95% for the Seuss lodes, reinforcing the Hyperion deposit's economic potential.

Geology and mineralisation

The Hyperion deposit is characterised by a north-trending, steeply dipping mafic volcanic sequence interbedded with sedimentary rock, including siltstone and shale of the Mount Charles Formation. This formation has been thrust against, or over, the younger Killi Killi Formation; both part of the Tanami Group. The north-trending Supplejack Shear Zone (SSZ) runs the length of the belt and serves as the contact between these two formations.

The Hyperion deposit consists of several resource lodes, including the east-trending Hyperion–Tethys and Hyperion South lodes and the more north-trending Seuss lodes (**Figure 2**). The Seuss high-grade zone is controlled by the intersection of the Hyperion–Tethys structure and Mount Charles Formation mafic volcanic and sedimentary rock, resulting in steeply dipping high-grade shoots. Drilling in 2024 reported a significant high-grade intercept at depth within the Tethys lode (**Figure 3**) that seems to be a continuous lode of higher-grade mineralisation as seen in **Figure 4**.

[6] ASX: 22 October 2024

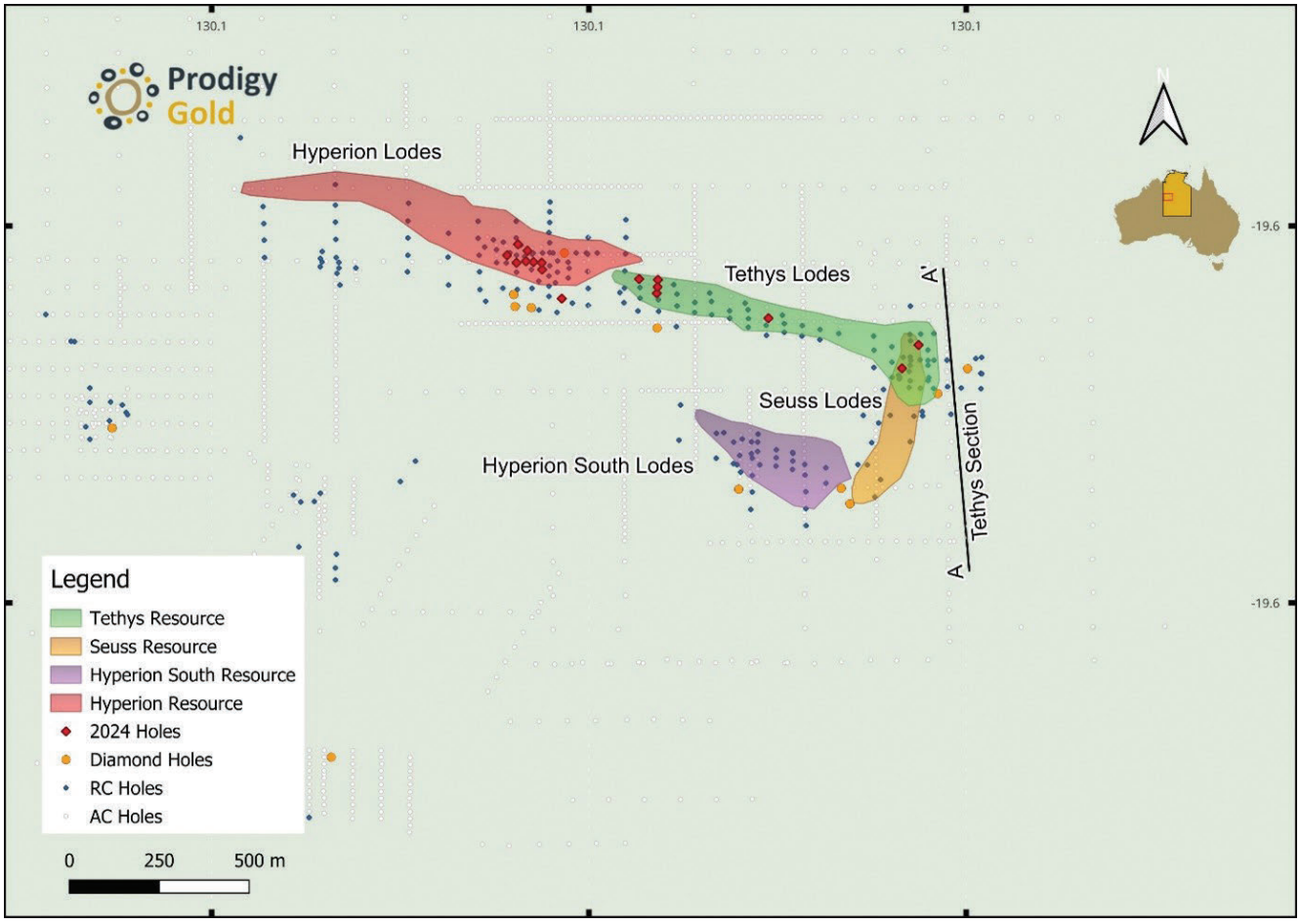

Figure 2. Mineralised lodes of the Hyperion deposit.

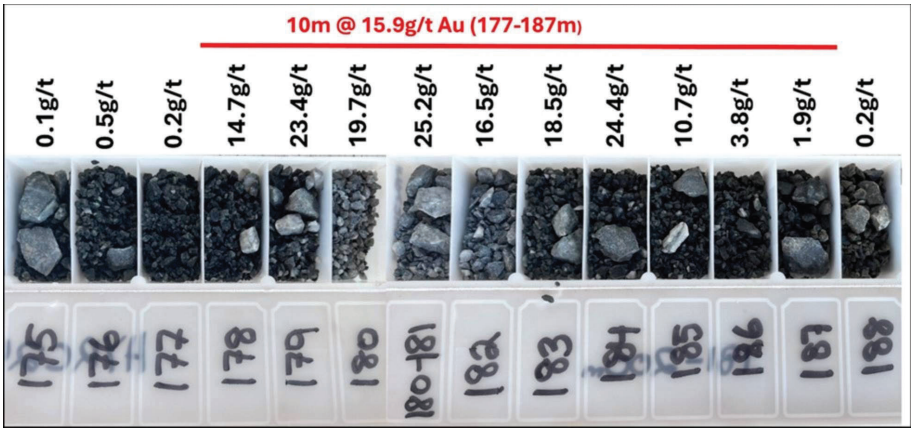

Figure 3. Chips from drillhole HYRC24004 highlighting grade of mineralisation through Tethys.

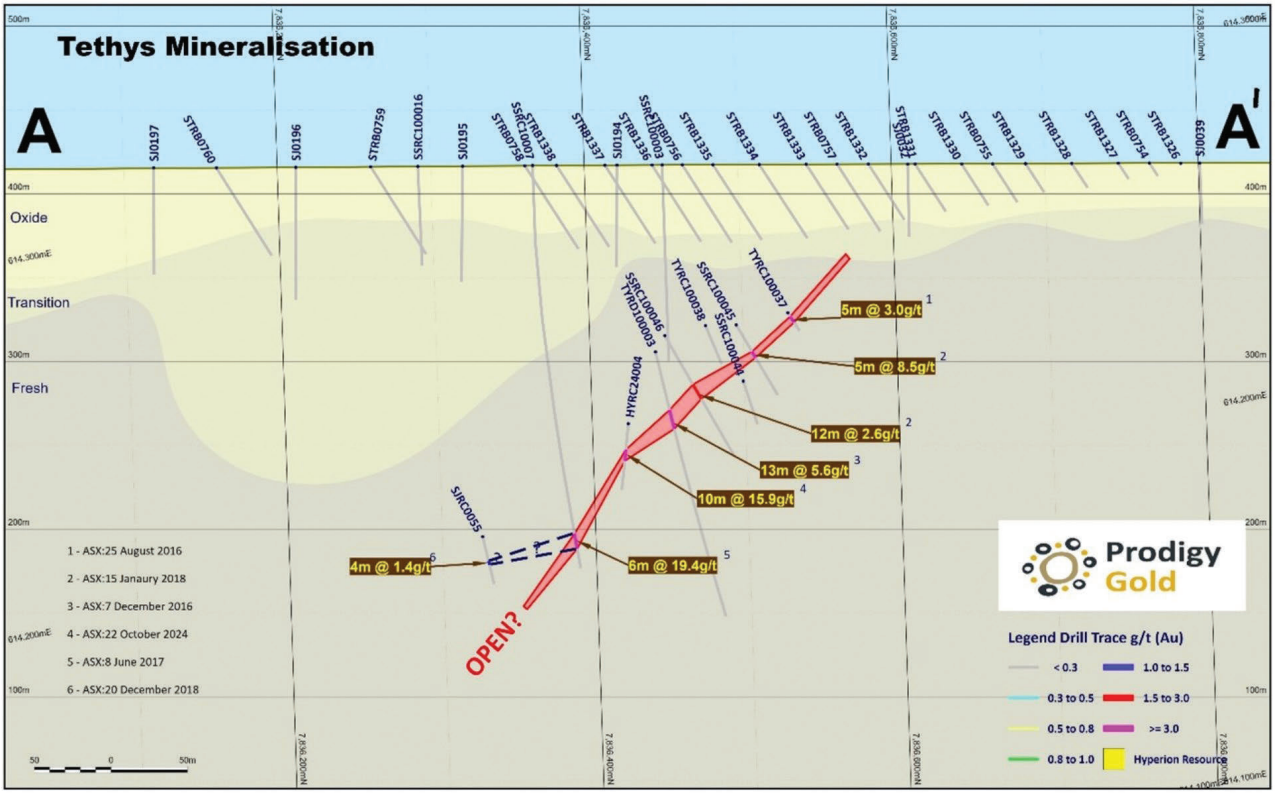

Figure 4. Section through the Tethys lode highlighting results from drillhole HYRC24004.

Granitic dykes have intruded along west-northwest-trending structures, with both the basaltic and granitic sequences hosting the mineralised quartz veins. Mineralisation is structurally controlled by west-northwest-striking faults that intersect the primary stratigraphic layering at a high angle; as well as the Hyperion Shear.

The Tanami Group experienced multiple phases of deformation during the Granites–Tanami Orogeny (GTO), leading to folding, thrusting, and faulting of these lithologies. Metamorphism peaked at lower- to mid-greenschist facies, with amphibolite facies developed locally near GTO-related granitic intrusions.

Previous petrological studies were completed at the Hyperion deposit on RAB and diamond drilling samples, mostly from the Hyperion lodes. This work confirmed that gold is identified in mesothermal-style quartz veining and breccia cement and shows similarities to the Groundrush deposit. The petrology has identified that gold is associated with bismuth, tellurium, silver and lead mineralisation, which is hosted by the granitoid lithologies, but there are some cases of disseminated gold in the meta-basalt/dolerite units. These findings supported the idea that the gold-rich fluid interaction with the more reactive, iron-rich meta-basalt/dolerite was a major control on the distribution of gold in the Hyperion deposit (Coote 2003). This work is only limited to the Hyperion lodes of the deposit, so more petrological studies would assist in understanding the mineralisation in the other lodes, such as Tethys and Seuss.

2024 Hyperion drilling

In 2024, Prodigy completed 17 RC drillholes totalling 1770 m at Hyperion. They covered the Hyperion, Tethys and Seuss lodes, yielding significant intercepts demonstrating a >30-gram metre interval (grade times width) based on a 0.5 g/t gold cut-off[5], including:

Hyperion lode
- 25 m at 2.2 g/t Au from 66 m in drillhole HYRC24001
- 33 m at 2.6 g/t Au from 49 m in drillhole HYRC24017A

Tethys lode
- **10 m at 15.9 g/t Au from 177 m in drillhole HYRC24004**
- 30 m at 2.9 g/t Au from 31 m in drillhole HYRC24006
- 13 m at 4.1 g/t Au from 26 m in drillhole HYRC24013

Suess lode
- 4 m at 7.7 g/t Au from 87 m in drillhole HYRC24004.

Drillhole HYRC24004 was drilled at a 70-degree angle to the east, to evaluate the Suess lode mineralisation within the oxidised zone, as well as a deeper intersection of the Tethys lode. The primary objective of this drillhole was to assess the eastern extent of the Tethys lode at depth. This was successfully achieved with a high-grade zone of 10 m at 15.9 g/t Au (**Figure 3**).

The mineralisation identified in drillhole HYRC24004 within the Tethys lode occurs along the hanging-wall contact between a dolerite of the Mount Charles Formation and a sericite-altered granitic unit. Quartz veining, arsenopyrite, and sericite alteration are observed, with higher-grade mineralisation correlating with zones of increased vein intensity.

Prodigy has been reviewing drillhole HYRC24004, together with all the drilling within this area, to decipher the

orientation of mineralisation and locate potential additional higher-grade shoots. Two historic drillholes, SSRC10007 and TYRD100003, also appear to intersect this high-grade zone of the Tethys lode above and below the new intersection reported in 2024 (**Figure 4**).

Drillhole SSRC100007 reported 6 m at 19.4 g/t (258–264 m)[7] including 3 m at 37.3 g/t Au (260–263 m) within dolerite and drillhole TYRD100003 reported 13 m at 5.6 g/t Au (184–197 m)[8], including a high-grade zone of 6 m at 10.1 g/t Au (188–194 m; **Figure 5**). Unfortunately, there are no structural measurements to assist in determining the vein orientation within this zone of drill core, due to its highly fractured nature.

The drill core from drillhole TYRD100003 has highlighted the style of mineralisation with sericite alteration identified in the brecciated core of the higher-grade zones. Additional diamond core drilling will assist in identifying the orientation of this faulted zone to allow for better targeting. The mineralisation in drillhole HYRC24004 identified the higher grades as being located on a dolerite/granite contact. Earlier petrological studies suggest this contact may be important when considering potential locations for high-grade mineralisation. These new drillholes will assist in identifying the relationship between these key lithological units.

Planned drilling – unravelling the local structural setting of the Suess lode

A review of the available drilling data for the deeper higher-grade zone within the Tethys lode made it apparent that some drillholes have not been drilled in a favourable orientation. Prodigy is planning two perpendicular deep diamond drillholes to assist with structure and mineralisation studies of the Tethys lode. One hole will drill through Seuss lodes closer to surface before intersecting the Tethys lodes as depth. No significant diamond drilling has been completed through the Seuss lodes to date, so this information will be critical for improving the understanding of this mineralisation, which is different to that in other lode systems at Hyperion.

While the diamond drill core will provide high quality samples for assaying and logging, Prodigy will also use downhole wireline logging for both drillholes to:

- provide accurate structural measurements of the orientation of mineralised veins, faults and lithological contacts
- improve paragenesis interpretation by assisting with the reconstruction of the sequence of vein formation and deformation events, by distinguishing different generations of veining and their relative timing
- potentially provide vectors to mineralisation by aiding in the recognition of structural controls on mineralisation such as preferred vein orientation or fold hinges
- assist mapping alteration halos
- potentially assist with defining plunge directions of ore shoots for future drilling.

Prodigy will also submit selected samples for petrology. There has been limited petrology done at Hyperion and historical petrology has outlined the difficulty in distinguishing basalt and dolerite of the Mount Charles Formation. Additional petrological work will also investigate

[7] ASX: 8 June 2017
[8] ASX: 7 December 2016

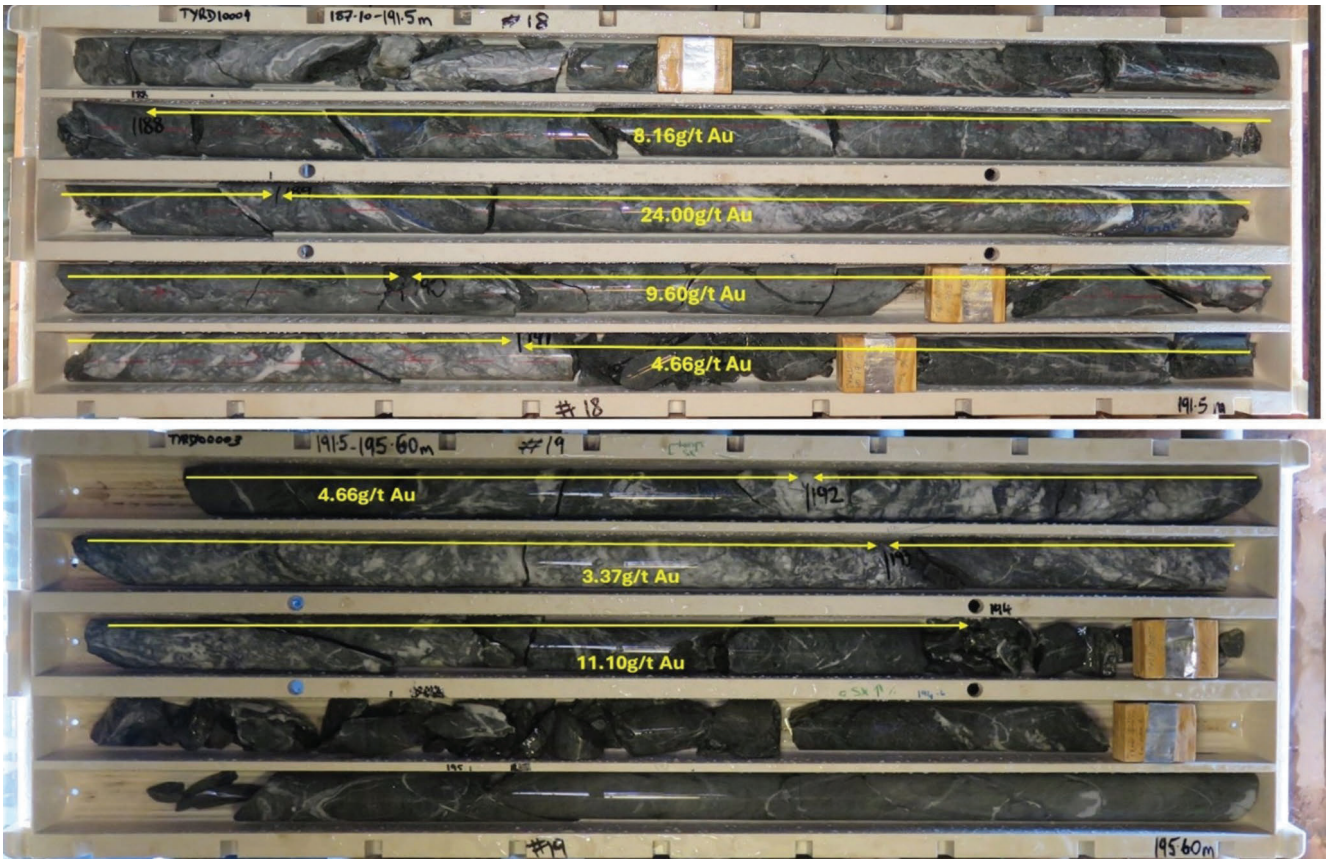

Figure 5. Drill core from TYRD100003 showing high-grade zone at 188–194 m.

the role that the lithologies play in the mineralisation of other lodes, as previous work was limited to the Hyperion lodes, but Tethys and Seuss mineralisation will be sampled in this drilling campaign.

Summary

Lithological logging at Hyperion presents challenges, particularly in distinguishing dolerite and basalt units. Understanding the relationship between granite and dolerite/basalt units is also crucial for identifying potentially mineralised zones. Additionally, the higher-grade Tethys mineralisation encountered in drillhole HYRC24004 demonstrates significant potential for discovering mineralisation within specific structural settings and opens the possibility for an underground mining opportunity.

Encouraging high-grade drilling results and favourable metallurgical results have reinforced the significance of the Hyperion gold deposit within Prodigy's exploration portfolio. Metallurgical testing indicates that gold from the Hyperion deposit is highly recoverable using standard gravity and CIL processing methods. Prodigy aims to expand the resource through further drilling and test work in the coming years, with the goal of advancing the project towards a development decision. Future studies to increase the understanding of the structural and geological controls on mineralisation will only assist with this future development and understanding the potential size of the Hyperion mineralised system.

Reference

Coote A, 2003. Petrological studies of RAB drill chip from the Hyperion Prospect, Tanami Desert. Applied Petrological Services Report 250. Second annual report for Exploration Licence 9250. 17th October 2002 to 16th October 2003. *Northern Territory Geological Survey, Open File Company Report* CR2004-0102.