Project development, resource growth and exploration for polymetallic mineralisation in the Pine Creek Orogen

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PNX Metals Ltd (PNX) purchased the Hayes Creek base metals and gold project in 2014 and has a farm-in arrangement with a subsidiary of Kirkland Lake Gold Ltd (KL Gold) to explore three major project areas within the Pine Creek Orogen. The primary focus of PNX is to bring the Hayes Creek Project’s Iron Blow and Mt Bonnie¹ mineral deposits (Figure 1) into production during 2019.

Despite some challenging times for junior explorers, PNX have drilled around 14 000 m within the last two years, investing in what is considered to be one of the most highly prospective, yet under-explored geological regions in Australia. This investment has positioned PNX perfectly to take advantage of rising base metal prices, particularly zinc, which hit a 9.5 year price high in February 2017. Valuable mineral resources have been identified and defined, preliminary economic viability has been demonstrated, and a low-risk pathway to production has been mapped out.

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³ Deposit name as referenced in ‘Geology and mineral resources of the Northern Territory’ is ‘Mount Bonnie’.

The Hayes Creek project consists of two small but valuable volcanogenic massive sulfide (VMS) deposits at Iron Blow and Mt Bonnie. These sites were both mined in small oxide campaigns in the 1980s, leaving the sulfide bodies largely untouched. A scoping study completed in March 2016 by PNX demonstrated strong financial returns and fast payback, largely because of low capital expenditure requirements, and the fact that the Mt Bonnie sulfide deposit is amenable to low cost open pit methods, a rarity in Australia. Both deposits have high-grade massive sulfide zones surrounded by low grade halos of carbonate alteration, hosted within carbonaceous mudstones near the base of the Mount Bonnie Formation.

An updated mineral resource was published for Mt Bonnie in early February 2017, and one for Iron Blow is imminent. Table 1 lists the contained metal estimates related to the published mineral resources. The base case from the preliminary economic study for the project is a 7 year mine life, processing about 400 000 t per annum to produce separate zinc and silver concentrates. A fully funded prefeasibility study is well advanced, with results to be delivered by 30 June 2017.

Figure 1. Location of Hayes Creek Project, and Iron Blow and Mt Bonnie deposits.
PNX are also looking to discover new mineral deposits that will secure the longer term success of the company. Several conceptual targets were explored in 2016 with the assistance of a co-funded Northern Territory government drilling initiative. In addition, there are numerous mineral occurrences throughout PNX’s farm-in tenements that are considered untested, or have never been subjected to modern geophysical or geochemical techniques. PNX is systematically reviewing and inspecting these numerous targets. The most encouraging recent advance has emerged at the Moline Project where a small RC drilling program in 2016 tested three mineralised structures. Drilling at all three structures returned near-surface, high-grade mineralisation at potentially mineable widths. Significant results include:

- **MORC002** 7 m at 11.9 g/t Au (115 m) including 3 m at 23.8 g/t Au (School Prospect)
- **MORC010** 30 m at 2.29 g/t Au (78 m) and 0.70% Zn (Tumbling Dice Prospect)

*Refer to ASX releases 5 December 2016 and 19 December 2016.*

The Moline mining area, only 1.5 km from the Kakadu Highway, was abruptly shut down in 1992 prior to depletion of mineral reserves. Moline has untested depth extensions down plunge from the existing shallow open pit mineralisation, plus an abundance of new targets. The association of zinc in many of the deposits has strong synergies with the Hayes Creek Project. With the project area located on granted mineral leases, Moline is considered a genuine opportunity for near term development, either in conjunction with Hayes Creek or as a stand-alone project.

The location of PNX’s projects is well suited for development, the mineral resources are of excellent quality, the exploration potential of the region is ripe for growth, and the timing is right for base metals.

### Table 1: Hayes Creek Project contained metal.

<table>
<thead>
<tr>
<th>Deposit</th>
<th>Resources (t)</th>
<th>Zn (t)</th>
<th>Au (oz)</th>
<th>Ag (oz)</th>
<th>Pb (t)</th>
<th>Cu (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron Blow</td>
<td>2 600 000</td>
<td>124 200</td>
<td>204 482</td>
<td>10 815 677</td>
<td>23 600</td>
<td>8 200</td>
</tr>
<tr>
<td>Mt Bonnie</td>
<td>1 545 619</td>
<td>58 068</td>
<td>66 776</td>
<td>6 322 779</td>
<td>17 294</td>
<td>3 402</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4 145 619</td>
<td>182 268</td>
<td>271 258</td>
<td>17 138 456</td>
<td>40 894</td>
<td>11 602</td>
</tr>
</tbody>
</table>

*Mt Bonnie figures are based on Indicated and Inferred Mineral Resources of 1.55 Mt at 3.8% Zn, 1.34g/t Au, 127t/t Ag, 1.1% Pb, and 0.2% Cu (refer ASX release 09 Feb 2017 for further details). Iron Blow figures are based on Indicated and Inferred Mineral Resources of 2.6 Mt at 4.8% Zn, 2.4 g/t Au, 130 g/t Ag, 10.9% Pb, and 0.3% Cu (refer ASX release 03 Nov 2014 for further details).*