CSA Global
Mining Industry Consultants

Mineral Resource Estimate

Iron Blow VMS Deposit, Northern Territory, Australia

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Report Prepared For

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Disclaimers

Purpose of this document

This Report was prepared exclusively for PNX Metals Limited ("the Client") by CSA Global Pty Ltd ("CSA Global"). The quality of information, conclusions, and estimates contained in this Report are consistent with the level of the work carried out by CSA Global to date on the assignment, in accordance with the assignment specification agreed between CSA Global and the Client.

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Results are estimates and subject to change

The interpretations and conclusions reached in this Report are based on current scientific understanding and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for absolute certainty.

The ability of any person to achieve forward-looking production and economic targets is dependent on numerous factors that are beyond CSA Global's control and that CSA Global cannot anticipate. These factors include, but are not limited to, site-specific mining and geological conditions, management and personnel capabilities, availability of funding to properly operate and capitalise the operation, variations in cost elements and market conditions, developing and operating the mine in an efficient manner, unforeseen changes in legislation and new industry developments. Any of these factors may substantially alter the performance of any mining operation.

Executive Summary

CSA Global Pty Ltd (CSA Global) was commissioned by PNX Metals Limited (PNX) to assist with geological modelling and to prepare a Mineral Resource estimate for the Iron Blow volcanogenic massive sulphide (VMS) deposit, located in the Northern Territory, Australia. The Mineral Resource estimate was required to be reported in accordance with the JORC Code[1].

CSA Global considers that data collection techniques are consistent with industry good practice and suitable for use in the preparation of a Mineral Resource estimate. High-quality diamond core and reverse circulation samples were used to interpolate grades into blocks using ordinary kriging. Several methods were used to validate the block model, including visual review and a comparison of sampling and block model grades. A three-dimensional block model representing the mineralisation was created using Datamine software.

The Mineral Resource is considered to have reasonable prospects for eventual economic extraction given the volume and grade of mineralisation, access to critical infrastructure, proximity to surface, and the potential to achieve economies of scale with dual development of the Mount Bonnie deposit.

The Mineral Resource estimate is shown in *Table 1*, reported above a cut-off grade of 1 g/t AuEq. The Mineral Resource contains approximately 119 kt of Zn metal, 20 kt of Pb metal, 7 kt of Cu metal, 9.9 Moz of Ag and 171 Koz of Au. All elements included in the gold equivalent calculation are considered to have reasonable potential to be recovered and sold.

Table 1: Iron Blow Mineral Resource estimate

JORC Classification	Lode	AuEq Cut-off grade (g/t)	Tonnage (Mt)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Au (g/t)	ZnEq (%)	AuEq (g/t)	Density (t/m³)
Indicated	East Lode	1	0.80	7.64	1.83	0.30	275	2.90	20.64	15.53	3.48
	West Lode	1	1.28	4.14	0.33	0.31	60	1.73	8.84	6.66	3.66
Total Indicated			**2.08**	**5.49**	**0.91**	**0.30**	**143**	**2.19**	**13.39**	**10.08**	**3.59**
Inferred	East Lode	1	0.02	0.48	0.34	0.16	132	6.01	13.65	9.43	2.91
	West Lode	1	0.02	0.76	0.96	0.13	109	1.02	5.90	4.44	2.88
	Footwall Gold	1	0.21	0.25	0.07	0.03	16	2.03	3.48	2.62	2.98
	Hangingwall Gold	1	0.04	0.06	0.09	0.01	6	1.68	2.57	1.94	2.79
	Interlode Gold	1	0.04	0.21	0.03	0.07	8	1.66	2.79	2.10	2.90
	Interlode Base Metal	1	0.12	3.52	0.32	0.14	35	0.69	5.87	4.42	3.18
Total Inferred			**0.45**	**1.11**	**0.18**	**0.07**	**27**	**1.71**	**4.38**	**3.30**	**3.00**
GRAND TOTAL			**2.53**	**4.71**	**0.78**	**0.26**	**122**	**2.10**	**11.79**	**8.87**	**3.48**

CSA Global recommends the following actions are completed to support the ongoing exploration effort at Iron Blow:

- The historical void model should be further validated and a work program designed to improve the accuracy of this model. This may involve geophysical methods (such as passive seismic, detailed 3D

[1] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

seismic, sonar and radar techniques or cross-hole seismic and radio-imaging), detailed assessment of historical data such as abandonment plans (which may be lodged with mines departments), making inferences from previous mining methods, drill hole void data or company report data. Discussions should be held with a geophysicist to discuss the relative merits and costs associated with each geophysical method. In addition to the requirement to deplete Mineral Resource block models, voids represent a significant safety risk in an operating environment. Most known open pit mining procedures involve demarcation and probe drilling prior to mining.

- In order to convert Inferred Mineral Resources to higher classification categories, further infill drilling is required. CSA Global recommends a drill spacing of 15 m E (along strike) by 15 m Z (down dip) to allow Mineral Resources to be considered for Measured classification, and a drill spacing of 25 m E (along strike) by 25 m Z (down dip) for Indicated Mineral Resources. Underground fan drilling would be recommended to support stope design if underground mining methods are adopted, while open pit grade control drilling would be recommended to support ore block delineation if open cut mining is adopted.
- A grade control pattern of 2.5 m to 10 m (E) by 5 m to 10 m (RL) is recommended initially over a 25 m or 50 m block, located in an area critical to early cash flow. This should be completed prior to start-up and would give a high level of confidence in local block estimates. This will enable detailed assessment of the geometry and grade of the mineralisation and allow drill spacing to be further assessed.
- There is limited drill hole information within the oxide and transitional zones. This area of the Mineral Resource is classified as Inferred should be drill tested as a matter of priority given the importance of early production on project economics. Density and analytical data should be collected from these holes.
- PNX should investigate base metal CRM results as a matter of priority. Many results from 2015 through 2016 are below the mean minus two standard deviation range. If there are issues with the CRMs, a complete set of new CRMs should be sourced from a supplier. Alternatively, if there were issues with the laboratory, the original assay results should be replaced with results from an umpire laboratory. A representative set of pulps should be selected initially to submit to an umpire laboratory to quantify the issue.
- Data storage systems, including back-up and security should be externally audited.
- Although the controls to the mineralisation are relatively well understood, continued development of the geological model is recommended to support future Mineral Resource estimation and establishment of the mine geology function. Further understanding of the different styles of mineralisation, and their geological controls, within the interpreted East and West Lodes in particular is required.
- Establishment of the mine geology system should be considered well in advance of mining. Systems to ensure development of the geological model, high-quality sampling, rapid capture and storage of data, QC assessment, robust ore block interpretation, minimisation of ore loss and dilution, production tracking and reporting, and reconciliation should be established.

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1 Introduction

1.1 Context, Scope and Terms of Reference

CSA Global Pty Ltd (CSA Global) was commissioned by PNX Metals Limited (PNX) to assist with geological modelling and to prepare a Mineral Resource estimate for the Iron Blow deposit (Iron Blow), located in the Northern Territory, Australia. The Mineral Resource estimate was required to be reported in accordance with the JORC Code[2].

1.2 Sources of Information

CSA Global has completed the scope of work largely based on information provided by PNX and has supplemented this information where necessary with publicly available information.

CSA Global has made all reasonable endeavours to confirm the authenticity and completeness of the technical data on which this report is based, however CSA Global cannot guarantee the authenticity or completeness of such third-party information.

The report author is not qualified to comment on any legal, environmental, political or other issues relating to the status of the tenements, or for any marketing and mining considerations related to the economic viability of Iron Blow.

CSA Global was provided with the information listed in Table 2 to complete the scope of work.

[2] Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The JORC Code, 2012 Edition. Prepared by: The Joint Ore Reserves Committee of The Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia (JORC).

Table 2: Information provided

Data file	Description
CRM Listing.xlsx	Listing of all certified standards used by PNX
CRMs and Blanks.xlsx	CRM and blank results
Gannet Certificates.pdf	Gannet standards certificate
Gannet CRM values.xlsx	Gannet standards certified values
Geopeko FA vs AAS Memo Iron Blow.pdf	Memorandum highlighting differences between AAS and Fire Assay results
OREAS 131a Certificate.pdf	OREAS 131a Certificate
OREAS 132b Certificate.pdf	OREAS 132b Certificate
PNX_NT_QAQC_DUPLICATES.xlsx	Duplicate results compiled
PNX_NT_QAQC_STANDARDS.xlsx	Standard results compiled
Special Certificate Andy Bennett 171215.pdf	Gannet holdings standard certificate
dh_Collars	Iron Blow collar data
dh_Survey	Iron Blow survey data
dh_ass	Iron Blow assay data
dh_Lith	Iron Blow lithology data
dh_HHXRF	Iron Blow hand held XRF data
dh_Magsusc	Iron Blow magnetic susceptibility data
dh_Structure	Iron Blow structure data
PNX_NT_DH_BulkDensity	Iron Blow density data
bocotr/pt.dm	Base of complete oxidation wireframe
tofrtr/pt.dm	Top of fresh rock wireframe
EastLodetr/pt.dm	East Lode wireframe
EL_v2tr/pt.dm	East Lode version 2 wireframe
WestLodetr/pt.dm	West Lode wireframe
WLv2tr/pt.dm	West Lode version 2 wireframe
FWAutr/pt.dm	Footwall gold rich lodes wireframe
HWAutr/pt.dm	Hangingwall gold rich lodes wireframe
HWAuv2tr/pt.dm	Hangingwall gold rich lodes version 2 wireframe
IL_AuAgtr/pt.dm	Interlode gold and silver rich zone wireframe
ILAuv2tr/pt.dm	Interlode gold and silver rich zone version 2 wireframe
IL_BMtr/pt.dm	Interlode base metal rich zone wireframe
ILBMv2tr/pt.dm	Interlode base metal rich zone version 2 wireframe

1.3 Prior Association and Independence

Neither CSA Global nor any of the authors of this report have any material present or contingent interest in the outcome of this report, nor do they have any pecuniary or other interest that could be reasonably regarded as affecting their independence. CSA Global's relationship with PNX is solely one of professional association between client and independent consultant.

1.4 Company and Author Summary

1.4.1 CSA Global

This report has been prepared by CSA Global, a privately-owned consulting company that has been operating from Perth, Western Australia for 30 years.

CSA Global provides multi-disciplinary services to clients in the global resources industry. CSA Global's services include project generation, exploration, resource estimation, project evaluation, development studies, mining operations assistance, and corporate consulting such as valuations and independent technical reports. CSA Global has worked for major clients globally and many junior resource companies. CSA Global personnel have been involved in the preparation of independent reports for listed companies in most international mining jurisdictions.

1.4.2 Authors

The principal author of this report is Aaron Meakin. Andrew Bennett authored sections of the report. Peer review was completed by David Williams.

Aaron Meakin, BSc (Hons), MAppFin, GradDipAppFin, MAusIMM (CP Geo), F Fin – CSA Global Manager – Resources

Aaron is a geologist with over 24 years' experience in mining, resource development and exploration. Aaron has significant mine production experience, having worked at both underground and open-pit operations. His Mineral Resource estimation experience spans a range of commodities and styles of mineralisation, including volcanogenic massive sulphide deposits.

Mr Meakin is responsible for the entire report.

Andrew Bennett, BSc (Hons), MAusIMM – PNX Exploration Manager

Andrew has over 20 years' experience in the exploration and mining industry with roles in a wide variety of geological settings at both junior and large companies. Andrew gained a solid technical background from exploration and underground mining positions with WMC Resources and BHP Billiton, where he was Chief Geologist during the Olympic Dam open pit expansion studies. Since then, Andrew has managed project developments, exploration projects and feasibility studies with junior iron ore, gold and uranium companies.

Mr Bennett is jointly responsible for the data collection and geological modelling sections presented in this report (Chapters 2 to 7).

David Williams, BSc (Hons), MAusIMM, MAIG – CSA Global Principal Resource Geologist

David is a highly-experienced resource geologist with over 24 years' experience in mine geology and resource estimation projects. He has worked on a variety of commodities including gold, iron ore, uranium, nickel laterite, graphite and copper in Australia, Indonesia and Namibia. David has expertise in grade control functions, mine production teams and the provision of geotechnical advice to senior mine management regarding risk minimisation.

Mr Williams peer reviewed the entire report.

1.5 Competent Persons Statement

The information in this report that relates to Mineral Resources is based on information compiled by Mr Aaron Meakin and Mr Andrew Bennett. Mr Aaron Meakin is a full-time employee of CSA Global Pty Ltd and is a Member of the Australasian Institute of Mining and Metallurgy. Mr Andrew Bennett is a full-time employee of PNX Metals Limited and is a Member of the Australasian Institute of Mining and Metallurgy. Mr Aaron Meakin and Mr Andrew Bennett have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Aaron Meakin and Mr Andrew Bennett consent to the disclosure of the information in this report in the form and context in which it appears.

2 Project and Exploration History

2.1 Background

Mount Bonnie and Iron Blow are part of the Hayes Creek Project which is 100% owned and operated by PNX.

2.2 Project Location and Access

Iron Blow is located within granted Mineral Leases approximately 145 km southeast of Darwin and 11 km east-northeast of the Hayes Creek Roadhouse, not far from the first discovery of gold in the Northern Territory in 1870 at Yam Creek, during construction of the Overland Telegraph line (Figure 1).

Access to Iron Blow is via the Stuart Highway to the Fountain Head turn-off (Ban Ban Road which is sealed), right onto the Mount Wells Road which is a good dirt road, and then right again onto Grove Hill Road. The site is also only 3 km south of the Adelaide-Darwin railway and about 10 km from the Stuart Highway.

Dirt tracks, which are generally accessible during the wet season, lead into the Iron Blow site (Figure 2). Alternatively, the Grove Hill Road can be accessed directly from the Stuart Highway a few kilometres past the Hayes Creek Roadhouse.

Overall, the site is very well situated, being close to the Stuart Highway, connected for the most part by good dirt and bitumen roads as well as being close to the Darwin-Adelaide railway line, a gas pipeline and grid power. The Hayes Creek Roadhouse is located 19 km by road and Kirkland Lake Gold Limited's (Kirkland Lake) Cosmo Mine village, utilised by PNX personnel, is only 30 km by road.

Numerous tourists travel through on their way to visit the historic Grove Hill Hotel, or Hay's Grave, which is part of the Northern Territory Goldfields tourist loop, and is popular during the dry season. Numerous prospectors and pig hunters also use the dirt tracks accessing the site.

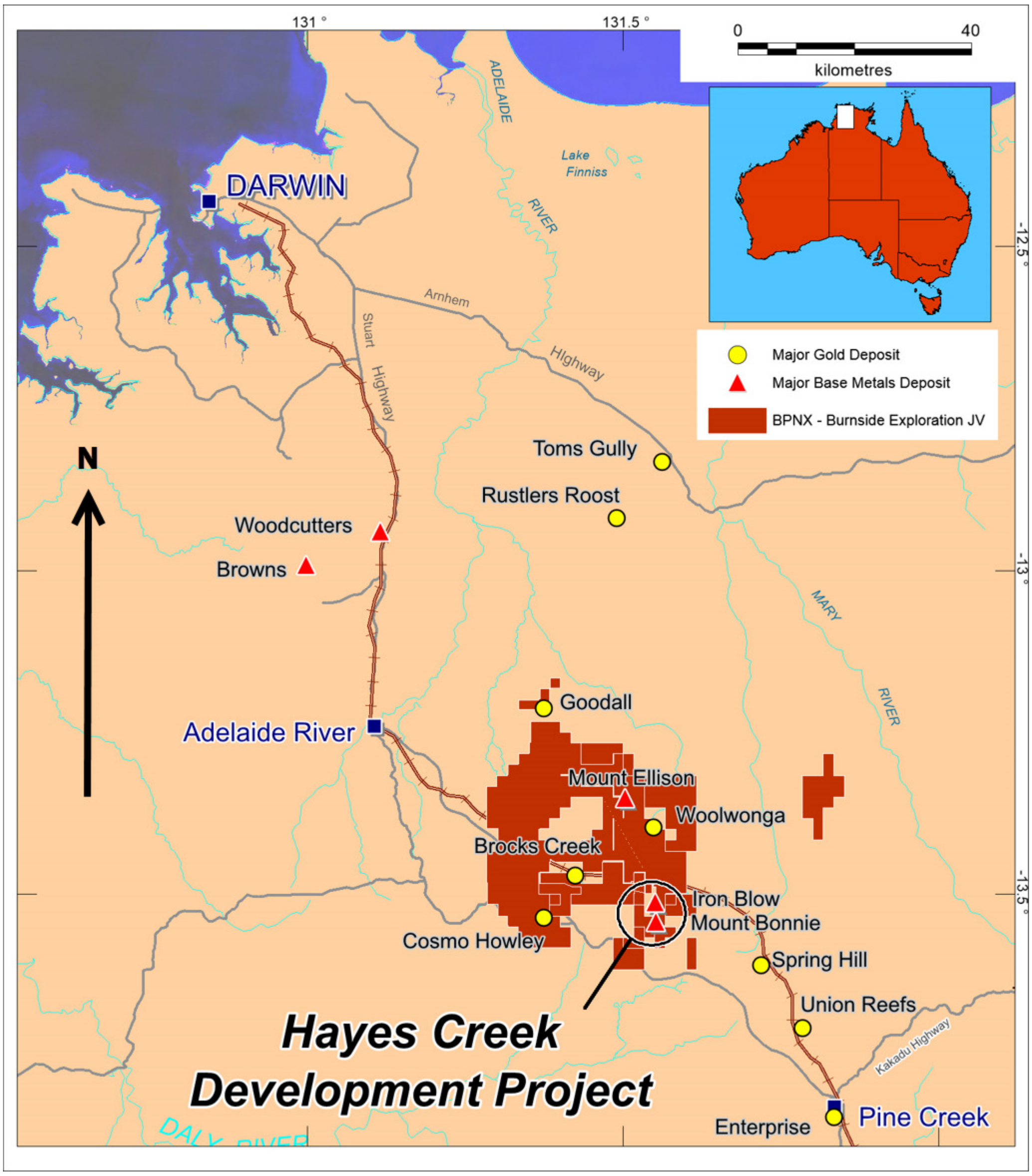

Figure 1: Project location (provided by PNX)

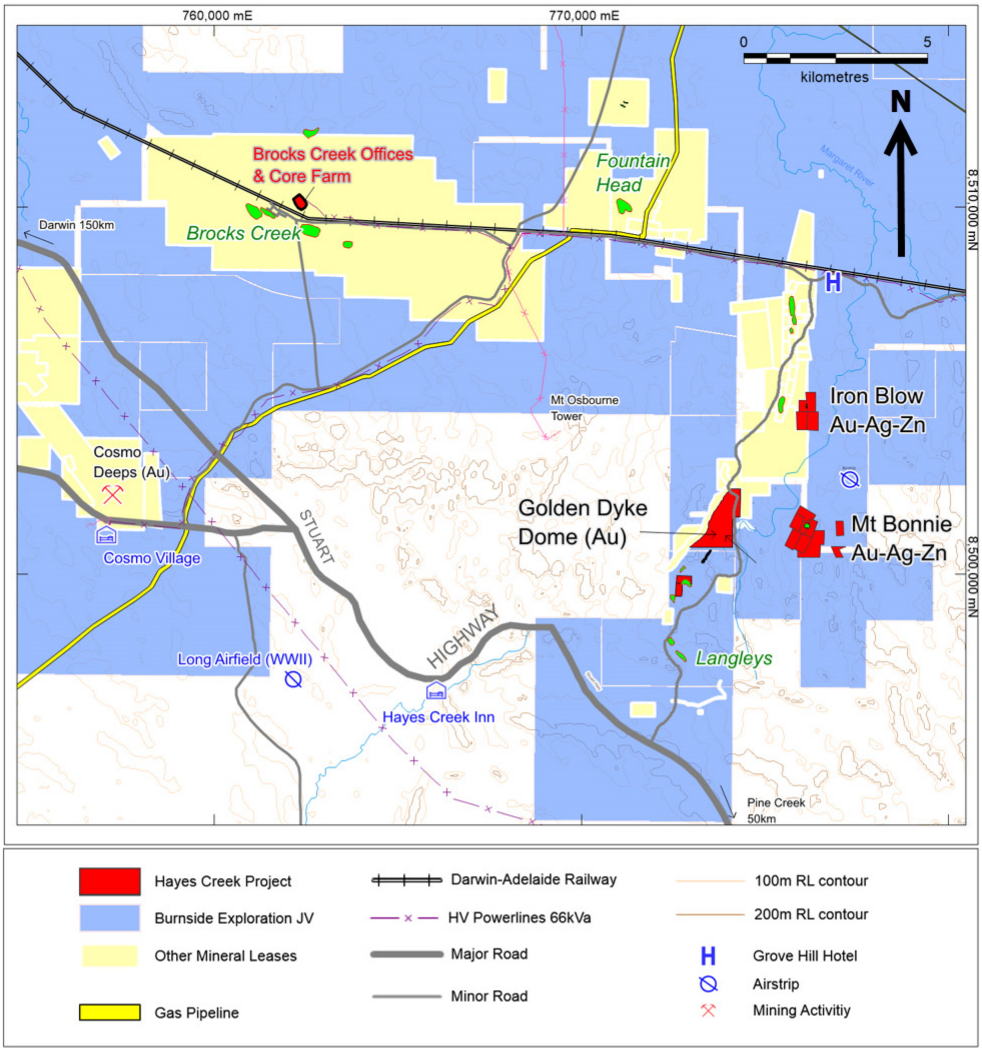

Figure 2: Map showing access to the Hayes Creek Project (provided by PNX)

2.3 Tenure

Iron Blow comprises four granted Mineral Leases totalling 51.07 hectares (Table 3), all 100% owned by PNX. These leases were first granted as far back as 1972, but have changed ownership many times since.

Table 3: Iron Blow tenement summary

Tenement	First Grant Date	Expiry Date	Area (ha)
MLN214	6/01/1972	31/12/2029	6.27
MLN341	7/06/1976	31/12/2026	14.9
MLN343	7/06/1976	31/12/2026	14.9
MLN349	26/11/1976	31/12/2026	15.0
Total Area			**51.07**

PNX purchased the Mineral Leases at Iron Blow and Mount Bonnie in 2014 from Crocodile Gold (now Kirkland Lake) for a sum of $1 and a 2% royalty over gold and silver in concentrate. Kirkland Lake has a clawback arrangement whereby they can purchase 30% of the project within six months of a prefeasibility study by paying PNX three times the incurred expenditure.

The Mineral Leases are currently underlain by Exploration Leases (ELs) EL25748 to east, and EL10120 to the west. EL25748 is subject to an earn-in arrangement with Kirkland Lake, whereby PNX can earn 90%

interest through staged expenditure commitments. As of January 2017, PNX has earned a 51% interest in these ELs. EL10120 is owned by a third party.

All mineral titles are situated within Perpetual Pastoral Lease 1217, NT Portion 07122, known as Douglas Station, held privately by Dr Tony Hayne. There are currently no pastoral activities in the area. PNX personnel have met with Dr Hayne and commenced a cooperative relationship. A formal access agreement was signed in 2016.

Native Title has been extinguished over the Mineral Leases, nevertheless PNX is taking cultural heritage into consideration during project development studies, and engaged consultancy group “In Depth Archaeology” to undertake a field assessment and archaeological report. The Iron Blow leases show evidence of extensive mining disturbance, however in undisturbed areas there is evidence for Aboriginal occupation consistent with the broader region. Given the significant extent of disturbance within the leases, the assessment concluded that there is very low risk of further Aboriginal sites within the work area.

Figure 3 shows the location of the tenements and infrastructure at Iron Blow. Tenement boundaries have been obtained from the digital records held on the NT Strike database, and require field verification. They are expected to be accurate to within about 20 m.

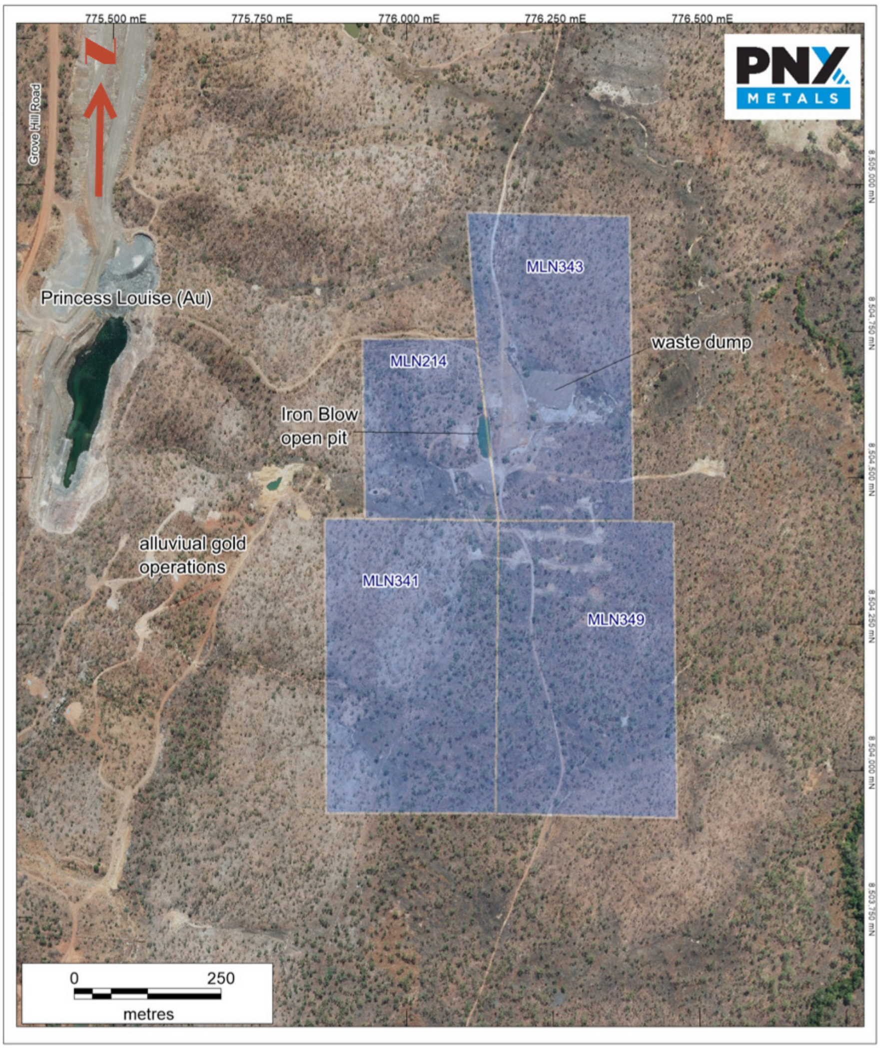

Figure 3: Iron Blow leases and infrastructure (provided by PNX)

2.4 Climate and Physiography

The climate of the area is monsoonal with very distinctive wet and dry seasons. The wet season extends from November through April and the dry season from May through October. Average rainfall for the area is approximately 1,160 mm with 80% of this falling from December through March.

Temperatures are high throughout the year. The mean daily maximum temperature is 33.8°C and the mean minimum daily temperature is 19.6°C, with very little variation on a monthly basis.

The area has an erosional landscape with rugged dissected tablelands and plateaus and steep to gently undulating hills and small rocky knolls. Folded rocks form north-south ridgelines. Erosion is active and there is little or no accumulation of soil on slopes. Ephemeral creeks run between the hills and ridges, however the drainage has been altered by previous mining activities around the mine site. The Margaret River and associated flood plain are about 500 m west of the mine site. The regional groundwater direction is to the north and groundwater levels are generally 25 m below the surface, depending on local topography.

A flora and fauna study was conducted near the area in May 2006 and March 2007. The survey found that historical mining and more recent exploration activities have resulted in considerable disturbance to all sites, with relatively low species diversity in the area. Feral animals are likely to be dominant and include buffalo, cattle, pigs, donkeys and cane toads.

The vegetation community on all undisturbed sites in the project area has been described as eucalypt open forest with grass understorey, dominated by Eucalyptus tectifica (northern box). Mid-storey species include Petalostigma spp. (quinine tree), Gardenia megasperma and Terminalia ferdinandiana (billygoat plum). This vegetation community is widely represented in the Northern Territory, covering an estimated total of 49,875 km^2.

A photo of the site is shown in Figure 4.

Figure 4: Iron Blow mine in 2011 (provided by PNX)

2.5 Infrastructure

In the vicinity of the mine site, the environment has been dramatically altered by past mining activities including dumps sites, dams, open cut excavation and road constructions (Figure 3 and Figure 4). A concrete lined shaft is well preserved immediately to the east of the small oxide pit. The open pit is incised into the side of a hill and the bottom of the pit is filled with water. The open pit is believed to have been developed to approximately 100 m RL to the base of oxidation, not far below the dry season water level. The waste rock dump is situated alongside the pit to the northeast and may contain low grades of gold and silver worthy of further investigation. Tracks to the Iron Blow leases are passable by 4WD all year round expect for short periods during the heaviest monsoons.

The site is situated adjacent to alluvial workings to the west which were active as recently as 2016, as well as the Princess Louise open pit which was last active in about 2011, and the Grove Hill Road, which is a major access thoroughfare for the area.

Communications at the site are quite good, with most of the site receiving Telstra 3G mobile phone coverage.

2.6 Project History

2.6.1 Summary

The Iron Blow project has a long history, shown diagrammatically in Figure 5.

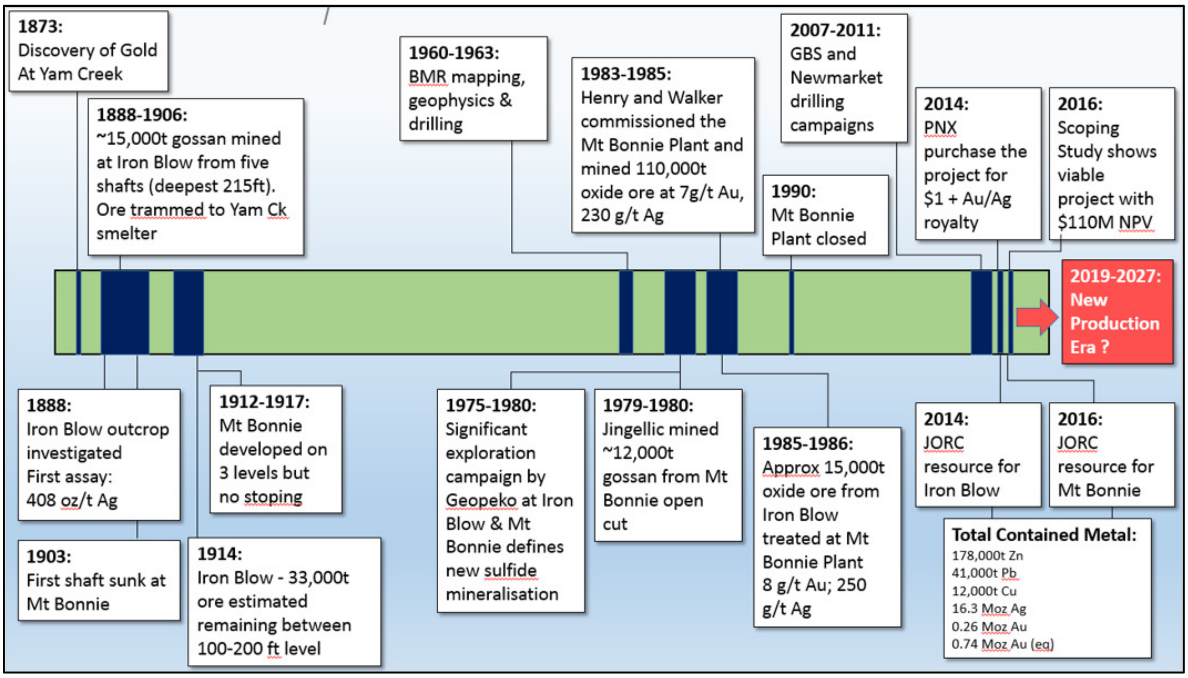

Figure 5: Iron Blow project timeline (provided by PNX)

The Iron Blow lode was apparently discovered in 1873 as part of the gold rush that followed discovery of gold during post-hole digging of the overland telegraph line at nearby Yam Creek. However, there was little work done on the ironstone outcrops while prospecting focussed on quartz reefs in the area, and presumably because the gold at Iron Blow could not be readily panned. The first investigations of the outcrop were around 1888 due to its supposed similarity with the newly discovered Broken Hill lode in New South Wales. The first assay result returned 408 oz per ton of silver. The lode was worked for the gold and silver content of the gossan and, when examined in 1891, it was reported that 20 t had been crushed for 10 oz of gold, 70 t had been crushed at 6 dwt gold per ton, and an 85-foot shaft had been sunk with a short northerly drive.

In 1896, the Iron Blow lease along with numerous other leases in the area were taken up by Northern Territory Gold Fields of Australia, and a pumping and winding plant was installed in 1898. In 1900, a shaft was sunk to 60 feet and 70 feet of drives were developed. Two tonnes of ore were sent to England for treatment. In 1901, the shaft was deepened to 100 feet. In 1903, a new three-compartment (4 ft 2" each) main shaft was sunk and lined with iron plate to 75 ft, and then timbered. New compressors, boilers and a winding plant were installed in 1904 to cope with the inflow of water. The company announced that an estimated 17,000t of sulphide ore was in sight, containing payable quantities of copper (averaging 7%), silver (averaging 9.21 oz/t) and gold (averaging 2.6 dwt/t). Another estimate given in this year included 14,000 of gossan ore grading 1% Cu, 12.65 oz/t Ag, and 7.8 dwt/t gold. These estimates were for ore above the 100-foot level, and the lode was reported to be 20 feet wide, and opened up for a length of nearly 400 feet.

In 1904 the Main Shaft was deepened to 215 feet, and the levels at 50, 80 and 100 feet were extended, with winzes sunk at these levels. 7,862 tons of ore drawn from these three levels and from the outcrop were smelted.

In 1905 a level was opened up at 200 feet, with drives to the north of 210 feet and drives to the south of 42 feet, with about 100 feet of crosscutting and some winzes from the 100 feet level. The ore was shown to exist in two lenses separated by 60 feet. No record is available of the amount of ore smelted in this year, but the smelter product (which may not be from Iron Blow) was 117.5 t. The ore was reportedly becoming poorer with depth to the 200-foot level. Sulphide ores were known to contain a complex mixture of copper, lead and zinc, with variable gold and silver. Zinc grading up to was 20% noted. Based on survey measurements, and the average of some hundreds of assays, the ore contained approximately 5 dwt/t Au, 12 oz/t Ag, 6% Zn, 5% Pb and 0.5% Cu, the rest being pyrite and 8 to 10% silica. Gossan grades were significantly enriched in gold and silver, averaging 11.5 dwt/t Au and 24 oz/t Ag. A small amount of auriferous "siliceous capping" material was also noted, varying from 1 to 10 dwt/t Au.

Mining consisted of 5 shafts, the deepest to 215 feet. The Eastern Lode was exposed in a shaft (No.2 South) 21 m to the south of the original open cut. The No.1 North Shaft was sunk on this lode to the north. The No 1 North Prospecting shaft was sunk on the dip of the Lode and to an unknown depth below the water level. These operations gave plans of the workings on the 100-foot level (84 m RL) and the 200-foot level (53 m RL). The ore was too low grade to be treated on its own and was blended with copper ore from Mt Ellison (20 km to the north of the smelter). Tramways extended north to Mt Ellison and south to Iron Blow from the smelter. The Yam Creek smelter ran from 1898 to 1906 and was located 2 km to the north of the Iron Blow Mine. The current Grove Hill road runs across the smelter floor and old slag may be seen by the roadside.

Between 1905 and 1906, Iron Blow was stated to be the most productive mine in the Northern Territory, but operations were curtailed due to low yields in the sulphide ores. During the first six months of 1906, 5,838 t ore were smelted before the mine was closed down and abandoned, and the shaft filled with water. One diamond hole ("B1") was drilled in 1906 but did not penetrate any lode.

No further activities are known until 1912, when Mr. Frank Powell examined the locality and plans. In response to his request, a diamond drill hole was put down by the Government to test the lode at depth. This hole ("B2") was drilled to 467.5 feet and dips –65 degrees westerly. "Lode matter" was intersected downhole between 377.5 and 454 feet. The core was assayed in bulk only, over two sections:

- 377.5 to 439 feet: 0.53% Cu, 4.5% Zn, 2 dwt/t Au, 13 dwt/Ag.
- 439 to 454 feet: 0.16% Cu, 7.0% Zn, 19 dwt/t Au, 13 dwt/Ag.

Mr. Powell apparently did no further work on learning the low nature of the assay results.

George Buttle then took up the lease and re-opened the mine with government subsidy. Attempts to dewater the shaft were only successful to the 100-foot level. On inspection, more stoping and consequently less ore remained than what was expected above the 100-foot level. An assay plan prepared before the mine was closed showed 33,000 t of ore between the 100 and 200-foot levels.

During 1914, Mr. Buttle placed machinery in position at the mine, much of which was loaned by the Department from the Zapopan mine. A new reverberatory furnace was also erected. The plant was ready to commence smelting operations, but the outbreak of war disorganised metal prices, and Mr. Buttle found it necessary to surrender mine and plant to the Government.

To summarise early underground production, despite incomplete records, it is reasonable to assume that approximately 15,000 t of ore were mined. It is likely that there is no ore remaining above the 100-foot level, however most of the mineralisation between the 100 and 200-foot levels remains, as the long sections indicate minimal stoping, and subsequent drilling has intersected mineralisation between these levels.

No further records are known until Hossfield (1937) and Rayner and Nye (1937) published geological and geophysical reports respectively of the Iron Blow area. A geophysical survey was conducted using the electro-magnetic and self-potential methods. The data showed possible indications of the lode continuing to the north.

In 1963 the NTA Mines Branch under agreement with United Uranium NL drilled six holes into the deposit, (IBDDH1 to 6, Rix, 1964). Of these 6 holes, 3 intersected ore. IBDDH1 hit the Eastern Lode with an interval of 6 m @ 7.6% Zn, 1 g/t Au and 30.8 g/t Ag, IBDDH2 hit the Western Lode with an interval of 12.4 m @ 3.16% Zn, 1.06 g/t Au and 24.8 g/t Ag, and IBDDH5 hit the Western Lode; grades were very low. IBDDH3 and 4 were sighted on geophysical anomalies and did not intersect anything, while IBDDH6 was drilled under the Eastern Lode.

A Geopeko-BHP joint venture explored the Iron Blow deposit, known as “Quest 53”, from 1975, and undertook detailed geophysical analysis. 13 core holes were drilled (Q53-S/9 – S/19 with two wedges) eight of which intersected massive sulphide (Goulevitch, 1978). This established a maiden “resource”. This drilling confirmed that the Iron Blow deposit is comprised of two stacked lenses, and was significant in identifying a southerly extension of the surface lodes.

In 1983 a mill was established at Mount Bonnie, 3 km to the south. In 1984, the Mount Bonnie Gold Unit Trust (MBGUT) undertook a costeaning program, with 11 costeans known (IBCOST1–11). Anomalous results to the west of the old open pit encouraged drilling of three shallow percussion holes, (PH1–3) but narrow widths and low grades discouraged further work in this area. Also in 1984, the MBGUT drilled a diamond hole into the eastern sulphide lode (“D20”). Reasonable assay and metallurgical test results encouraged the rehabilitation and dewatering of the main shaft. It was planned to enter the 100 and 200-foot levels to obtain grade and tonnage data of unmined material, and to collect more metallurgical samples, however, poor ground conditions in the shaft meant that this was only successful on the 100-foot level. The underground workings were dewatered and the 100-foot level was surveyed, but the shaft was only cleaned out to 41 m.

Henry and Walker and the many and varied corporate identities conducted two open cut mining campaigns with ore being treated for gold and silver recovery at the nearby Mount Bonnie Mill, which was then operating as a Merrill-Crowe plant. Approximately 10,000 t of gossan oxide ore grading 8 g/t Au and 250 g/t Ag was treated in 1985, and another campaign of 5,000 t at similar grades was undertaken in 1986. Grade control trench sampling data and level plans have been sourced from this era.

On completion of oxide mining, the deposit went through another series of ownership changes, during which time it is believed nine diamond holes were drilled in 1988, “D20 to D24” to the west and “D26 to D30” to the east, initially for MBGUT and then for the Tanami JV. This data has never been reported and is only available in partial hardcopy plans and notes sourced by PNX. Geological logs are complete, but assay data is incomplete.

In 2005, GBS Gold Australia (GBS) purchased the assets of Northern Gold and in 2008, GBS drilled six diamond holes (IBDH001–006), the highlight of which was IBDH006 which intersected 48.36 m @ 9.1% Zn, 3.53 g/t Au, 429 g/t Ag, 3.37% Pb and 0.27% Cu from 94.94 m. Conclusions from this work were:

- Mineralisation consists of multiple parallel massive-sulphide lodes dipping at approximately 70°E;
- True widths existed of up to 18 m of massive sulphides; and
- Elevated gold grades associated with zinc together with discrete gold intervals occurred peripheral to the massive-sulphides.

Kirkland Lake (then Crocodile Gold) picked up the liquidated assets of GBS in 2009 and undertook a Mineral Resource estimate in accordance with Canadian Securities Administrators’ National Instrument 43-101 standards. An Inferred Mineral Resource of 3.175 Mt @ 2.08 g/t Au, 3.28% Zn, 101 g/t Ag, 0.76% Pb and 0.19% Cu was reported, using a 1 g/t Au cut-off.

In 2009, the area was covered with a very detailed airborne magnetometer and radiometric survey commissioned by Thundellara exploration over adjacent exploration tenure. Line spacing was 25 m. In 2011, Kirkland Lake commissioned a versatile time domain electromagnetic (VTEM) survey at 150 m spacing over the wider Hayes Creek area which identified strong conductive and magnetic bodies over Iron Blow and Mount Bonnie.

Also in 2011, Kirkland Lake drilled a further 13 diamond holes (IBDH007–022), the highlight of which was IBDH007, which intersected a number of mineralised lenses, including one assaying 20.3 m @ 13.92% Zn, 5.89 g/t Au, 482 g/t Ag, 3.1% Pb and 0.61% Cu from 192.95 m. Waste dump sampling in 2012 showed that there is potential value in reprocessing the waste. In 2014, a detailed drone survey produced a detailed high-quality topographic and aerial photo dataset. The deposit was however deemed unsuitable for Kirkland Lake's Union Reefs gold plant, and the property was sold to PNX (then Phoenix Copper Limited).

PNX reported a Mineral Resource in accordance with the JORC Code and undertook small drilling campaigns in 2014 (IBDH023 and 024). In 2015, PNX completed fixed loop downhole EM over the whole deposit and a small RC program to the north of the pit (IBRC025–027) before commencing a major infill program in 2016.

2.6.2 Historical Grade-Tonnage Estimates

Grade and tonnage estimates were reported at Iron Blow by previous operators, but Mineral Resources were not reported in accordance with the JORC Code.

Geopeko reported that the "Upper Lode" (or Eastern Lode) contained 92,000t, averaging 400 g/t Ag, 8.1% Zn, 3.0% Pb, 0.4% Cu and 4.3 g/t Au. The Lower Lode (or Western Lode) was larger and of lower grade comprising 887,500t averaging 87.3 g/t Ag, 6.7% Zn, 0.7% Pb, 0.4% Cu, and 1.9 g/t Au. These are considered 'Historic Resources" and are not to modern JORC standards.

2.6.3 Previous Mineral Resource estimates

CGA completed a Mineral Resource estimate in accordance with Canadian Securities Administrators' National Instrument 43-101 standards in 2009. AMC Consultants Pty Ltd (AMC) prepared a Mineral Resource estimate which was reported in accordance with the JORC Code in 2014. A summary results is provided in Table 4.

The CGA Mineral Resource estimate was reported above a cut-of-grade of 1 g/t Au while the AMC Mineral Resource estimate was reported above a cut-off grade of 0.7 g/t AuEq above –90 m RL and 3.0 g/t AuEq below –90 m RL.

Table 4: Historical Mineral Resource estimates, Iron Blow

Reference	Year	Tonnes (Mt)	Au g/t	Ag g/t	Zn %	Pb %	Cu %	Classification
NI43-101 Report by Odessa Resources Pty Ltd	2009	3.2	2.08	101	3.28	0.76	0.19	Inferred
814007IronBlowResourceModelINF_Rev4	2014	2.6	2.4	130	4.8	0.9	0.3	Inferred

3 Geological Setting and Mineralisation

3.1 Regional Geology

The Mount Bonnie and Iron Blow deposits are situated within the Pine Creek Orogen, which has been interpreted as an intracratonic basin lying on Archaean basement containing a 14-km thick sequence of deformed Proterozoic sediments deposited from 2.2 Ga to 1.87 Ga.

The sedimentary sequence is dominated by pelitic and psammitic (continental shelf shallow marine) sediments with locally significant inter-layered cherty tuff units. Strata of the South Alligator Group and lower parts of the Finniss River Group evolved from initial low energy shallow basinal sedimentation to higher energy deeper water flysch facies. Pre-orogenic mafic sills of the Zamu Dolerite event (~1.87 Ga) intruded South Alligator Group formations.

During the Top End Orogeny (Nimbuwah Event ~1.87 Ga to 1.85 Ga) the sequence was tightly folded, faulted and pervasively altered with metamorphic grade averaging greenschist facies, with phyllite in sheared zones.

The Cullen intrusive event introduced a suite of fractionated calc-alkaline granitic batholiths into the sequence from ~1.84 Ga to 1.80 Ga. These high temperature I-type intrusives induced strong contact metamorphic aureoles ranging up to (garnet) amphibolite facies, and created regionally extensive biotite and andalusite hornfels facies.

Less deformed Middle and Late Proterozoic clastic rocks and volcanics have an unconformable relationship to the older sequences. Flat-lying Palaeozoic and Mesozoic strata along with Cainozoic sediments and proto-laterite cementation overlie parts of the Pine Creek Geosyncline lithologies. Recent scree deposits sometimes with proto-laterite cement occupy the lower hill slopes while fluviatile sands, gravels and black soil deposits mask the river/creek flats areas.

Figure 6 is a plan showing the regional geology.

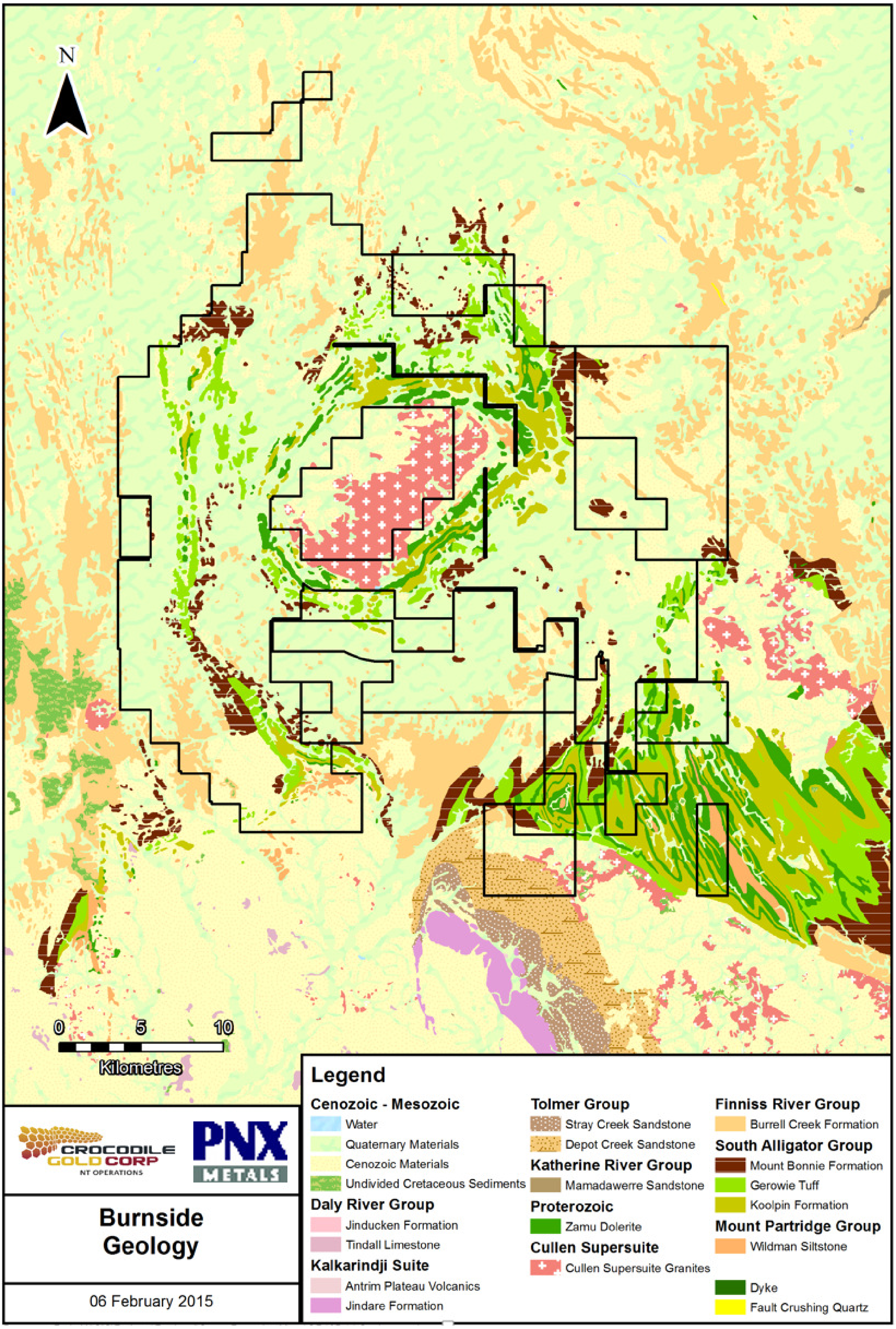

Figure 6: Regional geology (provided by PNX)

3.2 Deposit Geology and Mineralisation

3.2.1 Lithology, Structure and Alteration

The Mount Bonnie and Iron Blow deposit occupy approximately the same stratigraphic location near the bottom of the Mount Bonnie Formation, close to the contact with the underlying Gerowie Tuff. Both are mineralogically similar deposits, thought to be volcanogenic massive sulphide (VMS) deposits formed at or near the sea floor by submarine felsic volcanic activity. The fumaroles circulated metal-rich hydrothermal fluids into the local sediments. These units were then deformed at approximately 1875 Ma during an event which produced open upright folds in the sedimentary sequence. The folds strike approximately north-south and plunge to the north. The deposits were rotated down towards the north-south trending axis of the Margaret Syncline and lie more or less on their sides. Both deposits have been partly dismembered by east-west trending cross faults and sheared by thrust faults operating approximately along the bedding planes. The massive sulphides possibly represent ductile boudins in the more brittle enclosing sedimentary package and are the focus for shearing and offset faulting which occurred during the folding (Russell, 2014).

The key sedimentary units consist of the Gerowie Tuff (dark grey, silicified felsic tuff and tuffaceous siltstone), overlain by a sequence of turbidity current-related mudstones, siltstones and grey sandstones (the Mount Bonnie Formation). Mineralisation is stratiform, located near the base of the Mount Bonnie Formation sequence. Later intrusion of granite batholiths in the region has not substantially affected mineralisation. The area has remained structurally stable since Proterozoic times and has been under continuous erosion.

There are three main elements identified in the mine sequence:

- The "Hangingwall Series" comprises a monotonous sequence of mudstone and greywacke-dominant turbidites with weak carbonate–pyrite-silica alteration near the base. A thick greywacke is a distinctive marker horizon within the Hangingwall Series.
- The "Mineralised Series" occurs at a sharp contact, probably an unconformity subject to late shearing. Typically, the section comprises two separate massive sulphide zones ("lodes") separated by mudstone, tuff and breccia with commonly strong carbonate alteration ("the interlode"). The majority of economic mineralisation lies within the massive sulphide zones, but significant gold mineralisation and patchy base metal mineralisation also occurs in the interlode zone. This has also been described as the "silicate lode" by previous workers and possibly as the "pebble breccia" unit as described by Goulevitch (1980). The breccia's may form part of a vent zone which is schematically interpreted (Figure 9) on the footwall side.
- The "Footwall Series" occurs below the mineralised zone. Alteration (particularly chlorite, but also talc-carbonate-pyrite) suggests a calc-silicate rock. Brecciation and alteration is initially intense but decreases with depth until the section phases back to monotonous turbidites.

The local geology at Iron Blow and Mount Bonnie is shown in Figure 7.

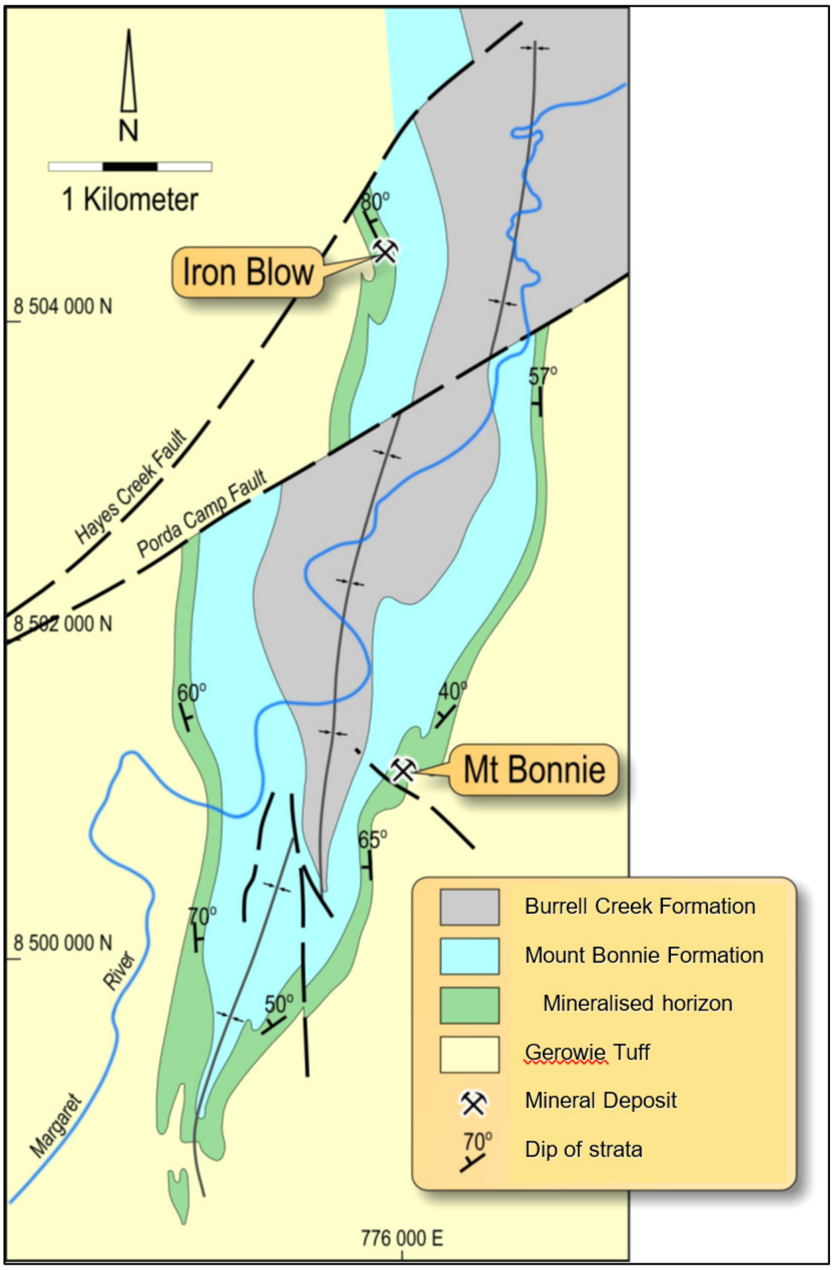

Figure 7: Local geology at Iron Blow and Mount Bonnie (provided by PNX)

A typical stratigraphic section for Iron Blow is shown in Figure 8.

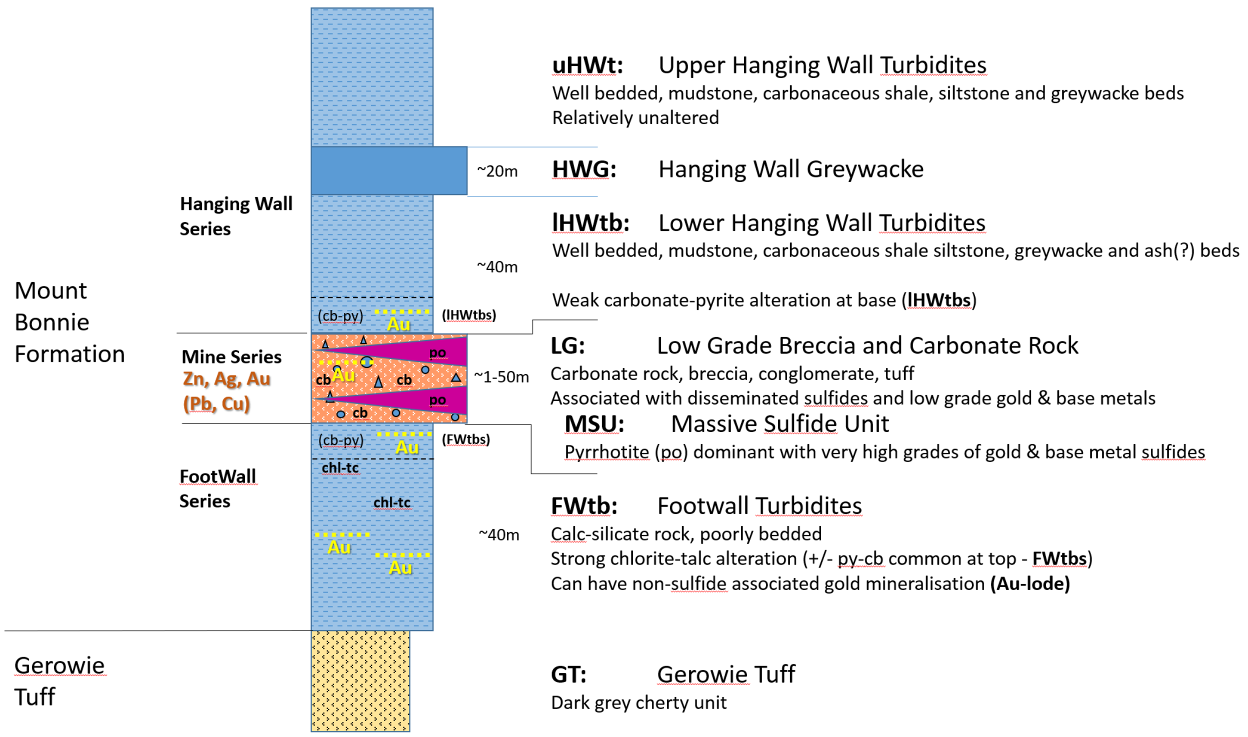

Figure 8: Schematic stratigraphic column for Iron Blow (provided by PNX)

The original geometry of both deposits has been distorted by folding which produced the Margaret Syncline. The Mount Bonnie deposit has been tilted to the west and forms a body dipping relatively consistently to the west at about 45°. The Iron Blow deposit has been tilted steeply to the east at about 70° with local anastomosing and lensing of sulphide zones evident from underground level plans. Both deposits are considerably dismembered by east-west, northeast and northwest trending faults. A schematic geological plan, and two cross-sections illustrating the geometry of the deposit and showing recent intersections are shown in Figure 9, Figure 10 and Figure 11. Long Sections for the East and West Lodes showing metal accumulation are shown in Figure 12 and Figure 13 respectively. A composite Long Section is shown in Figure 14.

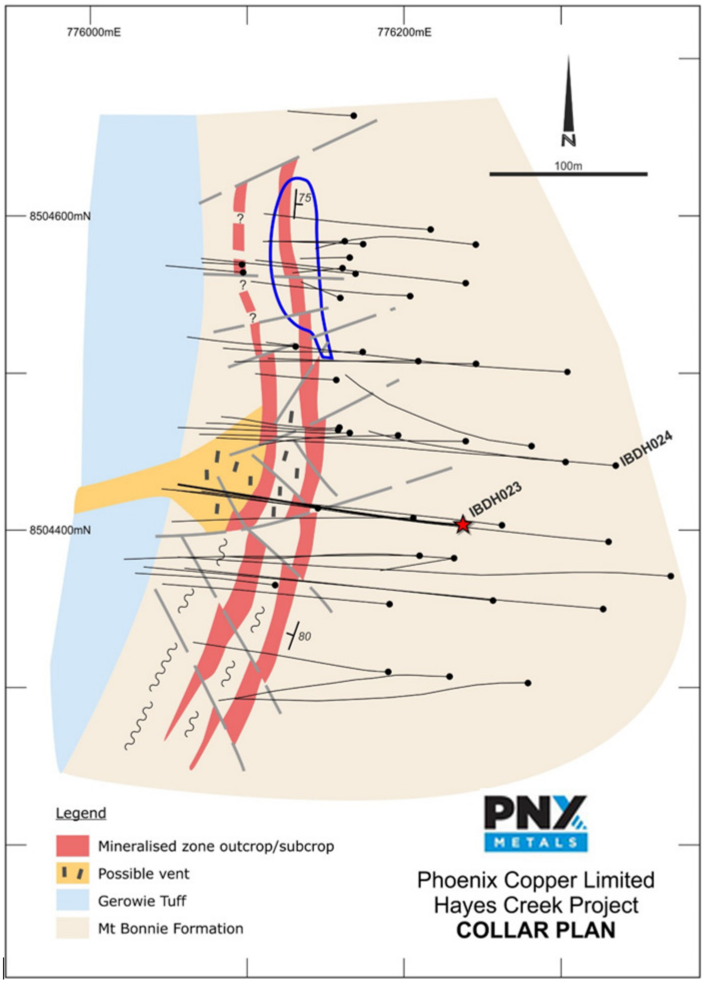

Figure 9: Iron Blow Geological Plan (provided by PNX)

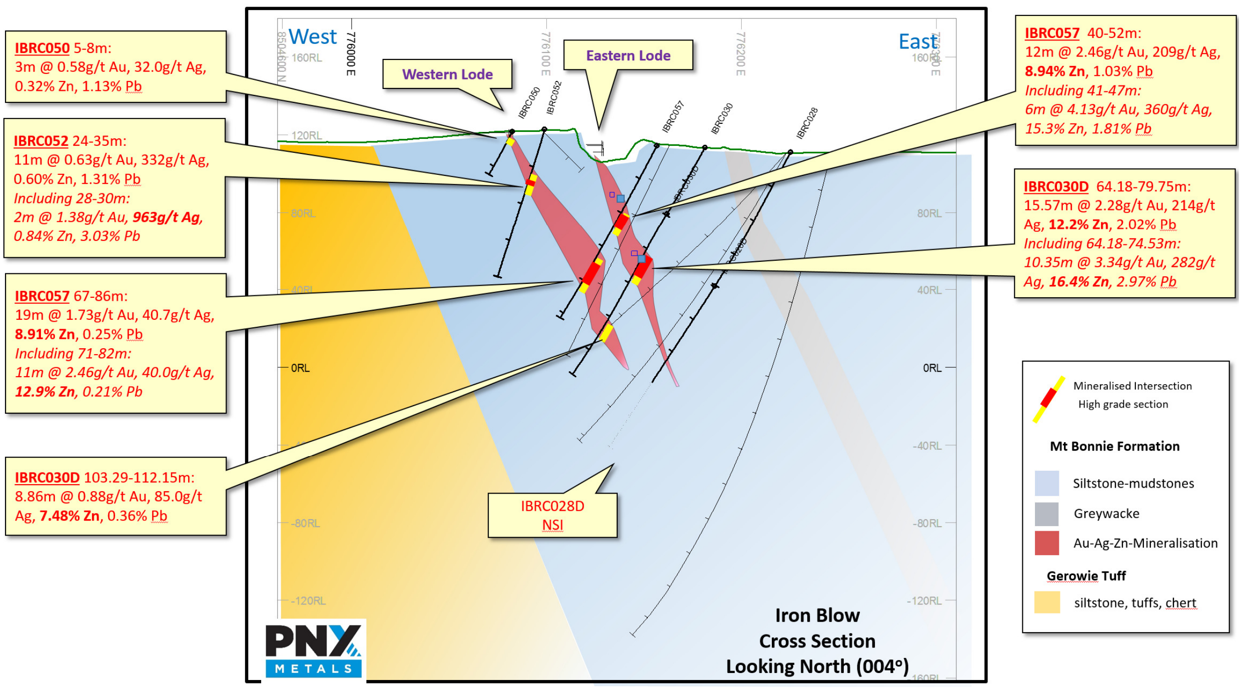

Figure 10: Iron Blow Geological Cross-Section 1 (provided by PNX)

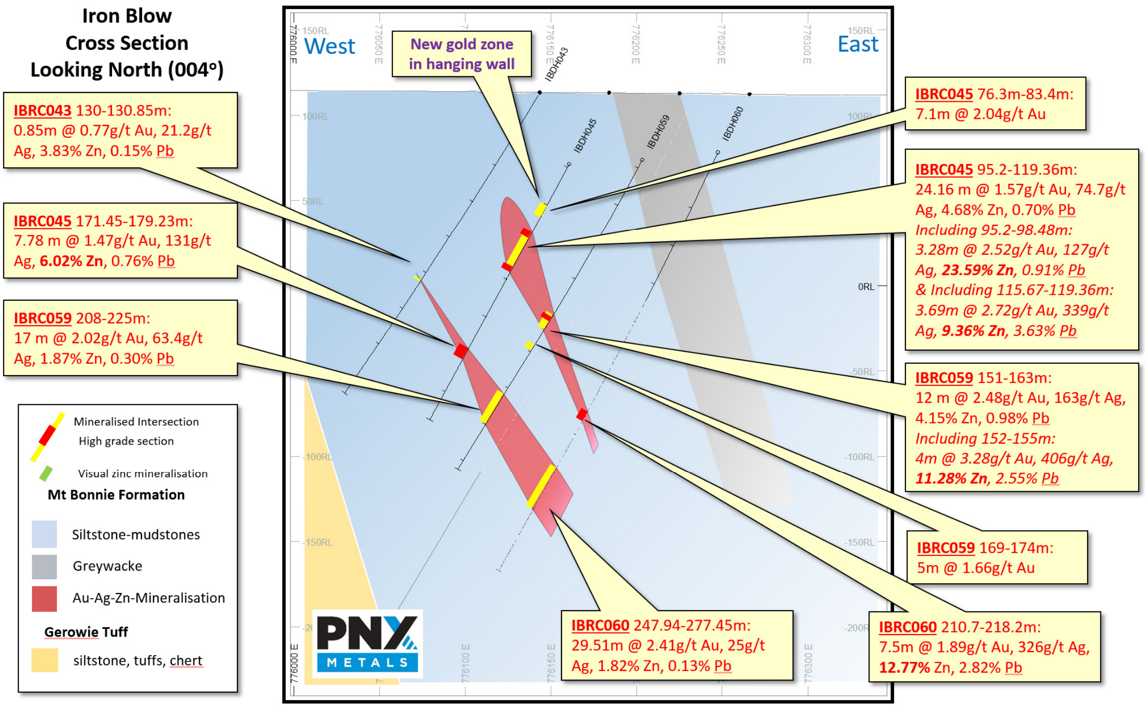

Figure 11: Iron Blow Geological Cross-Section 2 (provided by PNX)

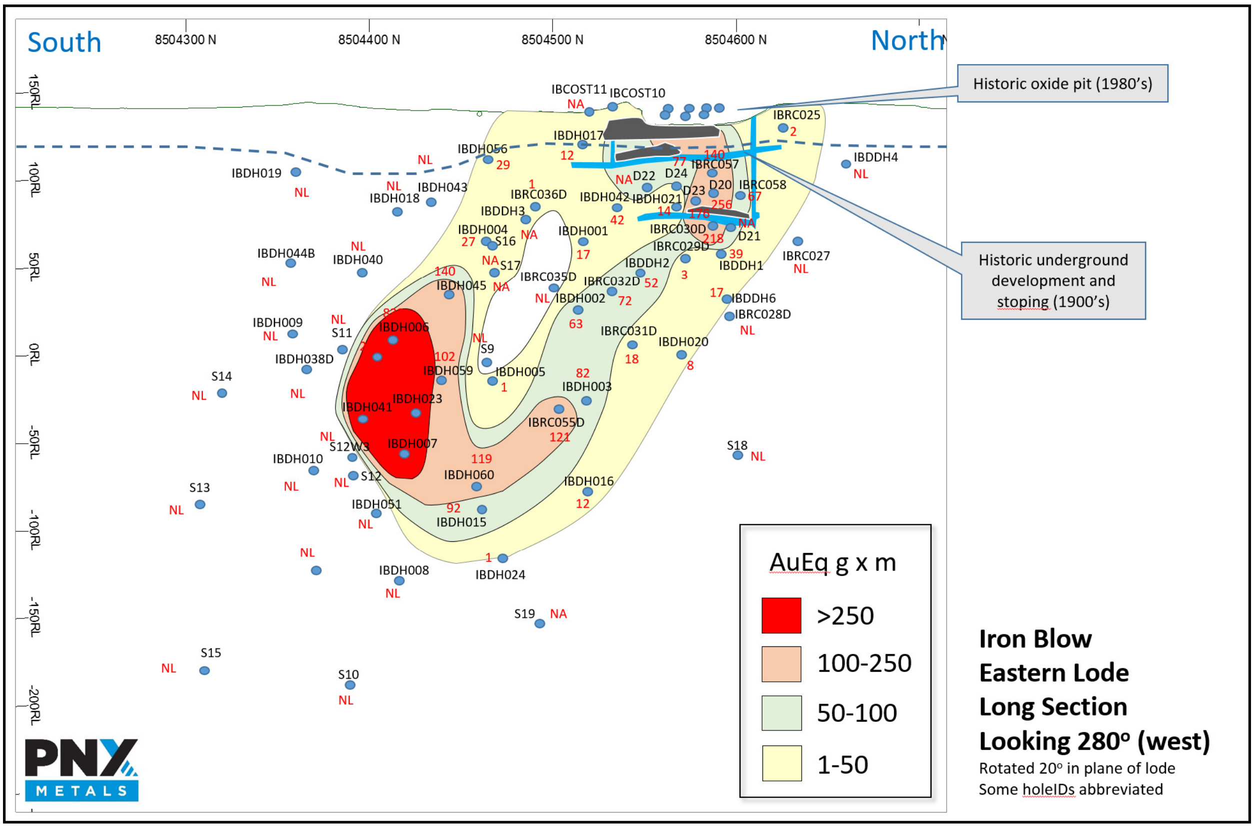

Figure 12: Long Section East Lode (provided by PNX)

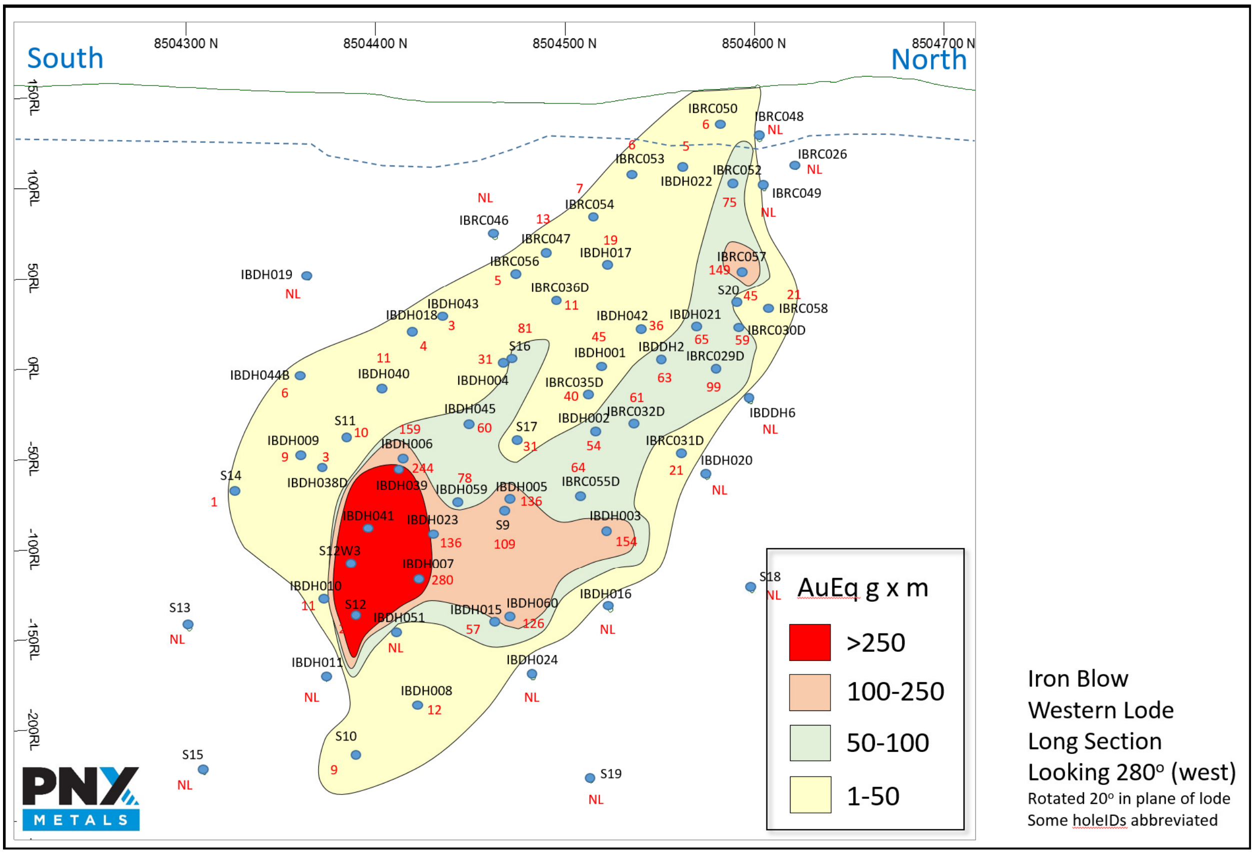

Figure 13: Long Section West Lode (provided by PNX)

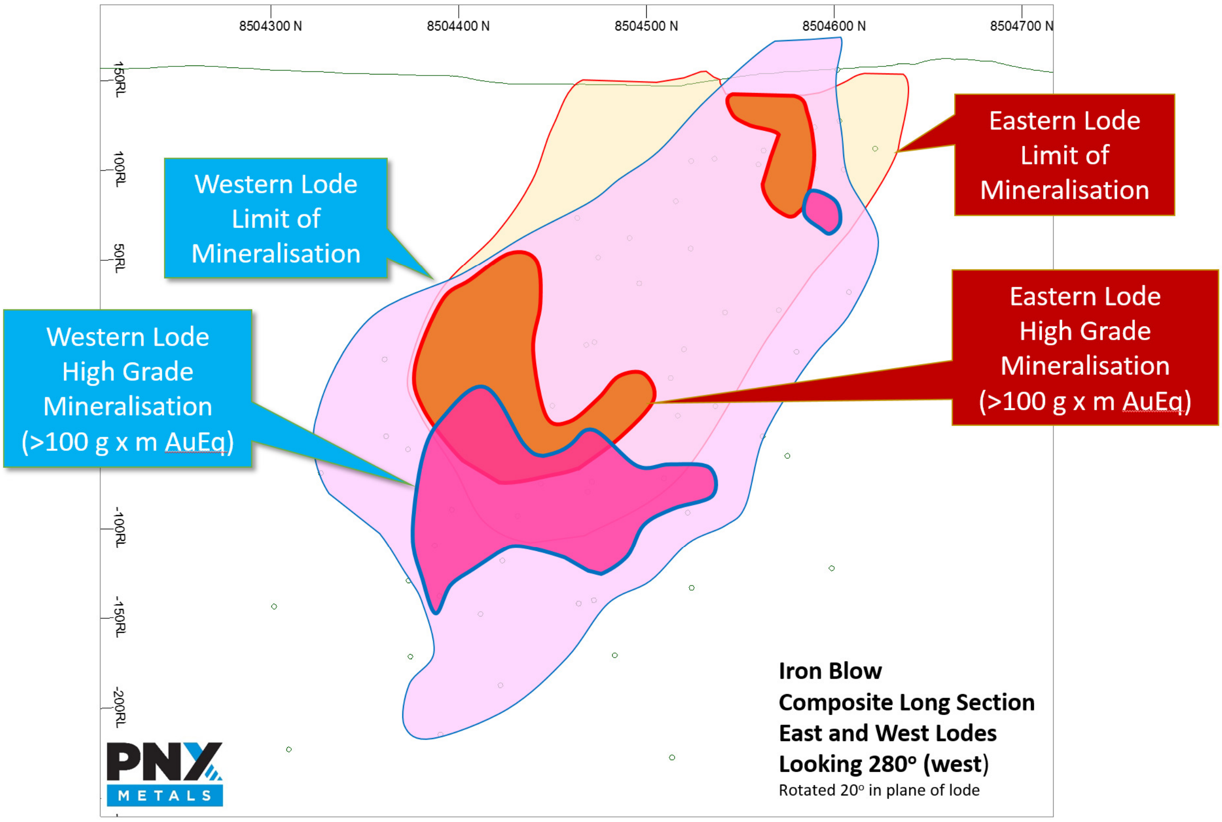

Figure 14: Composite Long Section East and West Lodes (provided by PNX)

3.2.2 Summary of Mineralisation Controls

The Iron Blow deposit lies near the bottom of the Mount Bonnie Formation close to the contact with the underlying Gerowie Tuff. Like Mount Bonnie, Iron Blow is thought to be a VMS deposit formed at or near the sea floor by submarine felsic volcanic activity. The fumaroles circulated metal-rich hydrothermal fluids into the local sediments. These units were then deformed at approximately 1875 Ma during an event which produced open upright folds in the sedimentary sequence. The folds strike approximately north-south and plunge to the north. The deposit was rotated down towards the north-south trending axis of the Margaret Syncline and now lies on its side. The Iron Blow deposit has been partly dismembered by east-west trending cross faults and sheared by thrust faults operating approximately along the bedding planes. The massive sulphides possibly represent ductile boudins in the more brittle enclosing sedimentary package and are the focus for shearing and offset faulting which occurred during the folding.

4 Sampling Techniques and Data

4.1 Drilling Data

4.1.1 Drilling Techniques and History

A summary of drilling data by campaign is provided in Table 5. 101 holes have been drilled in total at Iron Blow for 18,225.75 m.

Two holes were drilled at Iron Blow in the early 1900s, and the location of these holes could not be confidently determined. The Bureau of Mineral Resources (BMR) then completed 6 diamond holes in 1963. Geopeko Limited (Geopeko) completed 13 holes from 1976 through 1982, and MBGUT/Tanami Joint Venture drilled 10 holes from 1983 through 1988. These holes are collectively termed “Historic Drilling” in this report.

GBS Gold Australia Corporation (GBS) completed 6 holes in 2008. Crocodile Gold Australia Pty Ltd (CGA), now Kirkland Lake, completed 13 holes in 2011 and then PNX drilled 48 holes since 2014. These holes are collectively termed “Modern Drilling” in this report, and comprise approximately 70% of the total dataset.

Table 5: Iron Blow drilling history

Year	Company	Holes	Hole Size	Hole Type	Metres	Hole IDs
Historic Drilling						
1906, 1912	Government	2	NR	NR	278.17	B1 – B2
?	Government	3	NR	NR	134.5	PH1–3
1963	BMR	6	NX, BX, AX	DD	712.33	IBDDH1–6
1976–1982	Geopeko	13	NQ, BQ, ?	DD/RCD	3,969.75	Q53-S/9–S/19
1983–1988	MBGUT/Tanami Joint Venture	10	?	DD/RCD	681.7	D20–D30 (renamed to Q53-S/ prefix)
Modern Drilling						
2008	GBS	6	HQ	DD	1,516.4	IBDH001–6
2011	CGA/Kirkland Lake	13	HQ	DD	3,839.7	IBDH007–22
2014	PNX	48	5.5”/HQ	RC/RCD/DD	7,093.2	IBDH023–024, IBDH039–045, 051, 059, 060, IBRC025–058
Total		**101**			**18,225.75**	

4.1.2 Drill Sample Recovery

Drilling recoveries are recorded by PNX for both RC chips and diamond core. In RC chips, the recovery is visually estimated based on the size and weight of the sample bag and residue. Excellent recoveries were observed in dry samples and reasonable recovery was observed in wet samples, although with some loss of fines. Some core loss, particularly in the oxide zone is due to friable material and natural cavities.

Recoveries in diamond core were high below the level of oxidation. In the few holes that have intersected the mineralisation in the oxide zone, larger core losses were observed due to washing of clays.

4.1.3 Logging

Modern Drilling

Modern diamond core is available in the Brocks Creek sample storage compound and all of it has been viewed by PNX geologists. Comprehensive logs capturing lithological, mineralogical, magnetic susceptibility, geotechnical, and portable x-ray fluorescence (pXRF) data are available in (mostly) consistent format, and all data has been imported into a Microsoft Access database. All core stored at Brocks Creek has been photographed wet and dry.

Recent core has been oriented using a Reflex ACE tool which has enable high quality structural data to be collected as alpha, beta and gamma measurements, converted using publicly available software to MGA grid readings.

Historic Drilling

Historical drill core has been logged, however the quality of the logging cannot be verified given that the original core is not available. Detailed logs backed up with thin section petrography provide in most instances a reliable record of each hole.

4.1.4 Sampling Techniques and Sample Preparation

Modern Drilling (PNX)

All core sampled has either been quartered or halved for assay using an Almonte core saw housed in the sample storage facility at Brocks Creek. Selection of sample intervals is based on geological intervals, and is typically half core at approximately 1 m intervals within mineralised zones, and quarter core at approximately 3 m intervals within barren zones. One-metre samples are collected at least 3 m outside of mineralised zones. Where there is good previous information suggesting no mineralisation is likely, then no sample was taken in some instances. The remaining core was retained for future use. The choice of intervals for assay was assisted by the use of pXRF devices.

The cut line for drill core is along the apex of the foliation or mineralisation, i.e. it bisects the maximum curvature of the bedding/foliation plane. Therefore, when the core is cut, there should be two similar pieces, each revealing the maximum alpha angle. Crosscutting features such as quartz veins, breccias or dykes may have cut-lines drawn differently, but with the same principle of obtaining equally representative halves. The half core with the orientation line and metre marks is preserved in the core tray, not in the sample.

RC samples were collected using a riffle splitter (2015) or cone splitter (2016) mounted on the drilling rig at the bottom of the cyclone at regular 1 m intervals to collect a 1/8th fraction for assay and a 7/8th fraction for logging. The splitter was blown out and cleaned after each 6 m drill rod to reduce contamination. In non-mineralised zones, some 1 m samples were composited up to 3 m using a separate riffle splitter or spear, and some samples were not submitted but are stored for possible future use.

The vast majority of samples were prepared and assayed at North Australian Laboratories Pty Ltd (NAL), which is an independent laboratory based in Pine Creek which has been inspected by Mr Bennett. Upon arrival at the laboratory, samples are sorted, reconciled against the accompanying paperwork and dried in a gas fired drier at 130°C for three hours. Samples are removed from the drier and cooled to room temperature. The samples are then crushed through a 200 x 125 Jacques Jaw Crusher, which is cleaned with compressed air between each sample. Nominal particle size discharge is 3 mm to 5 mm. Approximately 1 kg of sample is split from the crushed sample using a Jones riffle splitter. The 1 kg subsample is pulverised to a nominal 100-micron particle size in a vertical spindle pulveriser. The pulverised sample is roll mixed on a rubber mat to ensure the sample is homogenised and a 400 g and 50 g cut is taken from the mat rolled sample for base metals and fire assay respectively. A 400-g barren granitic sand is pulverised as a flush between every sample, and double flush is requested in high grade mineralisation to monitor carry-over contamination. The pulveriser is cleaned with compressed air after every barren flush.

Two holes were prepared and assayed at Bureau Veritas in Adelaide (IBRC032D and IBDH045) due to their dual purpose in metallurgical and geotechnical studies. Samples were oven-dried in calico bags at 105°C for a minimum of two hours. Whole samples were crushed to 3 mm in a Boyd Crusher and the whole sample was then milled in a LM5 pulveriser. Samples greater than 3 kg are double bowled. The grind specification was 85% passing 75-micron. Grind was determined at a rate of 1:20 by wet sieve analysis. A 200 g aliquot of ground pulp was packaged in a labelled and bar-coded sample bag. The bulk pulverised sample was return to the original calico bag and stored in 200 litre drums for return to the client.

Modern Drilling (Kirkland Lake and GBS)

CSA Global understands that sampling techniques used by Kirkland Lake Gold and GBS were like those used by PNX, although all drilling previously completed was diamond only. According to the analytical database, the GBS holes (IBDH001–6) were mainly sampled as quarter-core with some half-core. Kirkland Lake samples (IBDH007–22) were almost all half-core.

GBS samples were crushed to 2–3 mm, split to less than 1 kg, and milled to approximately 100 microns from which 50 g was taken for assay. Kirkland Lake samples were crushed to a nominal 85% passing 75 microns.

Historic Drilling

Sampling and sample preparation techniques used by Geopeko are not known in any detail, although half core was sampled in Q53-S/20 according to the analytical database. Sampling and sample preparation techniques adopted by BMR are not known.

Percussion and diamond holes drilled by MGBUT in the 1980s were completed by Overland Drilling. Holes were positioned by compass triangulation from surveyed grid pegs. Percussion holes were sampled in 3 m intervals via a cyclone and splitter (presumably riffle). Samples averaged 10 kg and were submitted to the Mount Bonnie assay laboratory for Au and Ag analysis. Diamond holes (S20/S21) were HQ, with recoveries generally exceeding 90%. Potentially mineralised core was cut into two equal halves perpendicular to bedding. Even metre marks terminated sampling intervals. Samples were analysed for Au, Ag, cu, Pb, Zn, As ad Sn by the Mount Bonnie laboratory.

4.1.5 Analytical Methods

Modern Drilling (PNX)

For all assay data reported by NAL, the following is a description of each of the methods used. Each element has a descriptor indicating which method was used.

- G400I: Hydrochloric, Nitric, Perchloric and Hydrofluoric acid digest in Teflon tubes. Leach residue digested with hydrochloric acid. Reported elements analysed by inductively coupled plasma optical emission spectrometry (ICP-OES).
- G400M: Hydrochloric, Nitric, Perchloric and Hydrofluoric acid digest in Teflon tubes. Leach residue digested with hydrochloric acid. Reported elements analysed by inductively coupled plasma mass spectrometry (ICP-MS).
- G300I: Hydrochloric, Nitric and Perchloric acid digest in Pyrex glass tubes. Leach residue digested with hydrochloric acid. Reported elements analysed by ICP-OES.
- G340I: Hydrochloric, Nitric and Perchloric acid digest in a Pyrex glass beaker. Leach residue digested in hydrochloric acid and ammonium acetate (to keep Pb in solution) and made to volume in a volumetric flask. Reported elements analysed by ICP-OES.

- FA50: Fire Assay Fusion with a lead oxide flux and various other reagents depending on the mineral type followed by cupellation of the recovered lead button in a magnesium oxide cupel. The dore prill is parted and the Au content analysed by atomic absorption spectrophotometry (AAS).

For very high grade samples (as predicted visually or by pXRF), separate sample submissions are requested using the "G340" code, in which ammonium acetate is added to keep the Pb in solution. The "G300" and "G400" methods have lower detection limits and better precision for concentrations of the analyte below 1% compared with the G340 method. Once the concentration exceeds 1%, the G340 method is used which is an "ore grade" procedure and has a better precision once the analyte exceeds 1%.

The analytical suite has varied over time, but currently, in the mineralised environment, high grade zones are analysed (using the G340 and FA50 codes) for Au, Zn, Pb, Ag, Cu, As, S, Bi, Sb, Fe, Mn and Cd. Of these elements, only Bi, Sb and Sn are determined with ICP-MS, the others are ICP-OES (or AAS for Au).

On the margins of high grade zones or in long runs of low grade zones, including composited samples, the suite should be the same, without Cd, Bi, Sb or Sn (using the G400+FA50 code).

In areas of possible gold-only mineralisation, only the FA50 code is used to test for Au. Screen fire assaying has not been tested at this stage, but will need to be considered for any gold-only mineralisation zones identified in future.

Some diamond core from 2016 was analysed by Bureau Veritas in Adelaide. A larger suite of elements was tested as part of the metallurgical work as follows:

- PF101: Ca, Fe, Mg, Mn, S, Zn – peroxide fusion with ICPMS determination.
- PF102: Ag, As, Ba, Bi, Cd, Ce, Co, Cu, La, Nd, Ni, Pb, Pr, Sb, Sn, W, Y – peroxide fusion with ICP-AES determination.
- FA002; Au, Pt, Pd – lead collection fire assay by ICP-AES on 40 g sample.

Modern Drilling (Kirkland Lake and GBS)

Kirkland Lake's drill samples were assayed at Northern Territory Environmental Laboratories (NTEL) in Darwin for a wide suite of elements, including Au, Ag, As, Ba, Bi, Cd, Cu, Fe, K, Mn, Pb, S, Sb, Se, Sn, V, Zn and periodically Hg. Gold assay results were based on 50 g fire assays, and base metal analysis is by multi-acid digestion with ICP-MS. GBS samples (IBDH001–6) were assayed in NAL in Pine Creek for Au, Ag, As, Cu, Pb and Zn.

Historic Drilling

Assay results for drilling undertaken by Geopeko are available and complete, however the quality assurance (QA) processes in place at the time are only partially known. Assay sheets from Goulevitch (1978) indicate that most assays were performed at Analabs Jabiru laboratory. Cu, Pb, Zn, Ag, Cd and Fe were determined by AAS following digestion in mixed acids including hydrofluoric acid. Results are quoted to be accurate to +/– 5% in relative terms. Bi, As, Sb and Sn were analsyed by pressed powder XRF. Au and Ag were by fire assay fluxing of a 30 g sample followed by AAS. S was analysed by a LECO titrimetric method.

A memorandum written by Goulevich in 1977 reveals that Au was initially determined by AAS, and then fire assay was completed in this year to check the results. The AAS results were considerably lower (2.5 times) than the fire assay results. This memorandum (dated November, 1977) stipulates that "*all future assaying for gold at Quest 53 and Quest 54 will be done by the fire assay technique*". There is therefore potential that some of the early Geopeko holes (Q53-S/9 to S/15) have underestimated gold content.

Geopeko holes have been included in the database used to prepare the Mineral Resource estimate (as discussed in Section 6.5).

MGBUT samples were analysed for Au, Ag, Cu, Pb, Zn, As ad Sn by the Mount Bonnie Laboratory.

4.1.6 Verification and Sampling and Assaying

Alternative company personnel have verified significant intersections. No twinning has been completed to verify historical intersections, however the location and tenor of historical intersections is consistent with modern holes.

Assay results are currently received from the laboratory in digital format. Once data is finalised it is transferred to a Microsoft Access database on the PNX server, which is backed up and stored offsite daily.

No adjustments were made to analytical data prior to preparation of the Mineral Resource estimate, other than replacement of below detection results with a value equal to half the detection limit.

4.1.7 Location of Data Points

Topography Data

The aerial photography and topographic survey undertaken by drone in 2014 was accurately located as shown by the absolute geolocation variance (Table 6). The survey was undertaken with a Canon Power Shot ELPH110HS camera and flown with an average ground sampling distance of 5.26 cm.

Table 6: Geolocation variance topographic survey

Min Error [m]	Max Error [m]	Geolocation Error X [%]	Geolocation Error Y [%]	Geolocation Error Z [%]
-	-21.38	0.00	0.00	0.00
-21.38	-17.11	0.00	0.00	0.00
-17.11	-12.83	0.00	0.00	0.00
-12.83	-8.55	0.00	0.00	0.00
-8.55	-4.28	14.12	0.00	0.00
-4.28	0.00	33.59	79.77	0.00
0.00	4.28	27.86	20.23	0.00
4.28	8.55	24.43	0.00	0.00
8.55	12.83	0.00	0.00	0.00
12.83	17.11	0.00	0.00	0.00
17.11	21.38	0.00	0.00	0.00
21.38	-	0.00	0.00	100.00
Mean		0.582747	-0.359512	51.281724
Sigma		3.895047	0.433504	0.780203
RMS Error		3.938399	0.563183	51.287659

Min Error and Max Error represent geolocation error intervals between -1.5 and 1.5 times the maximum accuracy of all the images. Columns X, Y, Z show the percentage of images with geolocation errors within the predefined error intervals. The geolocation error is the difference between the intial and computed image positions. Note that the image geolocation errors do not correspond to the accuracy of the observed 3D points.

Collar Data

Modern Drilling

Drill collars have been surveyed by qualified surveyors using a differential global positioning system (DGPS) instrument, to a nominal +/- 20 cm accuracy in the XY direction. Visual comparison of these with the drone topographic pickups are very good in all cases.

Historic Drilling

BMR and Geopeko drill collars were provided on the inherited database that PNX received and positions have been validated by georeferencing old available plans, and are probably accurate to +/– 5 m. Collar positions were collected in local grids. Geopeko used the northwest lease boundary of ML1301B as their datum for their local grid with grid north equal to true north, but the datum point has not been found.

MGBUT used the main shaft as their datum with a coordinate that appears to match with the Geopeko grid. Once more lease boundaries are accurately surveyed, it will be possible to complete more accurate georeferencing.

MGBUT holes were positioned by compass triangulation from surveyed grid pegs.

Downhole Survey Data

Downhole survey instruments have measured downhole deviation. In most cases, this has been by single shot camera, however a multi-shot camera and gyroscope have also been used. Where data is affected by magnetic interference, the azimuth readings have been adjusted manually based on adjacent values. All magnetic data is converted into MGA Zone 52 coordinates using correction factors obtained from the Geoscience Australia website. The current correction factor is 3.763° as shown in Figure 15. Any gyroscopic data collected in True North is converted to grid north by applying a 0.59° correction.

BMR holes were surveyed by a Tropari instrument. Holes drilled by Geopeko were primarily surveyed using a single shot Eastman camera. Holes drilled by GBS and Kirkland Lake were surveyed using a gyroscope. Holes drilled by PNX used a variety of methods, mainly using the electronic multi-shot tools Globaltech Pathfinder and Camtech Proshot Dual. A compass was generally used to measure orientation at the collar.

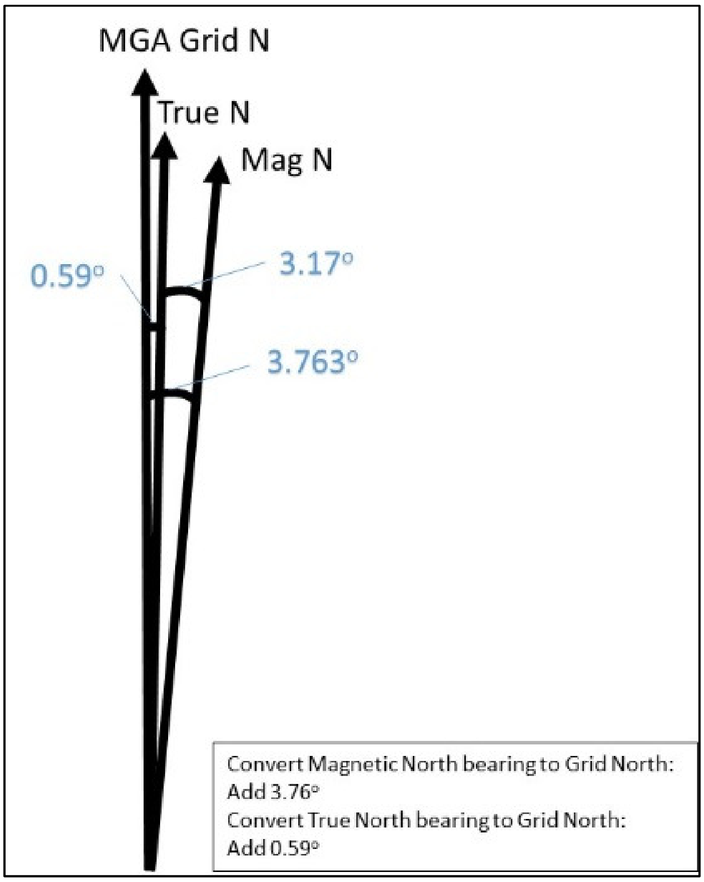

Figure 15: Mount Bonnie grid system (provided by PNX)

4.1.8 Data Spacing and Distribution

A plot of drilling collars and hole projections is shown in Figure 16. Hole collars coloured yellow are holes that have been completed in 2016 subsequent to the previous Mineral Resource estimate.

The data spacing is irregular, but overall averages 20 m section-spacing over a strike length of about 300 m. On section, holes are spaced 15 m to 50 m apart, with an average of approximately 30 m. The sectional azimuth is grid 087°. Holes were drilled at 60° to the west to intersect the east dipping lodes at relatively high angles.

There is sufficient drilling to be confident in the geological continuity of the mineralisation to support the Mineral Resource classification levels.

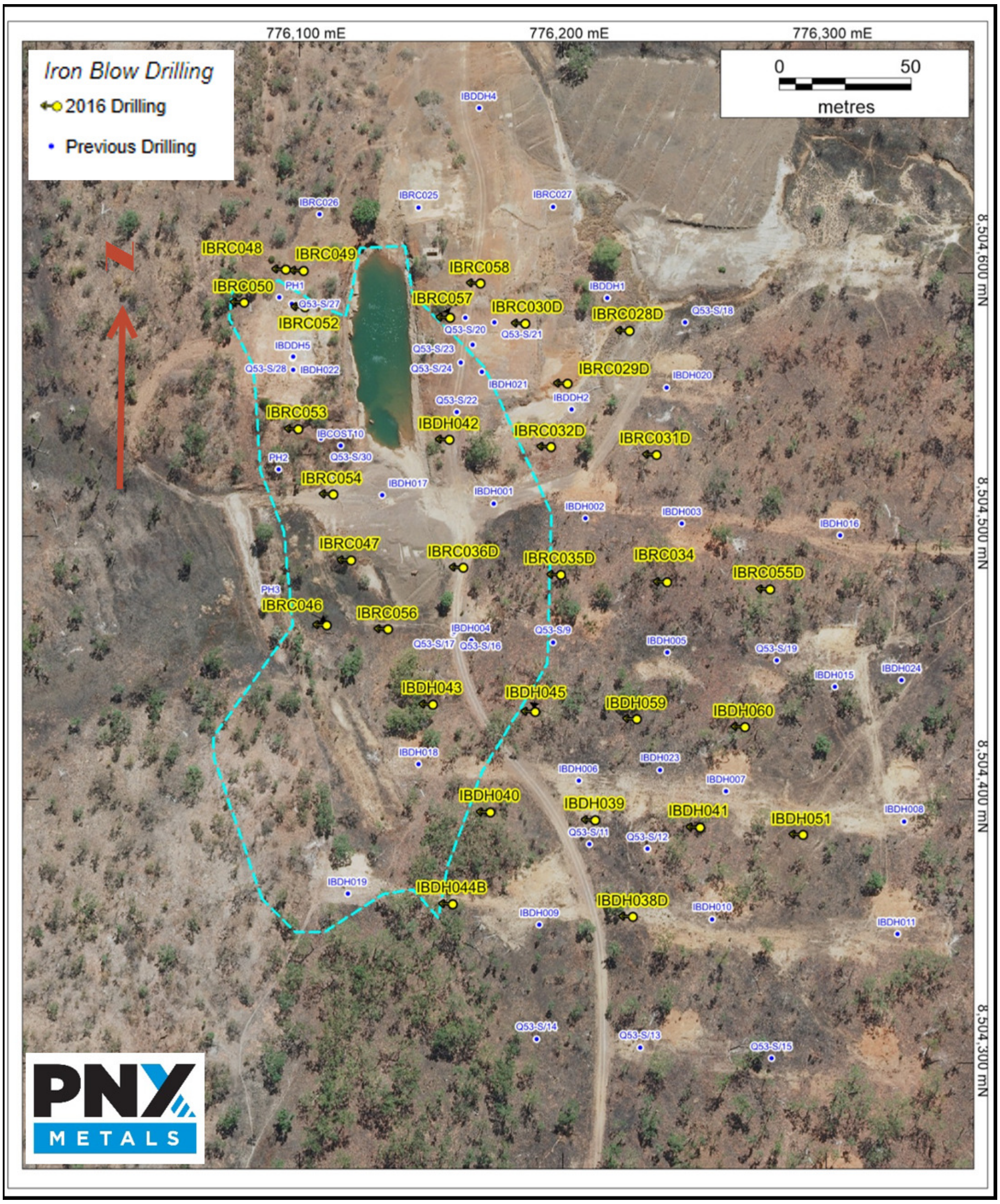

Figure 16: Iron Blow drill hole collar plan on aerial photograph (provided by PNX)

4.1.9 Orientation in relation to Geological Structure

The sectional azimuth is grid 087° and most holes are dipping 60° west which means they generally intersect the mineralisation at a high angle to its strike.

4.1.10 Sample and Data Security

A PNX geologist and field assistant are always present at the RC drill rig while samples are being drilled and collected. On completion of logging, samples are bagged and tied for transport to either the Brocks Creek compound for holding, or directly to the sample preparation laboratory (NAL) by PNX personnel.

For diamond drilling, the core is collected daily from the rig and transported to the Brocks Creek compound, where it is laid on racks for logging and sampling. All core is photographed when marked up for a permanent record. The cut samples are bagged and tied and transported directly to NAL by PNX or NAL personnel for analysis. The Brocks Creek compound is locked and has 24-hour camera security when no personnel are present.

Pulps are currently stored at the NAL laboratory in Pine Creek but will be returned to the Brocks Creek compound in the future.

4.1.11 Audits and Reviews

No external audit or review of the drilling data has been completed. PNX has completed checks on the data.

4.2 Channel and Costean Data

A total of 12 channels for 65.5 m and 11 costeans for 242 m have been sampled at Iron Blow. The channels were completed in 1985 and the costeans were excavated between 1984 and 1985. Channel and costean data were used to guide interpretations and for grade estimation.

Costeans were dug using a hydraulic excavator perpendicular to the mineralised zones. The channels and costeans were positioned by compass triangulation from surveyed grid pegs. Prospective zones were sampled by continuous channelling of rock on both costean walls, to a maximum sample width of 2 m. 5–10 kg samples were submitted to the Mount Bonnie assay laboratory for Au and Ag analysis.

4.3 Underground Workings

The 100 ft level workings were inspected by MGBUT and shaft collars were picked up by a theodolite Electromagnetic Distance Measurement (EDM) survey. This is the basis for the level workings and mineralisation outlines used in when interpreting the mineralisation wireframes.

5 Quality Assurance

5.1 Summary of Procedures

5.1.1 Modern Drilling (PNX)

NAL collects duplicate samples at a rate of one in 10 and inserts internal standards intermittently at a rate of one or two times per week. These results are not reported, but are available on request. Analytical results are not reported unless they pass the internal quality hurdles. All fire assay samples that return results of >1 g/t Au are repeated, and both original and repeat results are reported.

PNX insert certified standards and field duplicates every 25 samples, and three blanks per hundred samples. At the end of the 2014 campaign, a small selection of samples over a range of different elemental grades were picked for umpire testing at an independent laboratory (Bureau Veritas).

As the drill rig splitter in 2015 did not have a dual sample outlet, RC duplicates were collected by inserting the entire residue (collected in green bags from the 7/8th fractions on the rig splitter) through a separate portable three-tier riffle splitter prior to any logging. In 2016, a dual outlet cone splitter provided both original and duplicate samples in one pass. Diamond drilling duplicates were taken by submitting the corresponding half or quarter core left after sawing.

Nine different base metal standards (or certified reference materials (CRMs)) and three different gold standards were used by PNX over a range of grades. The base metal standards were sourced from Gannet Holdings Pty Ltd (Gannet), Geostats Pty Ltd (Geostats) and Ore Research and Exploration Pty Ltd (OREAS). PNX previously advised CSA Global that there was an issue with Geostats CRM GBMSS304-2 and decided to discontinue its use. The gold standards were sourced from Gannet.

Base metal standards were inserted when sampling for base metal mineralisation and gold standards were selected when sampling for gold-only mineralisation. The standards used are shown in Table 7.

Table 7: Standards used by PNX

Standard	Supplier	Type	Certified values
BM160	Gannet	Base metal	Au, Cu, Pb, Zn, Ag, As
BM161	Gannet	Base metal	Au, Cu, Pb, Zn, Ag, As
BM494	Gannet	Base metal	Au, Cu, Pb, Zn, Ag, As
BM652	Gannet	Base metal	Au, Cu, Pb, Zn, Ag, As
BMJA3	Gannet	Base metal	Au, Cu, Pb, Zn, Ag
GBMS304-2	Geostats	Base metal	Cu, Zn, Ag, Pb, Ni, Co, As, Au and S.
GBMS304-3	Geostats	Base metal	Cu, Zn, Ag, Pb, Ni, Co, As, Au and S.
ST431	Gannet	Gold	Au
ST508	Gannet	Gold	Au
ST559	Gannet	Gold	Au
OREAS131a	Ore Research and Exploration	Base metal	Cu, Zn, Ag, Pb, Co, As, Au and S.
OREAS131b	Ore Research and Exploration	Base metal	Cu, Zn, Ag, Pb, Co, As, Au and S.

5.1.2 Modern Drilling (Kirkland Lake and GBS)

Kirkland Lake and GBS submitted duplicate samples at a rate of 1:25, standards at a rate of 1:25 and blanks at a rate of 1:50. Kirkland Lake and GBS used several standards including OREAS131a, OREAS132b, BM494, BM652, ST02/5355, ST07/5343, ST09/3320, ST16/5357, ST39/6167 and ST48/9278.

5.1.3 Historic Drilling

Quality Control (QC) sample results from Geopeko and BMR drilling are not available, and the results therefore cannot be verified. Despite the higher degree of uncertainty with respect to the assay and location quality, the historic drilling conforms reasonably to modern drilling intersections.

5.2 Quality Control Results

5.2.1 Blanks

CSA Global reviewed blank results for Au, Cu, Pb, Zn, Ag, As, Fe and S for drilling programs that were carried out by PNX. No significant issues with carry-over contamination were noted.

5.2.2 Field Duplicates

CSA Global reviewed field duplicate results (mainly RC) for Au, Cu, Pb, Zn, Ag, As, Fe and S for drilling programs that were carried out by GBS, PNX and Kirkland Lake at Iron Blow. Results were reasonable for all analytes, although some significant differences were noted in the Au results, particularly at high values. This is likely to be partly due to the nugget effect. Duplicate results are provided from Figure 17 to Figure 24.

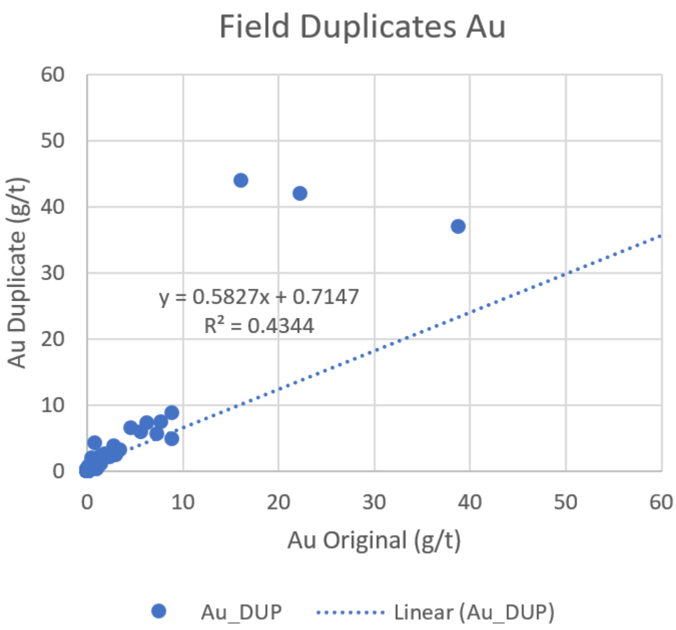

Figure 17: Au field duplicate results (n=132), from GBS, PNX and Kirkland Lake drilling

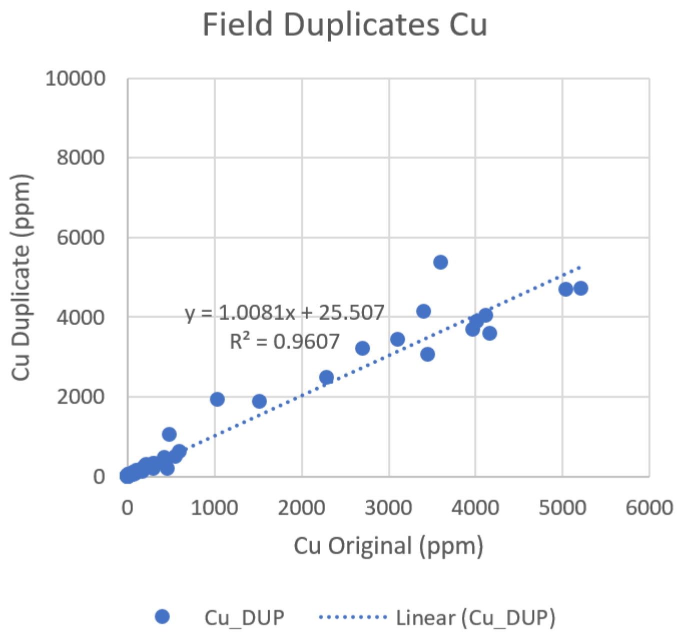

Figure 18: Cu field duplicate results (n=94), from GBS, PNX and Kirkland Lake drilling

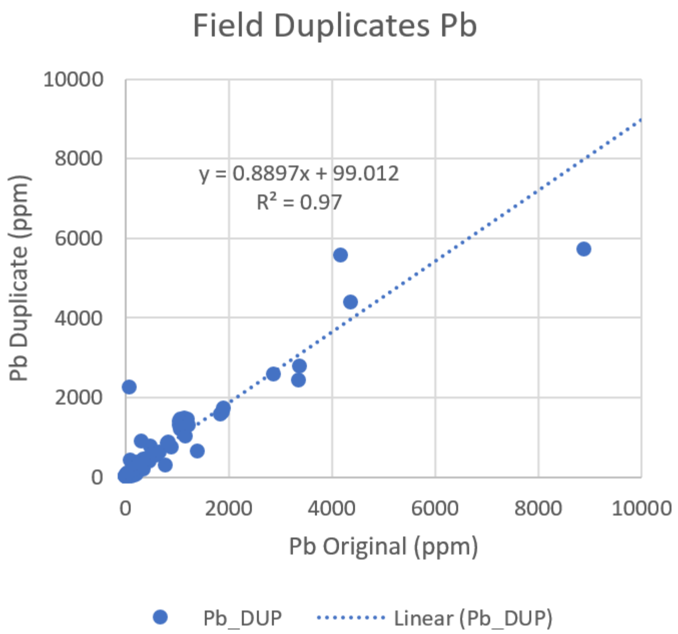

Figure 19: Pb field duplicate results (n=94), from GBS, PNX and Kirkland Lake drilling

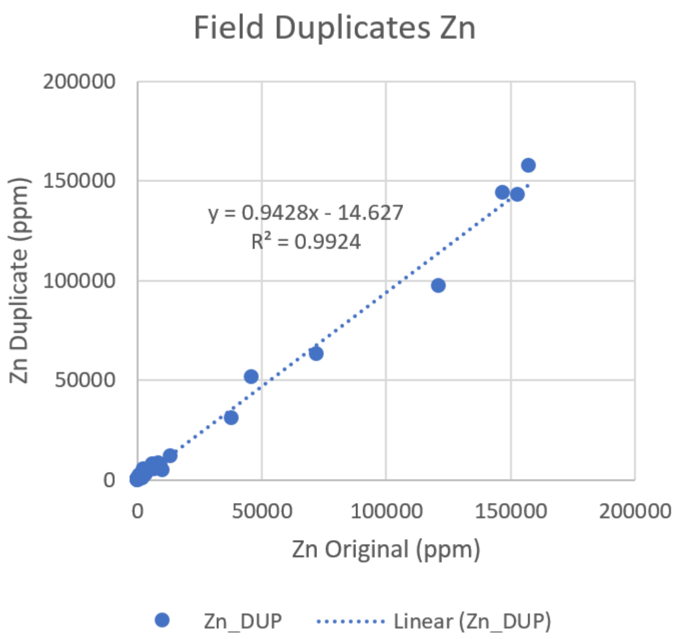

Figure 20: Zn field duplicate results (n=94), from GBS, PNX and Kirkland Lake drilling

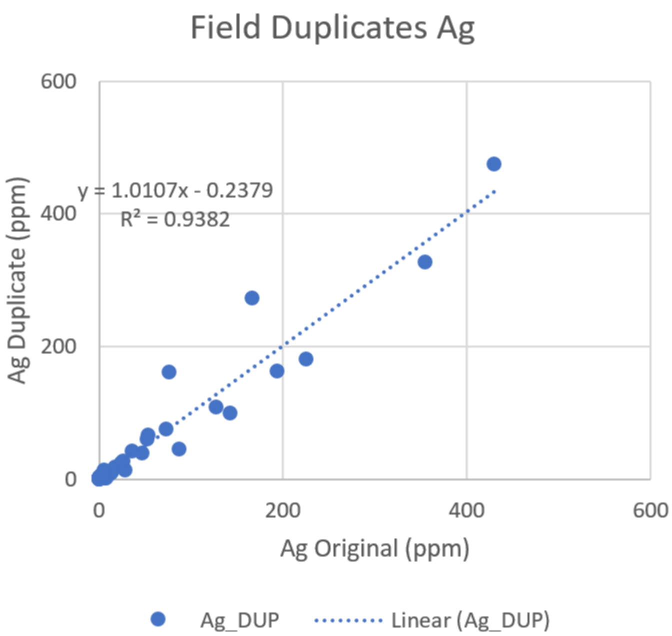

Figure 21: Ag field duplicate results (n=94), from GBS, PNX and Kirkland Lake drilling

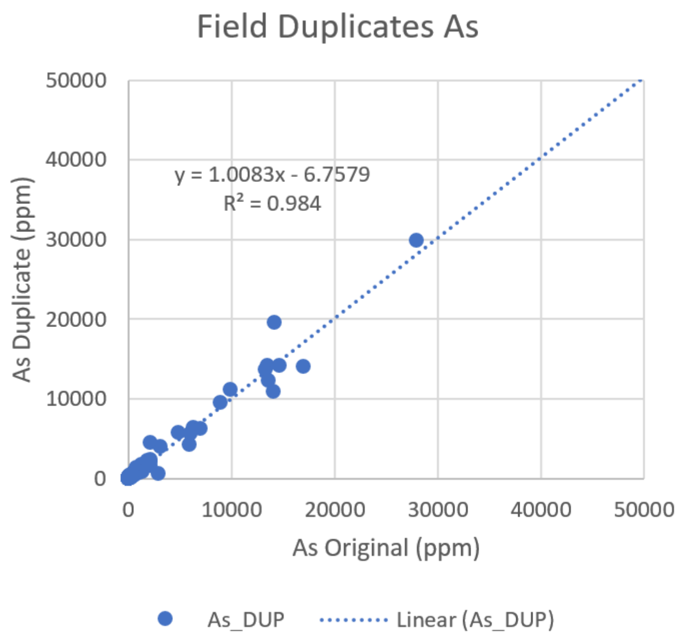

Figure 22: As field duplicate results (n=94), from GBS, PNX and Kirkland Lake drilling

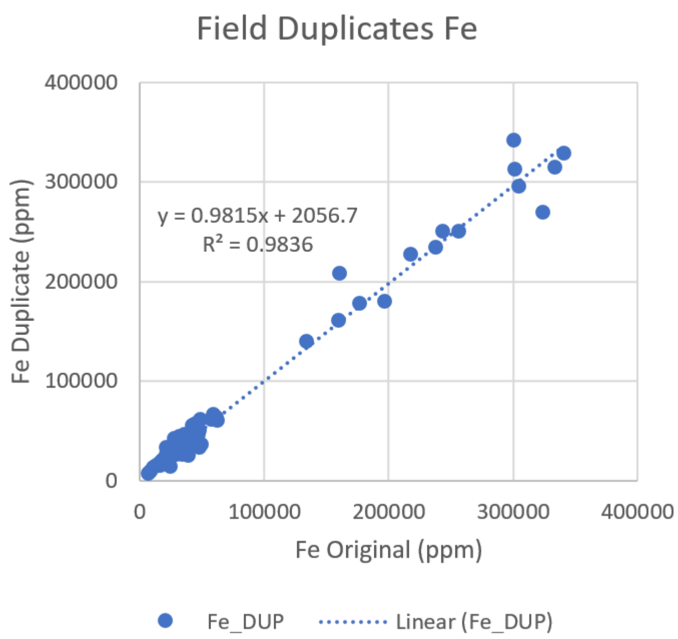

Figure 23: Fe field duplicate results (n=93), from GBS, PNX and Kirkland Lake drilling

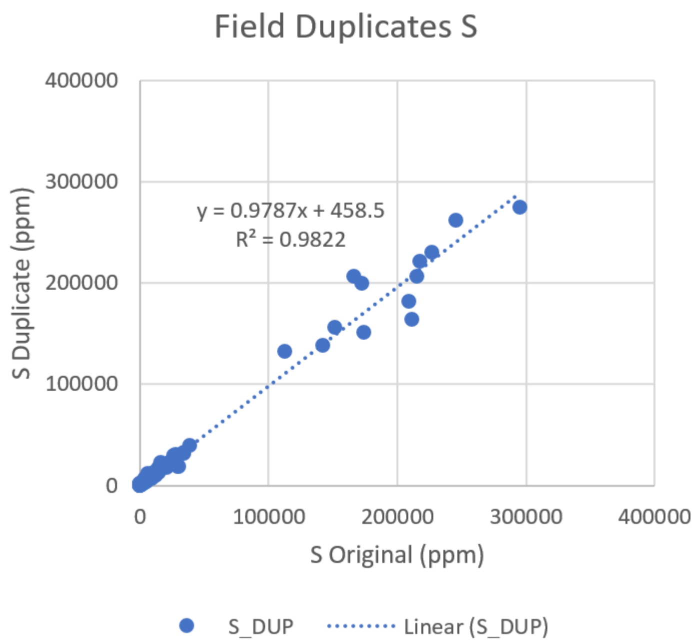

Figure 24: S field duplicate results (n=91), from GBS, PNX and Kirkland Lake drilling

5.2.3 Certified Reference Materials

Most available results were from CRMs BM160, BM161, BM494, BM652, BMJA3, ST431, ST508 and ST559. Results from other projects were reviewed with the Iron Blow results, given the data is relevant for laboratory performance. The data provided was mainly collected during PNX drilling programmes, although there were some results from the GBS and Kirkland Lake programmes. CSA Global makes the following findings:

- BM160: Au, Ag and As results were almost all within the expected range with no significant bias evident. Zn, Pb and Cu results were generally lower than the expected range for the duration of the Iron Blow drilling programmes. Zn was significantly lower than expected, with a mean result of 6,450 ppm compared to an expected mean of 6,990 ppm.
- BM161: The vast majority of Au, Ag, Cu, Pb, Zn and As results were within the expected range.
- BM494: The vast majority of Au, Ag, Pb, and As results were within the expected range. Cu results were generally within the expected range apart from a period between September and November 2016, where results were lower than the expected range. Zn results were generally within the expected range, however show an increasing trend from 2015 through 2016.
- BM652: Cu, Zn and Pb results were generally lower than the expected range from late 2015 to late 2016. Prior to December 2015, the results were generally within the expected range. Au results were almost all within the expected range, however results were consistently higher than the expected mean (2.42 g/t versus 2.05 g/t expected). Ag results show significant scatter from September 2016 onwards, however no significant bias is evident. As results also show significant scatter, and the mean result is lower than expected (136 ppm versus 157 ppm expected).
- BMJA3: Au, Cu and Ag results were generally within the expected range, with no significant bias noted. Pb and Zn results showed significant scatter, and were generally lower than the expected range. The average Pb result was 12,485 ppm compared to 14,788 ppm expected. The average Zn result was 203,222 ppm compared to 224,781 ppm expected.
- ST431: Most Au results were within the expected range, however there were numerous values below the mean minus two standard deviation value in 2015.
- ST508: The majority of Au results were within the expected range with no significant bias evident.

- ST559: The majority of Au results were within the expected range with no significant bias evident.

CRM plots for BM160 are shown in Figure 25 to Figure 29.

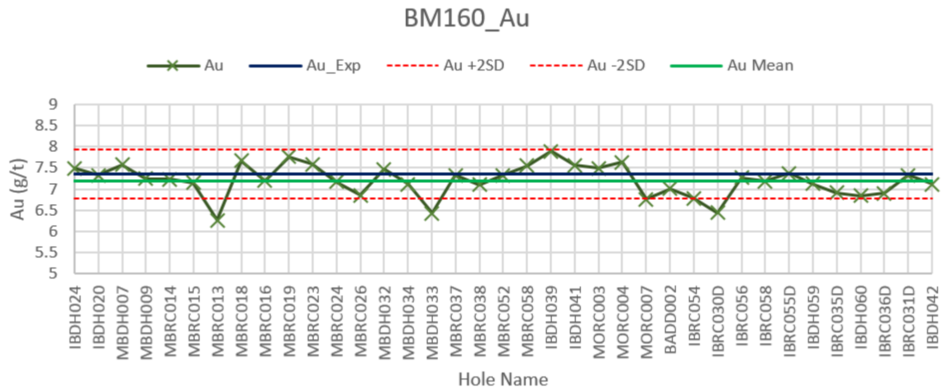

Figure 25: BM160 Au results

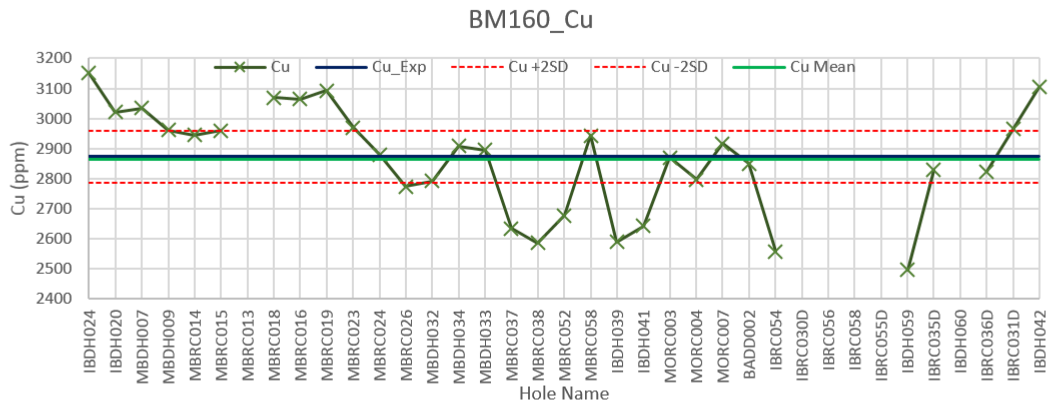

Figure 26: BM160 Cu results

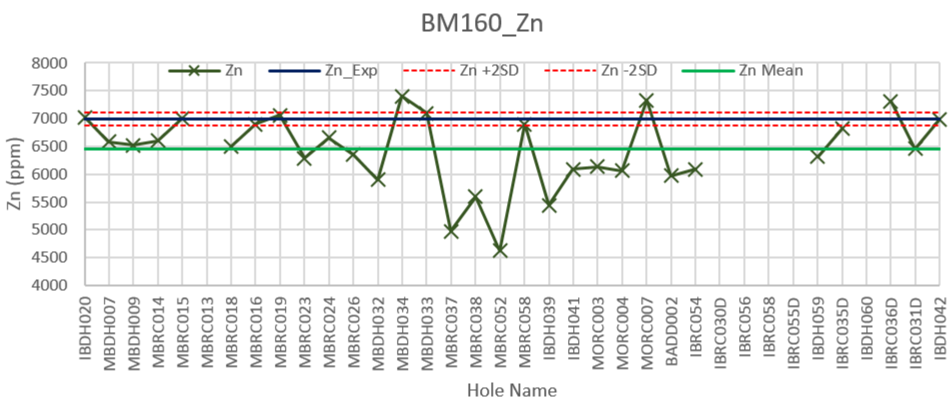

Figure 27: BM160 Zn results

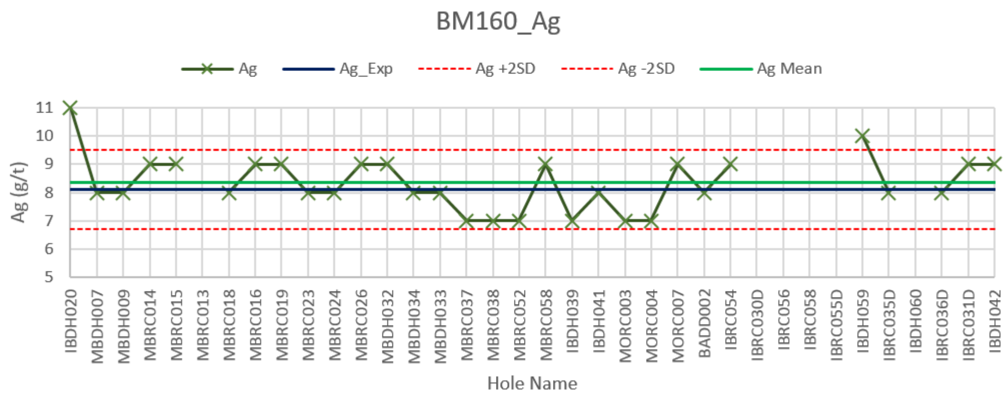

Figure 28: BM160 Ag results

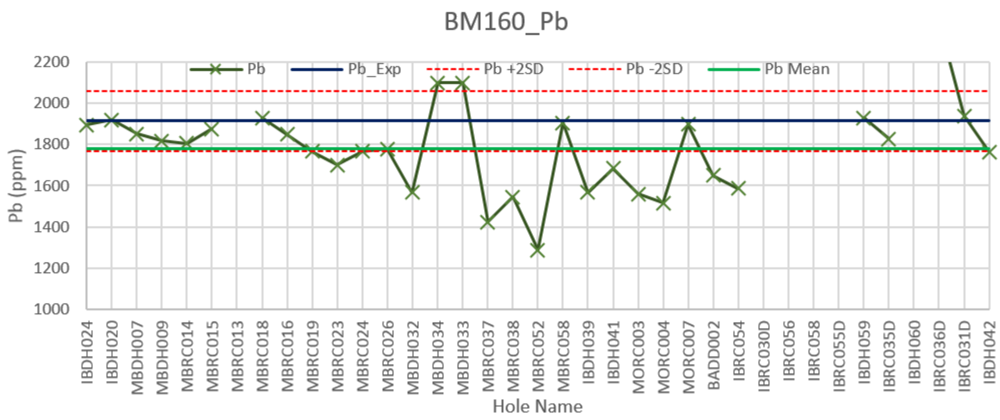

Figure 29: BM160 Pb results

The expected and actual means for each CRM (Au, Ag, Zn, Pb and Cu only), and relative differences, are shown in Table 8. Zn and Pb results show a low-grade bias generally between 5% and 10% (relative) across almost all standards.

Table 8: CRM actual versus expected mean result

Standard	Au exp. (g/t)	Au act. (g/t)	Rel dif. (%)	Ag exp. (g/t)	Ag act. (g/t)	Rel dif. (%)	Zn exp. (ppm)	Zn act. (ppm)	Rel. dif. (%)	Pb exp. (ppm)	Pb act. (ppm)	Rel. dif. (%)	Cu exp. (ppm)	Cu act. (ppm)	Rel. dif. (%)
BM160	7.36	7.20	−2	8.1	8.4	4	6,990	6,450	−8	1,916	1,781	−7	2,873	2,864	0
BM161	4.82	4.66	−3	3.1	2.8	−10	801	751	−6	908	823	−9	687	682	−1
BM494	1.15	1.20	4	19.6	18.8	−4	31,156	30,157	−3	10,753	10,324	−4	14,501	13,677	−6
BM652	2.05	2.42	18	205.5	203.3	−1	10,891	10,111	−7	7,024	7,183	2	8,049	7,548	−6
BMJA3	0.62	0.54	−13	151.3	159.4	5	224,781	203,222	−10	14,788	12,485	−16	27,743	27,584	−1
ST431	1.54	1.47	−5												
ST508	3.29	3.22	−2												
ST559	0.52	0.54	4												

5.2.4 Umpire Laboratory Results

CSA Global previously reviewed umpire laboratory results for 29 NAL samples that were sent to Bureau Veritas. Au, Zn, Pb, Cu, Ag, As and Fe results were reviewed. A high degree of correlation was observed between the original and umpire results, except for As. Additional peroxide fusion data was recommended following this work for As (in addition to Sn and Sb) which has some scatter at higher concentrations with the mixed acid digest.

5.3 Competent Persons' Opinion on Data Quality

A high level of confidence can be placed in the location of data points. While the location of historic drill holes are subject to greater uncertainty, their positions are still considered relatively accurate. Modern drillhole positions can be considered accurate.

Field duplicates were used to assess sample precision, while standards and submission of pulps to an umpire laboratory were used to assess analytical accuracy for drilling completed by PNX. Blanks were submitted to monitor cross-sample contamination. Only limited QC data is available for earlier drilling programmes.

The blank results provide confidence that there were no issues with carry-over contamination at the laboratory used by PNX. The field duplicate results, which are dominated by RC splits, provide confidence in RC sampling techniques adopted during the 2015 and 2016 PNX drilling programs.

Umpire laboratory analyses completed in 2015 compared well with the primary laboratory results except for As, where there are a few results that are very different. Au results show some scatter which is probably due to the nugget effect. Overall, the umpire laboratory results attest to the accuracy of the analytical data collected in 2015.

There are numerous standard results which require explanation. Although most Ag, Au and As results lie within the expected range, and therefore attests to the analytical accuracy of the primary laboratory, there are extended periods where considerable scatter is observed in the Pb, Cu and Zn results, and where the average results is much lower than the expected mean.

In particular, most Zn, Pb and Cu results for BM160, BM161, BM494 and BM652 were lower than the expected range from November 2015 through to December 2016. The Zn, Pb and Cu results for this period are therefore potentially conservative. PNX has queried these results with the primary laboratory, however no response had been received at the time of reporting. This may be due to degradation of the standards, or issues with the analytical methods. These results require explanation as a matter of priority.

6 Data Import and Validation

6.1 Software

Data import, validation, geological modelling and block modelling was undertaken using Datamine Studio RM software. Snowden Supervisor (version 8) was used for statistical and geostatistical analysis.

6.2 Data Import

CSA Global was provided with the following data files for import:

- dh_Collars.CSV
- dh_ass.CSV
- dh_Survey.CSV
- dh_HHXRF.CSV
- dh_Lith.CSV
- dh_Magsusc.CSV
- dh_Structure.CSV
- PNX_NT_DH_BulkDensity.CSV.

All data was imported using a Datamine macro. Once standard Datamine tables were created, the data was de-surveyed to create a 3D file for use in geological modelling and grade interpolation.

The Iron Blow drill hole database contains 101 drill holes for 18,225.75 m. The complete drilling history is summarised in *Table 9*.

Table 9: Drilling history

Year	Company	Holes	Hole Size	Hole Type	Metres	% of Database
Historic Drilling						
1906, 1912	Government	2	NR	NR	278.17	2
?	Government	3	NR	NR	134.5	1
1963	BMR	6	NX, BX, AX	DD	712.33	4
1976–1982	Geopeko	13	NQ, BQ, ?	DD/RCD	3,969.75	22
1983–1988	MBGUT/Tanami Joint Venture	10	?	DD/RCD	681.7	4
Modern Drilling						
2008	GBS	6	HQ	DD	1,516.4	8
2011	CGA/Kirkland Lake Gold	13	HQ	DD	3,839.7	21
2014	PNX	48	5.5"/HQ	RC/RCD/DD	7,093.2	39
Total		**101**			**18,225.75**	**100**

6.3 Data Validation

CSA Global checked the drill hole files for the following errors prior to Mineral Resource estimation:

- Absent collar data

- Multiple collar entries
- Questionable downhole survey results
- Absent survey data
- Overlapping intervals
- Negative sample lengths
- Sample intervals which extended beyond the hole depth defined in the collar table.

Only minor validation errors were detected which were communicated to PNX. De-surveyed drill hole files were visually checked as a final validation exercise.

6.4 Absent Data

There were numerous sample intervals with incomplete grade information within the interpreted mineralisation envelopes. The number of missing assays for each element within each lode are shown in Table 10. CSA Global completed two grade estimates. The first estimate was completed with the absent data remaining as null, and the second estimate was completed using portable XRF data (if available). There was very little difference between the models, hence the first method was chosen, with absent data treated as nulls.

Table 10: Missing Assay Data

Lode	Total Samples	Missing Assays				
		Au	Zn	Pb	Cu	Ag
East	552	2	35	38	45	39
West	876	5	17	18	26	17
Footwall Gold	137	1	44	44	46	44
Hangingwall Gold	5	0	4	4	4	4
Internal Gold	48	0	7	7	9	5
Internal Base Metal	105	0	1	1	1	1

6.5 Final Data Selection

Holes B1 and B2 were removed from the database given that these holes have not been located and the veracity of the data could not be determined.

Geopeko drilling (Q series holes) was retained for both interpretation and grade interpolation even though:

- Collar locations are approximate
- A few drill holes only partially sampled the mineralisation
- There is therefore potential that some of the early holes (Q53-S/9 to 15) will underestimate gold content.
- No QC data is available to support the database.

The holes were retained for the following reasons:

- The location of the mineralisation in these holes (where intersected) is consistent with surrounding drill hole data.
- Analysis was completed by a reputable laboratory, and original laboratory reports have been retrieved.
- Geopeko had a reputation for strong QC systems, in the opinion of the Competent Persons, so even though the QC data is absent, it likely existed.

- Removal of the drill holes would have led to a poorer representation of the grade distribution in the opinion of the Competent Persons.

Note that the following holes do not intersect the interpreted mineralisation solids:

- Q53-S/13
- Q53-S/14
- Q53-S/15
- Q53-S/18
- Q53-S/19

Furthermore, the following holes intersected the mineralisation, and logging data was used to interpret the mineralisation, however analytical data was not able to be found:

- Q53-S/22
- Q53-S/26
- Q53-S/27
- Q53-S/28
- Q53-S/29
- Q53-S/30.

All other drill holes were used in the Mineral Resource estimate except for IBDDH5, given this is an historic hole drilled by BMR, the mineralisation location is not consistent with geological understanding and the intervals of interest were not assayed.

7 Geological Modelling

7.1 Preliminary Statistical Assessment

Preliminary statistical analysis was completed on the global dataset to assess if a cut-off grade could be used to define boundaries to the mineralisation, and to also aid in the selection of an appropriate grade interpolation technique. Zn and Au statistics were reviewed given that they are the primary economic constituents of interest at Iron Blow.

A review of the Zn histogram and log-probability plot suggested that two main populations were evident. Significant changes in the slope of the log-probability plot were noted at 0.4% Zn and 7% Zn.

Review of the Au log-probability plot suggested revealed changes in the slope of the log-probability plot at approximately 1 g/t Au and 15 g/t Au. This provides evidence of two main populations.

The East and West Lode wireframes are known to include both gold rich, and zinc rich mineralisation.

7.2 Lithology, Structure, Alteration and Mineralisation

Several geological wireframes were created by PNX which represent features that are relevant in either controlling the mineralisation or differentiating the host rocks at Iron Blow. They form the geological basis for the Mineral Resource estimate and are listed in *Table 11*. Interpretations were provided to CSA Global for review.

Table 11: Geological wireframes

Name	Description
bocotr/pt.dm	Base of complete oxidation DTM
tofrtr/pt.dm	Top of fresh rock DTM
EL_v2pt/tr.dm	Eastern Lode solid model
WLv2pt/tr.dm	Western Lode solid model
FWAupt/tr.dm	Footwall gold solid models
HWAuv2pt/tr.dm	Hangingwall gold solid models
ILAuv2pt/tr.dm	Gold and Silver zones between East and West Lodes (“interlode”)
ILBMv2pt/tr.dm	Base Metal zones between East and West Lodes (“interlode”)
ib_100ft_oreoutline.dm	Ore outline at the 100 ft level
ib_200ft_oreoutline.dm	Ore outline at the 100 ft level
HWGupper.dm	String file containing lithological contacts.
FWtbspt/tr.dm	Upper contact of FWtb unit
HWGYWKpt/tr.dm	Hangingwall Greywacke unit
HWtbspt/tr.dm	Upper contact of HWtbs unit
Interlodept/tr.dm	Upper and Lower contacts of the interlode zone

The following approach was adopted by PNX following consideration of the geology and statistical analysis of the global analytical dataset:

- All interpretations were based on drill hole grades, drill holes logs, surface mapping, underground mapping and structural features.
- A mineralisation envelope was interpreted for the two main lodes, namely the East Lode (Zn-Pb-Ag-Au) and West Lode (Zn-Au). Interpretation was based on both geological logging (brecciated carbonate altered intervals), bedding plane data, and/or elevated Zn or Au. Approximately 1 g/t AUEQ

(gold equivalent) was used to interpret these lodes, with isoshells created rotated 10 degrees around the positive Y axis as a guide. Note that high grade massive sulphide units occur within these zones, and both gold only and gold plus base metal zones occur. Wireframing these units would have been complex; hence it was decided to attempt to select an appropriate interpolation algorithm to limit smoothing to ultimately reflect the Competent Persons view of the likely grade distribution within the mineralised envelope.

- Four subsidiary lodes were also modelled. Gold rich zones were interpreted hangingwall to the East Lode and Footwall to the West Lode, and some lodes (gold and base metal) were also interpreted between the East and West Lodes. A grade of 1 g/t AUEQ was used to define the boundaries to the mineralisation.

The interpretations were reviewed by CSA Global and found to have been completed in a competent manner. Figure 30 is a section showing drill holes coloured by Au grades along with the interpreted mineralisation boundaries.

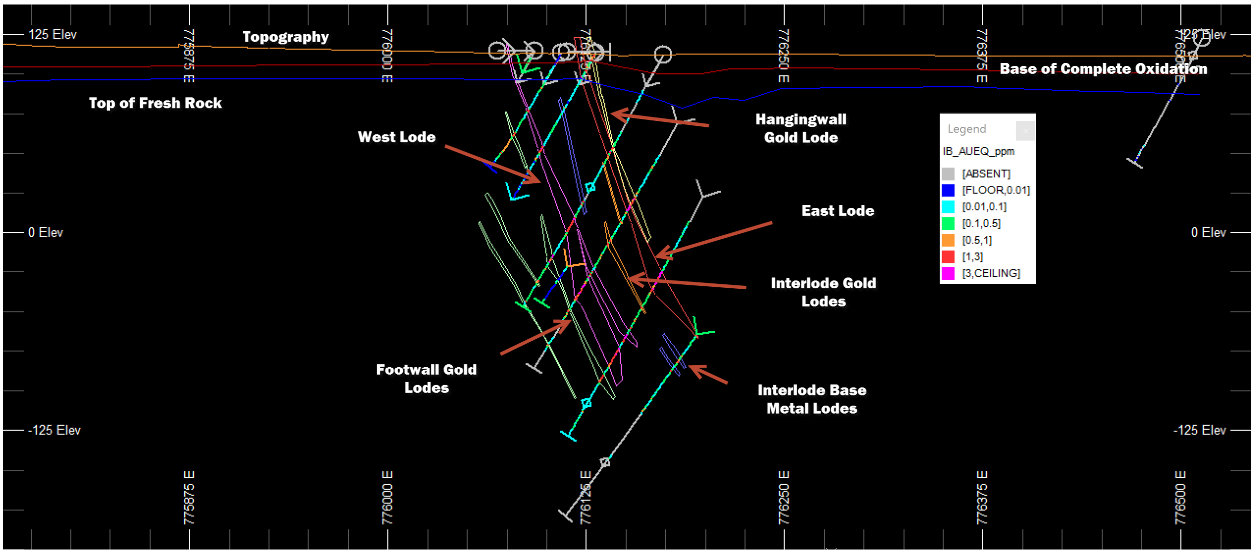

Figure 30: Section showing modelled mineralisation envelopes (CSA Global)

8 Statistical and Geostatistical Analysis

8.1 Data Flagging and Composite Length Selection

The Datamine drill hole file "ibass.d.dm" was created from data contained within the global drill hole database. Holes B1, B2 and IBDDH5 were removed prior to statistical analysis as discussed in Section 6.5.

Raw sample lengths and grade statistics were reviewed within each of the mineralisation envelopes to determine a composite length for statistical analysis and grade interpolation, and to gain preliminary insight into the geochemistry of each domain. The mean sample length and grades (raw) for each of the domains is shown in Table 12. Sample length histograms for the East and West Lodes (which dominate the dataset) are shown in Figure 31 and Figure 32 respectively. Based on these results, a 1 m composite length was chosen to maintain the natural variability of the sample data based on the results of this review.

Table 12: Variable mean statistics by mineralisation domain

Variable	East Lode	West Lode	Hangingwall Gold	Footwall Gold	Interlode Gold	Interlode Base Metals
Sample Length (m)	0.88 (502)	0.85 (674)	1.25 (28)	0.92 (137)	1.06 (54)	0.69 (105)
Au (g/t)	3.75 (498)	1.94 (669)	1.73 (28)	2.69 (136)	1.71 (54)	0.77 (105)
Cu (%)	0.33 (446)	0.31 (649)	0.02 (21)	0.03 (91)	0.13 (43)	0.15 (104)
Pb (%)	1.92(420)	0.36 (657)	0.09 (21)	0.10 (93)	0.03 (46)	0.40 (104)
Zn (%)	8.55 (423)	4.07 (658)	0.01 (21)	0.37 (93)	0.18 (46)	4.92 (104)
Ag (g/t)	283 (478)	65 (666)	9 (21)	14 (93)	10 (46)	46 (104)
As (%)	0.45 (392)	2.28 (589)	0.01 (21)	0.21 (80)	0.32 (43)	0.54 (104)
Fe (%)	17.20(316)	25.91 (423)	4.78 (12)	37.78 (58)	9.90 (38)	14.12 (88)
S (%)	16.59 (281)	16.63 (405)	0.69 (12)	1.01 (57)	6.70 (35)	10.77 (88)
SG (gcm3)	3.55 (264)	3.72 (440)	2.74 (20)	2.95 (99)	3.09 (42)	3.28 (80)

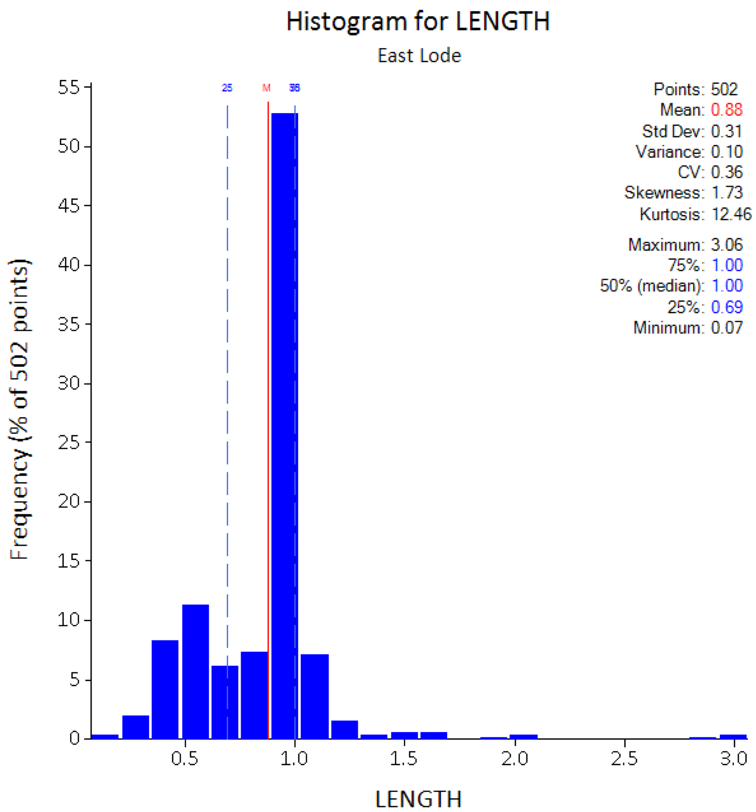

Figure 31: Sample length Histogram East Lode

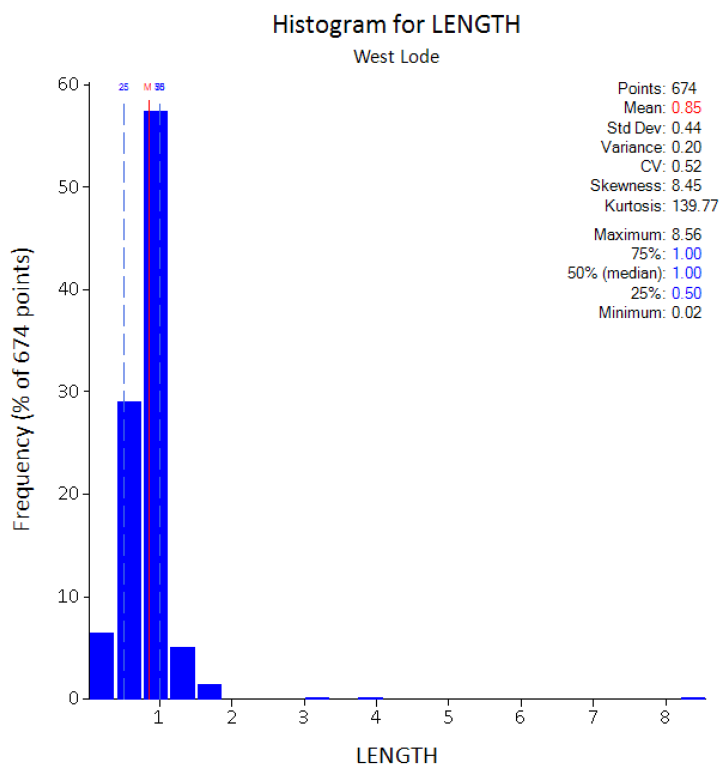

Figure 32: Sample length Histogram West Lode

8.2 Statistical Analysis

8.2.1 Drilling Statistics by Mineralisation Domain and Oxidation Status

The drill hole assay file was flagged within the six mineralisation domains and then by oxidation status (using the top of fresh rock and base of complete oxidation DTMs), in order to:

- Assess whether hard or soft boundaries should be applied across oxidation boundaries during grade estimation.
- Assess the requirement for further sub-domaining with the lodes.

The variable MINZON was used to differentiate the mineralisation domains as shown in Table 13.

Table 13: Mineralisation Domain Numbers

Mineralisation Domain	MINZON
East Lode	1
West Lode	2
Footwall Gold Zone	3
Hangingwall Gold Zone	4
Internal Gold Zone	5
Internal Base Metal Zones	6

All data within the mineralisation envelope was used in this analysis, and the data was composited to 1 m after domain flagging. The results (not de-clustered) are shown in Table 14 to Table 18. There was insufficient data in the Hangingwall Gold zone for statistical analysis.

Table 14: Assay Means (composites) by oxidation status (East Lode)

Assay	Oxide (num sam)	Transitional (num sam)	Fresh (num sam)
Au (g/t)	9.12 (53)	3.61 (14)	2.93 (371)
Cu (%)	0.17 (33)	0.04 (8)	0.33 (336)
Pb (%)	No samples	0.25 (8)	1.90 (349)
Zn (%)	No samples	0.39 (8)	8.68 (351)
Ag (g/t)	248 (53)	84 (14)	278 (351)
As (%)	No samples	0.10 (8)	0.43 (317)
Fe (%)	No samples	5.86 (8)	13.72 (322)
S (%)	No samples	2.17 (14)	16.28 (256)
SG (gcm3)	No samples	3.19 (8)	3.51 (203)

Table 15: Assay Means (composites) by oxidation status (West Lode)

Assay	Oxide (num sam)	Transitional (num sam)	Fresh (num sam)
Au (g/t)	6.07 (15)	0.69 (16)	1.73 (533)
Cu (%)	0.09 (4)	0.18 (9)	0.31 (520)
Pb (%)	0.85 (4)	1.48 (9)	0.38 (532)
Zn (%)	0.27 (4)	0.79 (9)	4.26 (533)
Ag (g/t)	24 (15)	0.03 (12)	64 (531)
As (%)	0.41 (4)	0.38 (9)	1.89 (458)
Fe (%)	12.46 (4)	16.63 (9)	24.57 (316)
S (%)	0.19 (4)	11.86 (9)	16.79 (295)
SG (gcm3)	No samples	2.80 (2)	3.70 (326)

Table 16: Assay Means (composites) by oxidation status (Footwall Gold)

Assay	Oxide (num sam)	Transitional (num sam)	Fresh (num sam)
Au (g/t)	No samples	No samples	2.17 (129)
Cu (%)	No samples	No samples	0.04 (73)
Pb (%)	No samples	No samples	0.08 (75)
Zn (%)	No samples	No samples	0.44 (75)
Ag (g/t)	No samples	No samples	17 (75)
As (%)	No samples	No samples	0.25 (62)
Fe (%)	No samples	No samples	3.60 (41)
S (%)	No samples	No samples	1.08 (40)
SG (gcm3)	No samples	No samples	2.98 (87)

Table 17: Assay Means (composites) by oxidation status (Interlode Gold)

Assay	Oxide (num sam)	Transitional (num sam)	Fresh (num sam)
Au (g/t)	No samples	No samples	1.65 (58)
Cu (%)	No samples	No samples	0.13 (42)
Pb (%)	No samples	No samples	0.03 (47)
Zn (%)	No samples	No samples	0.18 (47)
Ag (g/t)	No samples	No samples	12 (47)
As (%)	No samples	No samples	0.30 (42)
Fe (%)	No samples	No samples	9.74 (40)
S (%)	No samples	No samples	6.70 (35)
SG (gcm3)	No samples	No samples	3.08 (44)

Table 18: Assay Means (composites) by oxidation status (Interlode Base Metal)

Assay	Oxide (num sam)	Transitional (num sam)	Fresh (num sam)
Au (g/t)	No samples	No samples	0.72 (73)
Cu (%)	No samples	No samples	0.15 (70)
Pb (%)	No samples	No samples	0.37 (70)
Zn (%)	No samples	No samples	4.27 (70)
Ag (g/t)	No samples	No samples	45 (70)
As (%)	No samples	No samples	0.51 (70)
Fe (%)	No samples	No samples	13.35 (59)
S (%)	No samples	No samples	9.90 (59)
SG (gcm3)	No samples	No samples	3.27 (47)

Given the results of the statistical analysis, a hard boundary was adopted at the top of fresh rock boundary for Au, Pb, Zn and S while a soft boundary was adopted for the remaining estimated constituents, namely Cu, Ag, As and Fe for the East and West Lodes. The Footwall Gold, Hangingwall Gold and Interlode Base Metal Zones did not extend to the transitional and oxide zones. Soft boundaries were applied across oxidation zones in the Internal Gold Zone due to limited sample numbers.

8.2.2 East Zone Statistics

Histograms and probability plots were reviewed for Au, Cu, Pb, Zn and Ag within the East Zone envelope to help understand the distribution of grades, and assess the requirement for top cuts. Several Au populations appeared to be evident, in addition to two main populations for Cu, Pb, Zn and Ag. All populations were strongly positively skewed, a characteristic of most VMS deposits.

Geological logging and 3D geological modelling supported the existence of a high-grade core within the broader lower grade zone for the East Zone. Statistical analysis supported these observations. Creating physical envelopes around the high-grade zones was difficult in practise, hence a decision was made to limit smoothing during grade estimation to preserve the known high and low grade sections of the lode. Log histograms for Au and Zn (the primary economic constituents of interest) are shown in Figure 33 and Figure 34.

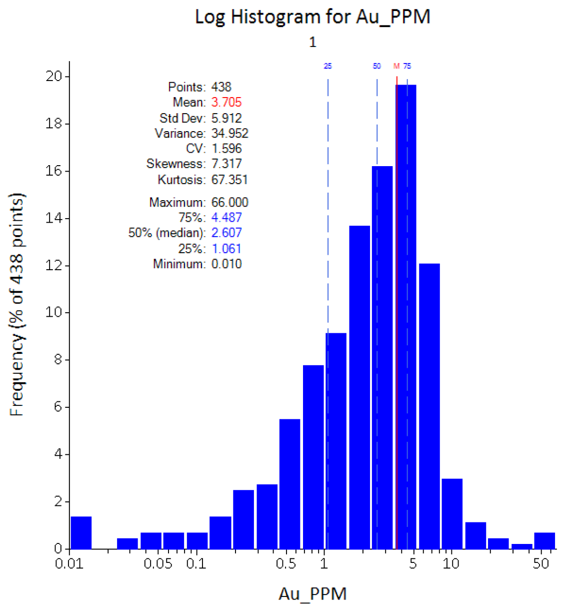

Figure 33: Au Histogram East Lode

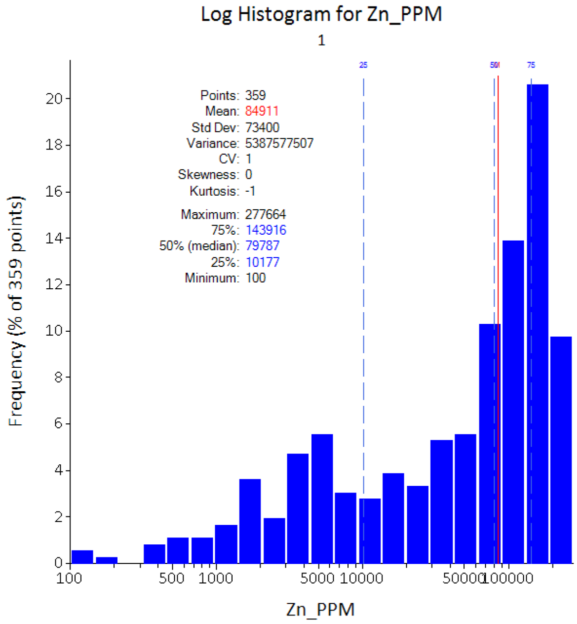

Figure 34: Zn Histogram East Lode

Correlations between all estimated variables were then reviewed. Strong correlations (>0.60) were observed between Cu and Zn/As/Fe/S, Pb and Zn/Ag, Zn and Ag/S, As and Fe/S, and Fe and S, as presented in Table 19.

Table 19: Correlation Coefficients of estimated variables (East Zone)

Assay	Au	Cu	Pb	Zn	Ag	As	Fe	S
Au	1.00	-	-	-	-	-	-	-
Cu	0.44	1.00	-	-	-	-	-	-
Pb	0.51	0.38	1.00	-	-	-	-	-
Zn	0.51	0.66	0.70	1.00	-	-	-	-
Ag	0.41	0.47	0.86	0.70	1.00	-	-	-
As	0.45	0.72	0.21	0.48	0.30	1.00	-	-
Fe	0.54	0.83	0.31	0.50	0.40	0.81	1.00	-
S	0.54	0.87	0.43	0.70	0.52	0.71	0.84	1.00

The requirement for top cuts was reviewed given the potential for extreme grades to bias the average during block grade estimation.

The coefficient of variation (COV) was first determined for Au (1.60), Cu (0.90), Pb (1.2), Zn (1.0) and Ag (1.19) to understand the degree of skewness in the data, and therefore the requirement for top-cutting. Generally, it is advisable (Coombes, 2008) to top cut datasets with a COV>1.2.

Histograms were then reviewed to determine the point at which the number of samples supporting a high-grade distribution diminishes. Based on this assessment, top cuts of 50 g/t Au, and 1,500 g/t Ag were applied. No top cuts were applied to the other estimated constituents.

8.2.3 West Zone Statistics

Histograms and probability plots were reviewed for Au, Cu, Pb, Zn and Ag within the West Zone for the reasons described above. Several Au populations appeared to be evident, in addition to two main populations for Cu, Pb, Zn and Ag. All populations were strongly positively skewed.

Geological logging and 3D geological modelling supported the existence of a high-grade core within the broader lower grade zone for the West Zone. Statistical analysis supported these observations. As mentioned above, creating physical envelopes around the high-grade zones was difficult in practise, hence a decision was made to limit smoothing during grade estimation to preserve the known high and low grade sections of the lode. Log histograms for Au and Zn (the primary economic constituents of interest) are shown in Figure 35 and Figure 36.

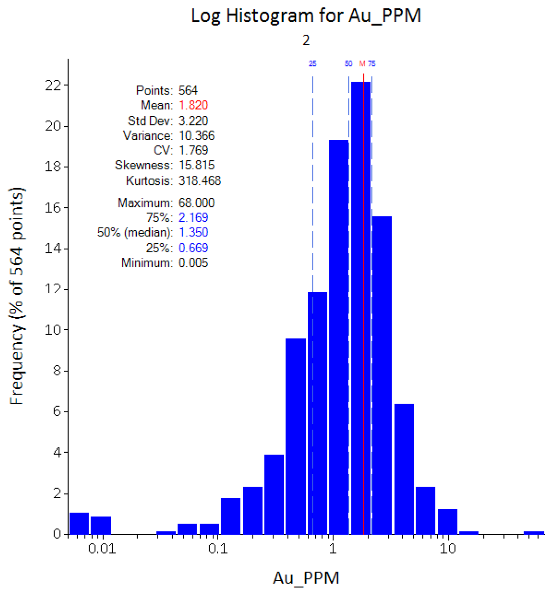

Figure 35: Au Histogram West Lode

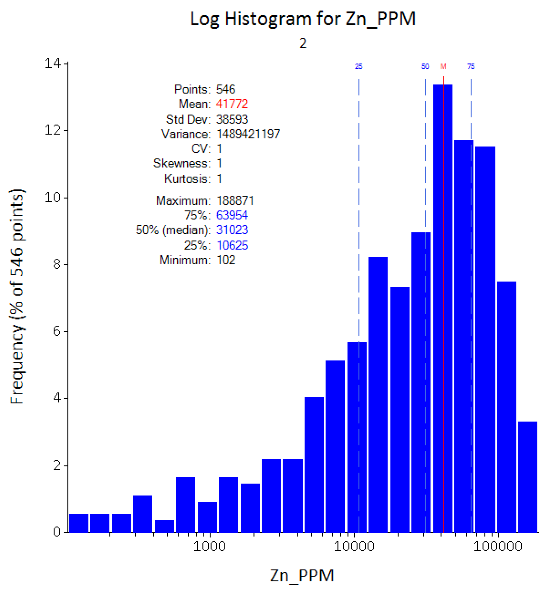

Figure 36: Zn Histogram West Lode

Correlations between all estimated variables were then reviewed. Strong correlations (>0.60) were observed between Au and As, Cu and Fe/S, Pb and Ag, and Fe and S, as presented in Table 20.

Table 20: Correlation Coefficients of estimated variables (West Zone)

Assay	Au	Cu	Pb	Zn	Ag	As	Fe	S
Au	1.00	-	-	-	-	-	-	-
Cu	–0.03	1.00	-	-	-	-	-	-
Pb	0.25	0.08	1.00	-	-	-	-	-
Zn	0.11	0.26	0.37	1.00	-	-	-	-
Ag	0.15	0.06	0.83	0.24	1.00	-	-	-
As	0.70	–0.27	–0.05	–0.15	0.13	1.00	-	-
Fe	0.03	0.71	–0.15	0.12	–0.06	–0.04	1.00	-
S	0.04	0.70	–0.06	0.39	0.04	–0.12	0.81	1.00

The requirement for top cuts was reviewed given the potential for extreme grades to bias the average during block grade estimation.

The coefficient of variation (COV) was first determined for Au (1.77), Cu (0.6), Pb (1.6), Zn (1.0) and Ag (1.57) to understand the degree of skewness in the data, and therefore the requirement for top-cutting.

Histograms were then reviewed to determine the point at which the number of samples supporting a high-grade distribution diminishes. Based on this assessment, top cuts of 20 g/t Au and 600 g/t Ag were applied. No top cuts were applied to the other estimated constituents.

8.2.4 Subsidiary Lode Statistics

Statistics were reviewed for the Footwall Gold, Hangingwall Gold, Internal Gold and Internal Base Metal Lodes in a similar manner to the East and West Lodes. Top cuts were applied as follows:

- Footwall Gold: 10 g/t Au and 100 g/t Ag
- Hangingwall Gold: No top cuts applied
- Internal Gold: No top cuts applied
- Internal Base Metal: 150 g/t Ag.

8.3 Geostatistical Analysis

8.3.1 Variography

Variography was completed for the East and West Lode envelopes separately.

A horizontal variogram fan was initially created to define the strike of the mineralisation. The dip was then selected from the across-strike vertical fan and the plunge was selected from the dip-plane fan. Variogram models were then created in the direction of maximum continuity (plunge and major direction), orthogonal to the plunge in the plane of the reef (semi-major direction) and across-strike (minor direction).

Downhole variograms were created for each to determine the nugget effect, with a lag of 1 m used to capture the shortest possible sample spacing. Experimental variogram fans were then generated in the major direction, semi-major direction and the minor direction using a lag of 25 m. Experimental variograms were generally poor due to the limited amount of available data in conjunction with the structural complexity and presence of multiple populations. Downhole variograms and some directional variograms were interpretable, and spherical models were fitted to the data to generate a set of parameters to be used for ordinary kriging. A normal scores transform was used for the gold data prior to variography. Table 21 and Table 22 shown the variogram parameters for the East and West Lodes respectively. All subsidiary lodes borrowed variogram parameters from the East Lode.

Table 21: Variogram parameters – East Lode

Dip/Dip direction	Nugget (%)	Structure 1		Structure 2	
		Sill (%)	Range (m)	Sill (%)	Range (m)
Au					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.37	0.49	37 20 7	0.14	97 60 16
Cu					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.09	0.38	24 9 10	0.53	54 51 28
Pb					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.15	0.44	49 51 12	0.41	115 118 37
Zn					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.11	0.43	45 45 14	0.46	97 98 34
Ag					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.25	0.16	80 51 10	0.59	95 142 30
As					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.19	0.48	28 16 14	0.33	130 252 30
Fe					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.12	0.30	27 30 8	0.58	70 61 31
S					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.02	0.54	40 38 20	0.46	139 141 40

Table 22: Variogram parameters – West Lode

Dip/Dip direction	Nugget (%)	Structure 1		Structure 2	
		Sill (%)	Range (m)	Sill (%)	Range (m)
Au					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.19	0.67	40 43 13	0.14	198 130 23
Cu					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.19	0.33	28 28 6	0.48	116 86 18
Pb					
–54° — 159 (major – plunge) 28° — 201 (semi-major)	0.24	0.35	73 39	0.41	204 118

Dip/Dip direction	Nugget (%)	Structure 1		Structure 2	
		Sill (%)	Range (m)	Sill (%)	Range (m)
–20° — 280 (minor)			16		33
Zn					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.21	0.45	45 39 5	0.34	217 233 12
Ag					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.16	0.37	160 70 15	0.47	161 132 23
As					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.02	0.81	61 20 20	0.17	344 144 40
Fe					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.02	0.64	54 31 13	0.34	90 79 37
S					
–54° — 159 (major – plunge) 28° — 201 (semi-major) –20° — 280 (minor)	0.10	0.50	39 29 10	0.40	98 71 27

8.3.2 Kriging Neighbourhood Analysis

Quantitative kriging neighbourhood analysis was undertaken to assess the effect of changing key kriging neighbourhood parameters on Zn block grade estimates. The objective of the analysis was to find a balance between minimising conditional bias and allowing practical block selectivity. The Kriging Efficiency (KE) and Slope of Regression (SOR) were determined for a range of each of the parameters below:

- Block size
- Minimum/Maximum samples
- Search ellipse dimensions
- Discretisation.

KE measures how well the histogram of estimated block grades matched the theoretical histogram of true block grades in the domain of interest. Values approaching one indicate better estimation of the true histogram and low conditional bias while values approaching zero (or less than zero) indicate poor estimation and high conditional bias. The SOR is the correlation coefficient between estimated and true block grades. A value of one is the optimum case, and implies conditional unbiasedness, while values less than one imply greater degrees of conditional bias (Vann *et al.,* 2003).

Negative kriging weights were also reviewed for all scenarios. The percent of negative kriging weights gives a measure of the redundancy of the samples informing the estimate. Sample redundancy becomes problematic if the percent of negative kriging weights exceeds approximately 5% (Vann *et al.,* 2003).

The block sizes shown in Table 23 were reviewed, which represents a range of sizes which could be considered given the mining selectivity and nominal drill pattern. A search ellipse was chosen to represent the full variogram range for Zn in the three directions selected, namely 97 m by 98 m by 34 m.

Table 23: Block sizes reviewed

X dimension (m)	Y dimension (m)	Z dimension (m)
2.5	5	5
2.5	10	10
5	5	5
5	10	10
10	10	10
10	20	20

KE increased with an increase in block size while SOR was relatively consistent between the block sizes. The sum of negative weights was not materially different between block sizes. KE and SOR were then reviewed by varying sample criteria (between two and 50 at increments of two) for 2.5 m E by 10 m N by 10 m RL blocks. This review suggested a minimum of 6 samples and a maximum of approximately 18 samples should be selected. Figure 37 shows KE and SOR for different sample selection criteria for the 2.5 m E by 10 m N by 10 m RL block size.

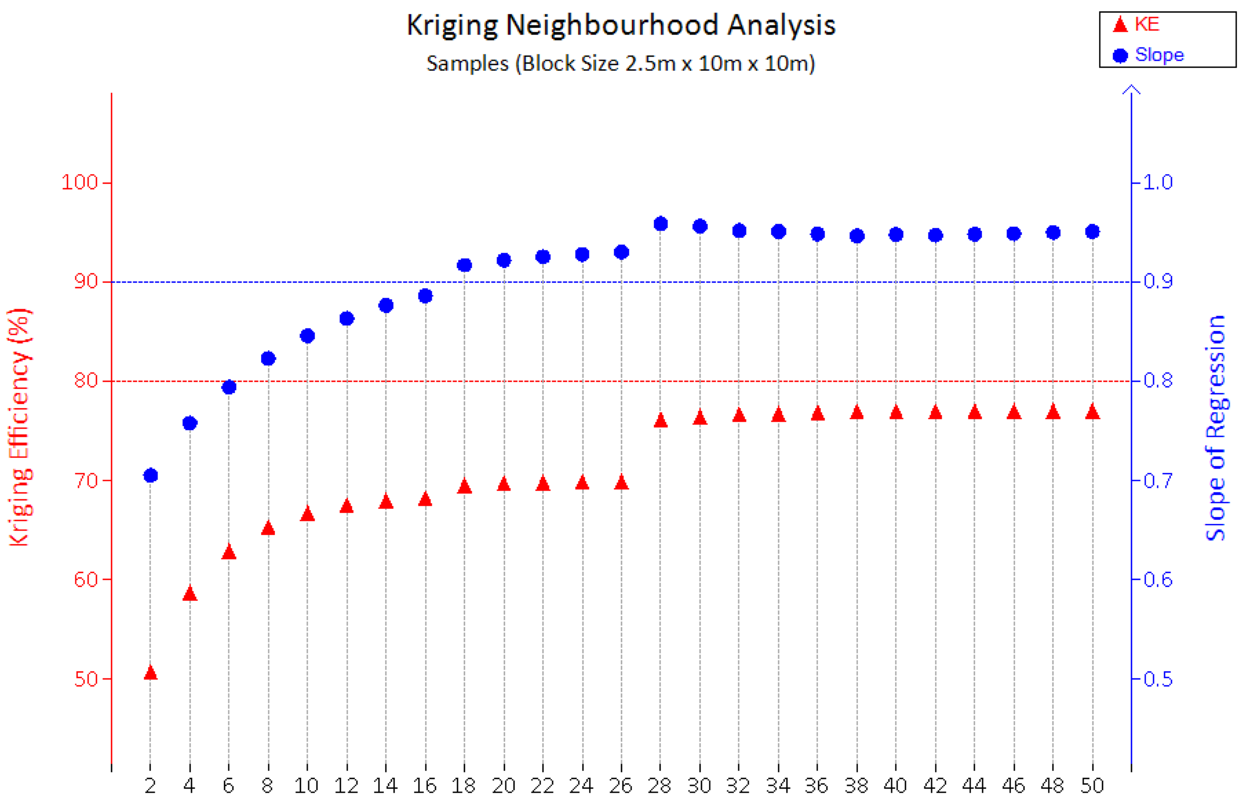

Figure 37: Kriging neighbourhood analysis

The estimation and search parameters which were chosen are shown in Table 24. The primary, secondary, and tertiary search ellipse dimensions represent approximately half of the Zn variogram range, the full variogram range and two times the full variogram range respectively.

Table 24: Estimation search parameters

Parameter		Primary	Secondary	Tertiary
Input data		Drill hole	Drill hole	Drill hole
Estimation method		Ordinary kriging	Ordinary kriging	Ordinary kriging
Search ellipse dimensions (radius)	Major	45	90	180
	Semi-major	45	90	180
	Minor	17	34	68
Block size	X (m)	2.5		
	Y (m)	10		
	Z (m)	10		
Minimum number of samples		6	6	2
Maximum number of samples		18	18	18
Discretisation		3 by 3 by 3	3 by 3 by 3	3 by 3 by 3

9 Density

9.1 Data

Density measurements have been completed in most cases by the analytical laboratory using the Archimedes method of water immersion with wax coating. More recently, PNX has set up a specific gravity (SG) station at Brocks Creek for water immersion determinations. Porosity is generally not an issue with the determinations, at least below the limit of oxidation, although samples are soaked for at least 24 hours prior to measuring wet weights, or longer until they stop bubbling.

A total of 4,478 density measurements were provided for review.

9.2 Analysis and Approach

All density data imported into Datamine was initially subset by mineralisation domain and oxidation zone. The results are shown in Table 25. The data was not declustered given that no significant clustering was evident in the data.

Table 25: Dry density mean values by mineralisation type and oxidation status

Domain	Oxide (g/cm^3)	Transitional (g/cm^3)	Fresh (g/cm^3)
East Lode	No data	3.01 (8)	3.56 (256)
West Lode	No data	2.78 (3)	3.73 (437)
Footwall Gold	No oxide component	No transitional component	2.94 (99)
Hangingwall Gold	No oxide component	No transitional component	2.74 (20)
Interlode Gold	No data	No data	3.09 (42)
Interlode Base Metals	No oxide component	No transitional component	3.28 (80)

The relationship between SG and Fe grade was then reviewed for each domain to assess whether a regression could be used to assign bulk density based on the Fe grade. While there was a positive correlation, the relationship was not considered strong enough to confidently apply a regression to assign density to each block. Sub-setting the data by oxidation status did not improve the results. *Table 26* summarises the results.

Table 26: Regression results SG versus Fe (%)

Domain	Line of Regression	Correlation Coefficient
East Lode	Y=156931x–374829	0.62
West Lode	Y=163340x–332812	0.55
Footwall Gold	Y=60233x–127743	0.64
Hangingwall Gold	No data	No data
Internal Gold	Y=–25290x+93147	–0.28
Internal Base Metals	Y=186300x–440189	0.76

Density was interpolated for fresh mineralisation (which forms the bulk of the Mineral Resource) given that there was considerable data available to inform the estimation. The density of the transitional zone was set to 3.0 g/cm^3 for the East and West Lodes and 2.6 g/cm3 for the Internal Gold Zone. The density of the oxide zone was set to 2.6 g/cm^3 for the East and West Lodes and 2.5 g/cm3 for the Internal Gold Zone.

10 Metallurgy

10.1 Summary

CSA Global was provided with a Memorandum prepared by mworx Pty Ltd (mworx) which contained a summary of the metallurgical test work that had been completed. Metallurgical test work was completed prior to the March 2016 Scoping Study and no additional work has been completed since. Recommendations were provided by mworx regarding recoveries to be adopted in the metal equivalents calculation.

10.2 Reporting of Metal Equivalent Grades

Both Au equivalent and Zn equivalent were reported using the metallurgical recovery and commodity price assumptions shown in Table 27 and based on the recommendations by mworx. Metal prices were derived from forward price estimates.

Table 27: Metal equivalent parameters

Parameter	Unit	Value
Zn price	US$/t	2,450
Pb price	US$/t	2,100
Cu price	US$/t	6,200
Ag price	US$/troy ounce	20.50
Au price	US$/troy ounce	1,350
Zn recovery	%	80
Pb recovery	%	60
Cu recovery	%	60
Ag recovery	%	80
Au recovery	%	60

It is PNX's opinion that all the elements included in the metal equivalents calculation have a reasonable potential to be recovered and sold.

The formulae below were applied to the estimated constituents to derive metal equivalent values:

*Gold Equivalent (field = "AUEQ") (g/t) = (Au grade (g/t) * (Au price per ounce/31.10348) * Au recovery) + (Ag grade (g/t) * (Ag price per ounce/31.10348) * Ag recovery) + (Cu grade (%) * (Cu price per tonne/100) * Cu recovery) + (Pb grade (%) * (Pb price per tonne/100) * Pb recovery) + (Zn grade (%) * (Zn price per tonne/100) * Zn recovery) / (Au price per ounce/31.10348 * Au recovery)*

*Zinc Equivalent (field = "ZNEQ") (%) = (Au grade (g/t) * (Au price per ounce/31.10348) * Au recovery) + (Ag grade (g/t) * (Ag price per ounce/31.10348) * Ag recovery) + (Cu grade (%) * (Cu price per tonne/100) * Cu recovery) + (Pb grade (%) * (Pb price per tonne/100) * Pb recovery) + (Zn grade (%) * (Zn price per tonne/100) * Zn recovery) / (Zn price per tonne/100 * Zn recovery)*

11 Block Modelling

11.1 Block Model Construction

Model prototype parameters, including block dimensions and model extents are shown in Table 28.

Table 28: Block model summary

Axis	Origin	Model extent (m)	No. of blocks	Block dimension (m)	Sub-block dimension (m)
Easting (x)	775,450	1300	520	2.5	0.5
Northing (y)	8,504,125	750	75	10	1
Elevation (Z)	–310	500	50	10	1

11.2 Grade Interpolation and Assignment Methodology

11.2.1 In-situ Mineralisation

Grade was interpolated into blocks using ordinary kriging. Search neighbourhood parameters are detailed in Table 24.

Dynamic anisotropy was adopted to enable the search ellipse to follow the orientation of the interpreted wireframes. Dynamic anisotropy is a process whereby a search ellipse is defined for each block, allowing the undulating nature of the mineralisation to be reflected in the modelling.

A point file was first created using the Datamine process ANISOANG with each point representing the dip and dip direction of a wireframe triangle. Points which represented the ends of wireframes were then deleted to create a final point file. The point file was then used to interpolate dip and dip direction into the block model, which were used to rotate the search ellipses. Variogram models used the same rotation angles as the search ellipse.

11.3 Block Model Validation

11.3.1 Absent Data

The block model was initially checked for absent grades. No absent data was present for Zn, Ag, Au, Pb, Cu, Fe, S or As.

11.3.2 Visual Review

The block model was then validated by comparing block model grades with drillhole composites on all 17 sections. Block grades were found to reasonably reflect the drillhole data, with a degree of smoothing evident in the block model which is expected given the change in support.

The hard boundary used at the top of fresh rock boundary for S, Zn, Pb and Au was evident during the review, with significant grade changes when moving from partially oxidised rock to fresh rock.

11.3.3 Statistical Review

Mean global block model and drillhole grades were then compared for each lode. Mean grades were subset by oxidation status for S, Zn, Pb and Au. Composite data was de-clustered using a 20 m by 20 m by 20 m grid. Results are shown in Table 29 for the East and West Lode.

Results are generally within 20% apart from S, Zn and Pb within the oxide zone due to limited data and low concentrations of these constituents. Overall, the block model reflects the drill hole data.

Table 29: Comparison of drill hole and block model grades

Domain	Estimated variable	Composite mean (naive)	Declustered mean	Block model mean (tonnage weighted)	Relative difference (%)
East Lode					
East Lode Oxide	Zn (%)	0.40	0.28	0.48	20
East Lode Fresh	Zn (%)	8.67	6.99	7.65	–12
East Lode Oxide	Pb (%)	0.25	0.19	0.34	36
East Lode Fresh	Pb (%)	1.90	1.76	1.83	–4
East Lode Oxide	Au (g/t)	7.38	6.21	7.44	1
East Lode Fresh	Au (g/t)	2.94	2.63	2.91	–1
East Lode Oxide	S (%)	3.37	2.57	4.63	37
East Lode Fresh	S (%)	16.58	13.15	13.36	–19
East Lode	Ag (g/t)	264	247	271	3
East Lode	Cu (%)	0.31	0.25	0.30	–3
East Lode	Fe (%)	15.92	13.17	14.30	–10
East Lode	As (%)	0.42	0.34	0.40	–5
West Lode					
West Lode Oxide	Zn (%)	0.63	0.65	0.76	21
West Lode Fresh	Zn (%)	4.25	4.15	4.14	–3
West Lode Oxide	Pb (%)	1.27	0.90	0.96	–24
West Lode Fresh	Pb (%)	0.38	0.36	0.33	–13
West Lode Oxide	Au (g/t)	1.76	1.73	1.02	–42
West Lode Fresh	Au (g/t)	1.74	1.59	1.73	–1
West Lode Oxide	S (%)	8.31	5.08	4.38	–47
West Lode Fresh	S (%)	16.71	14.35	17.05	2
West Lode	Ag (g/t)	66	57	60	–9
West Lode	Cu (%)	0.31	0.27	0.30	–3
West Lode	Fe (%)	24.11	20.67	24.32	1
West Lode	As (%)	1.85	1.65	1.70	–8

11.3.4 Swath Plots

Swath plots were created for northing, easting and elevation slices throughout the deposit at 20 m increments. Block mean grades compared reasonably well with the drill hole grades for the East and West Lodes. Zn and Au easting plots for the East and West Lodes are shown in Figure 38, Figure 39, Figure 40 and Figure 41.

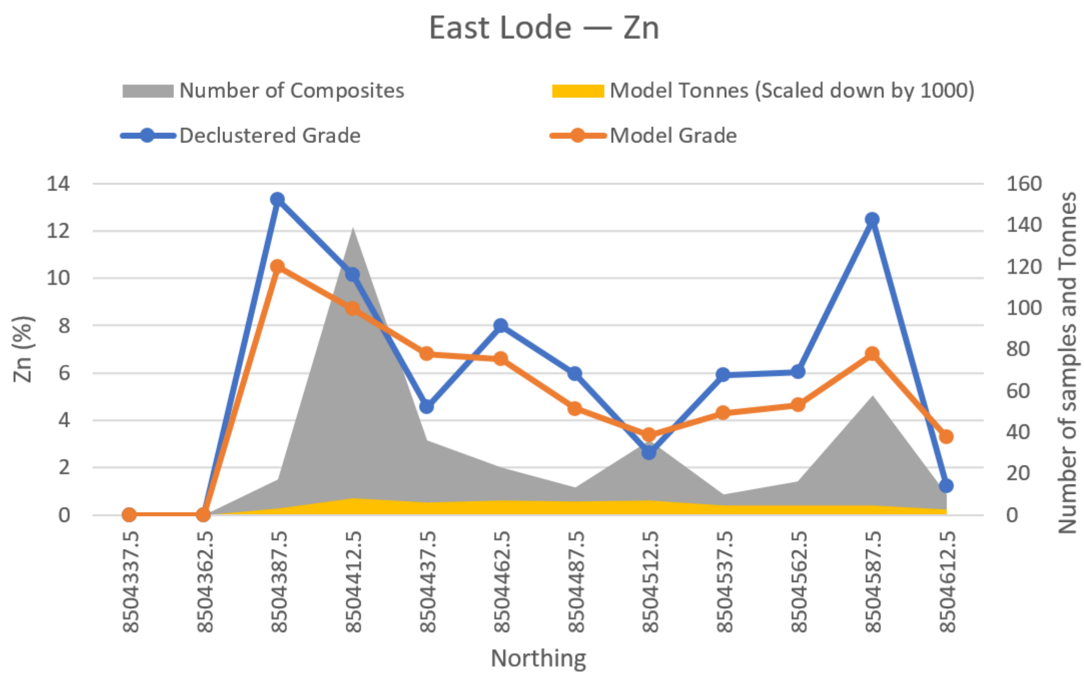

Figure 38: *Zn northing swath plot for East Lode*

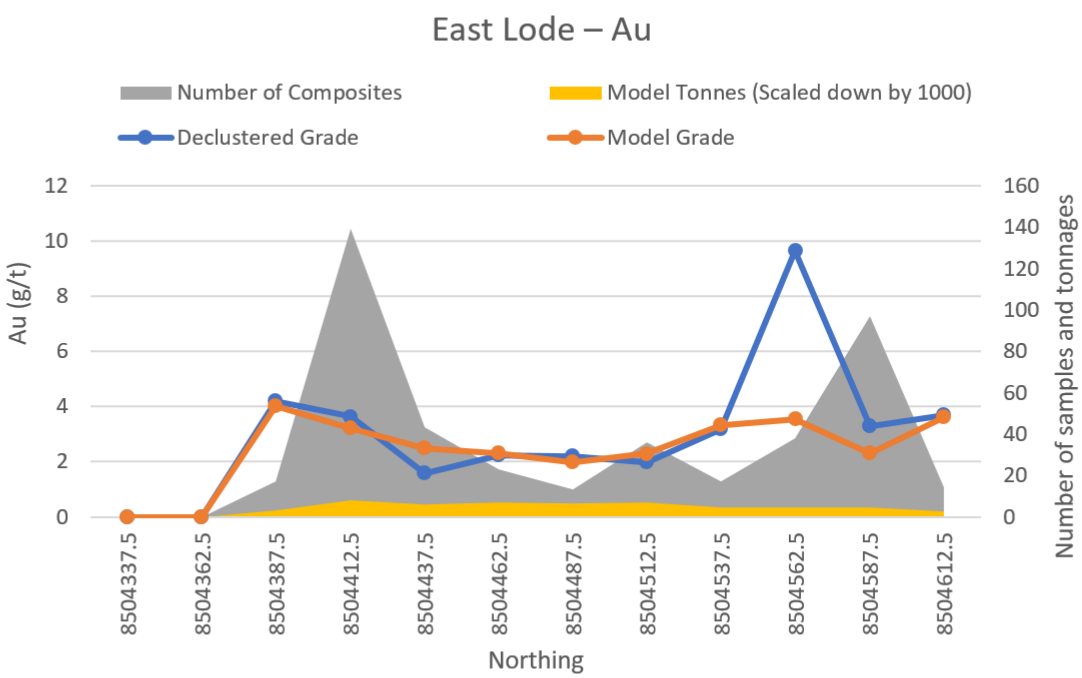

Figure 39: *Au northing swath plot for East Lode*

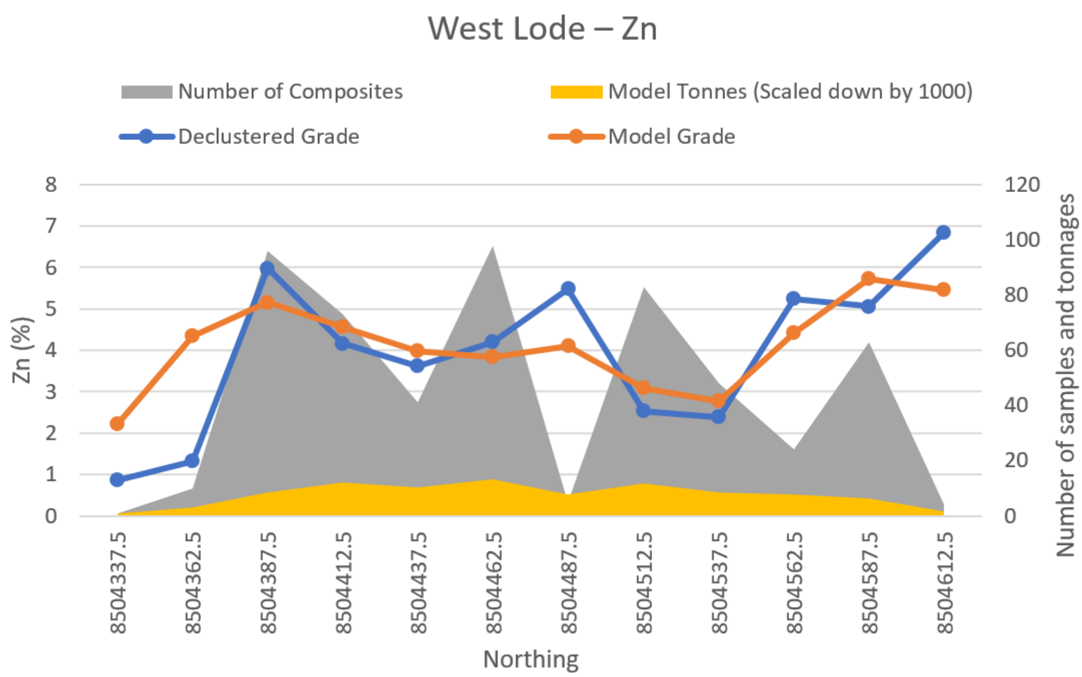

Figure 40: Zn northing swath plot for West Lode

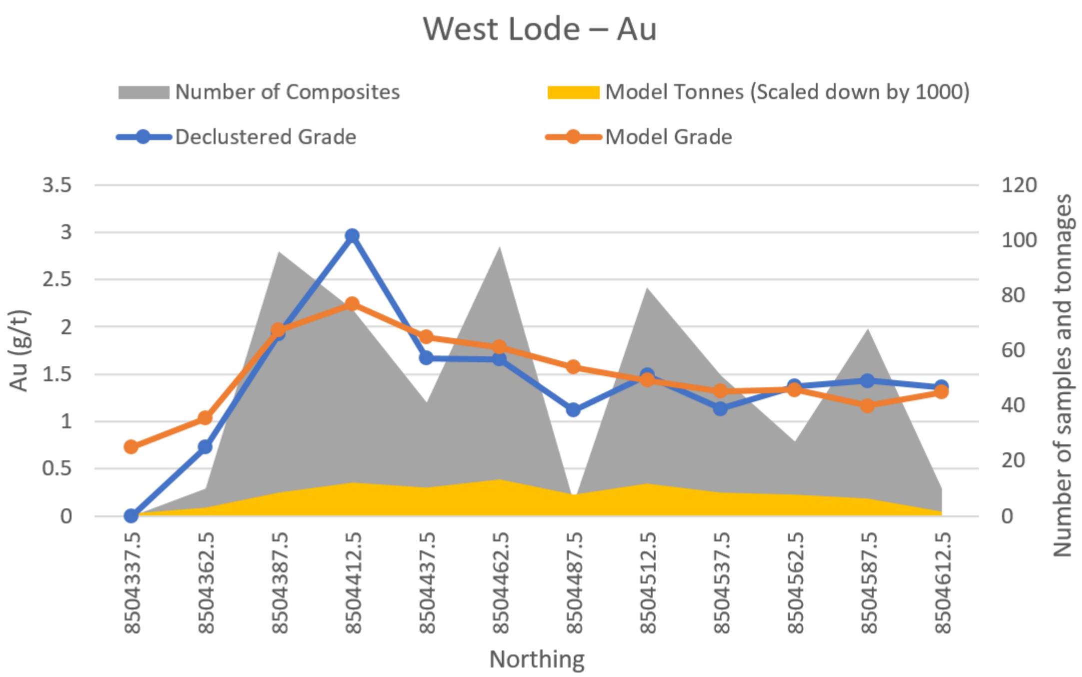

Figure 41: Au northing swath plot for West Lode

12 Mineral Resource Reporting

12.1 Reasonable Prospects Hurdle

Clause 20 of the JORC Code (2012) requires that all reports of Mineral Resources must have reasonable prospects for eventual economic extraction, regardless of the classification of the Mineral Resource.

The Competent Persons deem that there are reasonable prospects for eventual economic extraction of mineralisation on the following basis:

- The project is located close to road and port infrastructure, approximately 145 km southeast of Darwin.
- The mineralisation contains elevated Zn, Pb, Cu, Au and Ag grades over a reasonable strike length.
- The mineralisation forms a continuous coherent zone which should allow mining with only moderate dilution, subject to the adoption of robust grade control processes.
- The mineralisation reported lies within approximately 210 m of surface and is therefore potentially amenable to open pit mining.
- There is significant potential to recover Au, Pb, Zn and Ag in addition to Cu.
- The Mineral Resource is near the Mount Bonnie deposit which is wholly owned by PNX, hence common infrastructure could be developed.
- There is some potential to increase the Mineral Resource with additional drilling.

12.2Mineral Resource Classification

The Mineral Resource has been classified in accordance with guidelines contained in the JORC Code. The classification applied reflects the author's view of the uncertainty that should be assigned to the Mineral Resources reported herein. Key criteria that have been considered when classifying the Mineral Resource are detailed in JORC Table 1 which is contained in Appendix 1.

After considering data quality, data distribution, and geological and grade continuity, the following approach was adopted when classifying the Mineral Resource:

- The East and West Lode were classified as Indicated in the fresh zone. These areas are tested by mainly modern drilling on a 20 m N by 20–40 m RL pattern. Geological evidence is considered sufficient to assume geological and grade continuity between points of observation where data and samples are gathered. Figure 12 and Figure 13 show the drill spacing in the East and West Lodes respectively. All transitional and oxide material in the East and West Lode was classified as Inferred due to a paucity of modern analytical data and limited density information.
- Subsidiary lodes were classified as Inferred given drilling had sampling which was more limited and these lodes were less continuous. Geological evidence is considered sufficient to imply but not verify geological and grade continuity.

12.3 Mineral Resource Estimate

12.3.1 Mineral Resource by JORC Classification

The Mineral Resource estimate is shown in Table 30, reported by lode and classification.

Table 30: Iron Blow Mineral Resource estimate by JORC classification

JORC Classification	Lode	AuEq Cut-off grade (g/t)	Tonnage (Mt)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Au (g/t)	ZnEq (%)	AuEq (g/t)	Density (t/m³)
Indicated	East Lode	1	0.80	7.64	1.83	0.30	275	2.90	20.64	15.53	3.48
	West Lode	1	1.28	4.14	0.33	0.31	60	1.73	8.84	6.66	3.66
Total Indicated			**2.08**	**5.49**	**0.91**	**0.30**	**143**	**2.19**	**13.39**	**10.08**	**3.59**
Inferred	East Lode	1	0.02	0.48	0.34	0.16	132	6.01	13.65	9.43	2.91
	West Lode	1	0.02	0.76	0.96	0.13	109	1.02	5.90	4.44	2.88
	Footwall Gold	1	0.21	0.25	0.07	0.03	16	2.03	3.48	2.62	2.98
	Hangingwall Gold	1	0.04	0.06	0.09	0.01	6	1.68	2.57	1.94	2.79
	Interlode Gold	1	0.04	0.21	0.03	0.07	8	1.66	2.79	2.10	2.90
	Interlode Base Metal	1	0.12	3.52	0.32	0.14	35	0.69	5.87	4.42	3.18
Total Inferred			**0.45**	**1.11**	**0.18**	**0.07**	**27**	**1.71**	**4.38**	**3.30**	**3.00**
GRAND TOTAL			**2.53**	**4.71**	**0.78**	**0.26**	**122**	**2.10**	**11.79**	**8.87**	**3.48**

** Due to the effect of rounding, the total may not represent the sum of all components*

12.4 Grade Tonnage Curves

Grade Tonnage curves were created for Au and Zn and are shown in Figure 42 and Figure 43 .

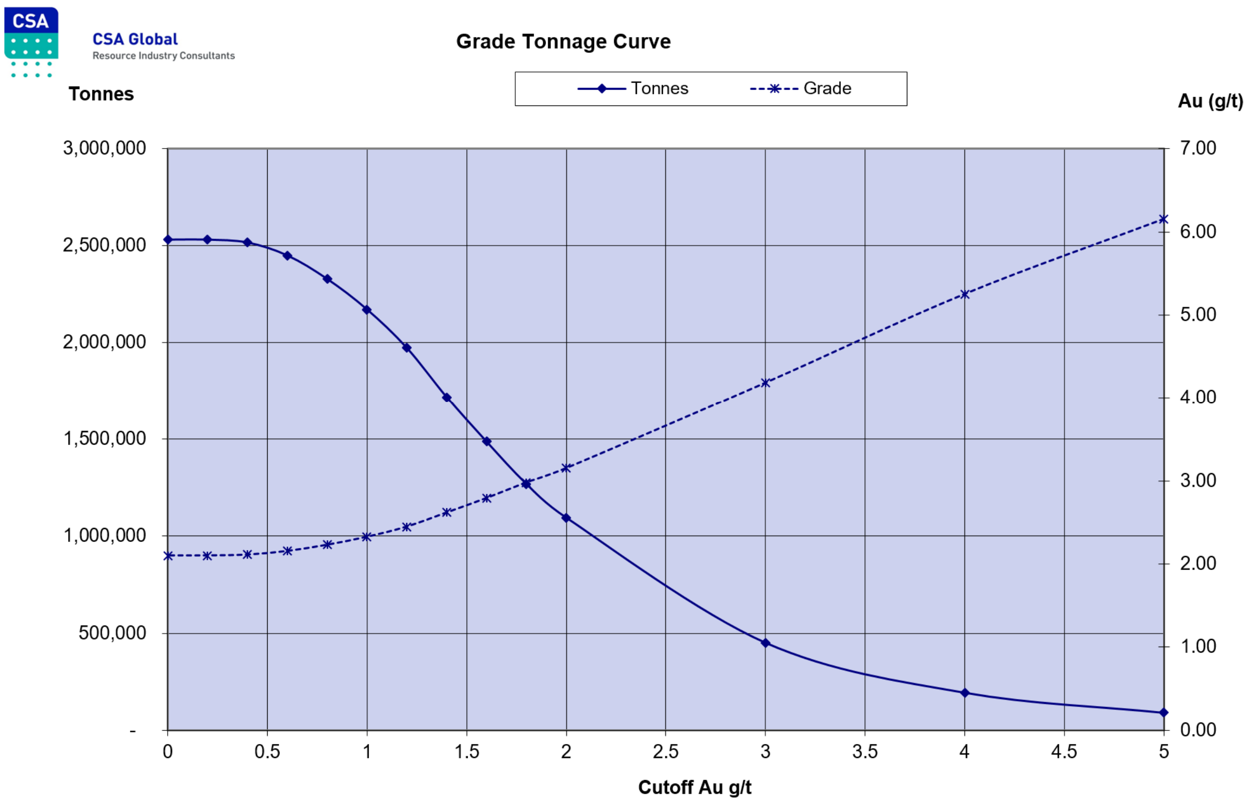

Figure 42: Au Grade Tonnage Curve – All Lodes

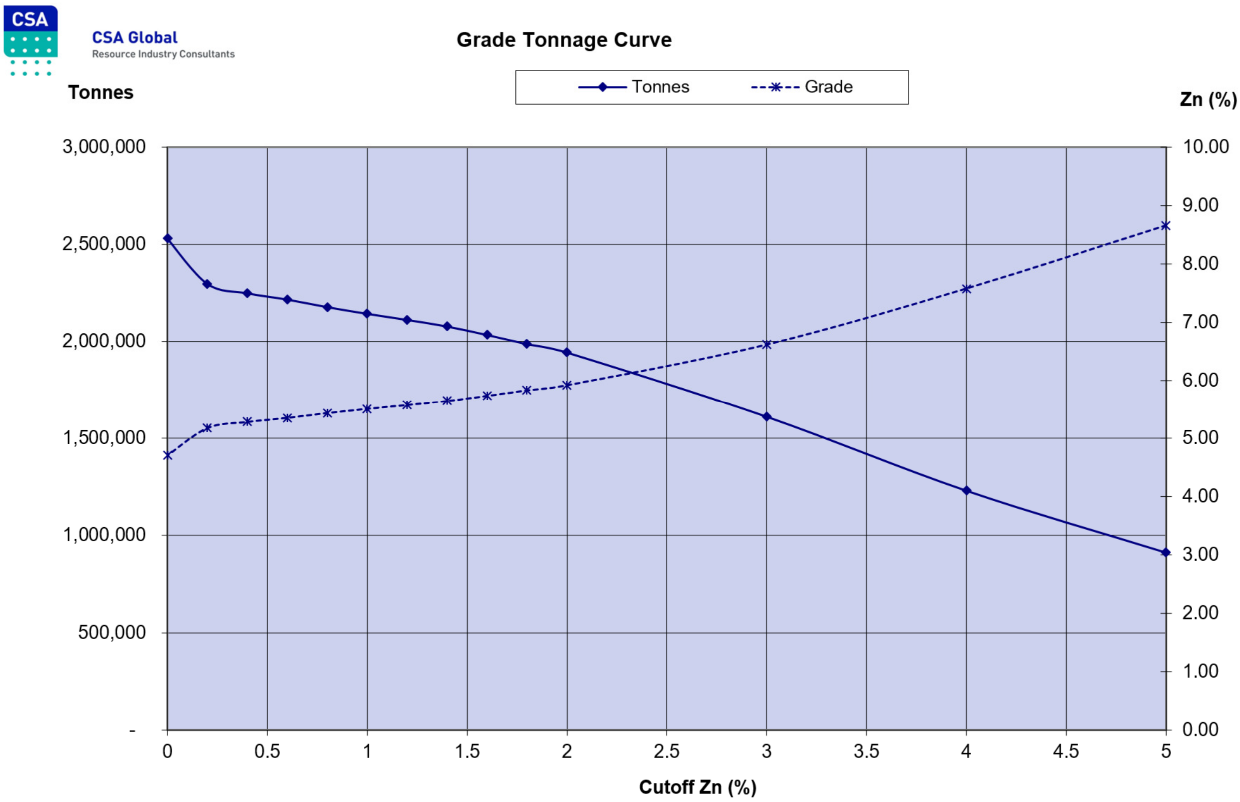

Figure 43: Zn Grade Tonnage Curve – All Lodes

12.5 Comparison with Previous Mineral Resource Estimate

The Mineral Resource estimate completed by AMC in 2014 is shown in Table 31.

Table 31: 2014 Iron Blow Mineral Resource estimate by AMC

JORC Classification	Depth	Cut-off grade AuEq	Tonnage (Mt)	Zn (%)	Pb (%)	Cu (%)	Ag (g/t)	Au (g/t)
Inferred	>–90 m RL	0.7	2.2	4.9	1.0	0.3	140	2.4
	<–90 m RL	3.0	0.4	4.1	0.4	0.4	71	2.7
Total Inferred			**2.6**	**4.8**	**0.9**	**0.3**	**130**	**2.4**

** Due to the effect of rounding, the total may not represent the sum of all components*

The 2017 Mineral Resource estimate is similar to the 2014 Mineral Resource estimate; however, the majority of the Mineral Resource has been classified as Indicated following completion of additional drilling in 2016.

12.6 Final Filenames and Storage

12.6.1 Filenames

A list of the final files that were created in the preparation of the Mineral Resource estimate are contained in Table 32.

Table 32: Iron Blow Mineral Resource estimate – final file list

Filename	Description
ibmin0417.dm	Final classified mineralisation block model
ib0117.dm	Final combined classified mineralisation block model and waste model
ibass.d.dm	De-surveyed drill hole file containing all drill holes
Ibmin.c	Final composite file used for grade interpolation
Ib_wastedumpsolidtr/pt.dm	Historical waste stockpile
ibgeopittr/pt.dm	Waste envelope used to create waste model for pit optimisation
topomergetr/pt.dm	Topography DTM
tofr50417tr/pt.dm	Top of fresh rock DTM
boco50417tr/pt.dm	Base of complete oxidation DTM
EL_v2tr/pt.dm	East Lode wireframe
WLv2tr/pt.dm	West Lode wireframe
FWAutr/pt.dm	Footwall gold lodes wireframe
HWAuv2tr/pt.dm	Hangingwall gold lodes wireframe
ILAuv2tr/pt.dm	Interlode gold lodes wireframe
ILBMv2tr/pt.dm	Interlode base metal lodes wireframe
Ugdeptr/pt.dm	Underground development solid model
FWtb_csa.st	String file used to create FWtb solid model
HWTbs_csa.st	String file used to create interlode surfaces and contact between lHWtbs and lHWtb units
HWGYWK_csa.st	String file used to create HWGYWK solid model
FWtb_csatr/pt.dm	Solid model representing FWtb unit
HWGYWK_csatr/pt.dm	Solid model representing HWGYWK unit
c1tr/pt.dm	DTM representing interlode footwall
c2tr/pt.dm	DTM representing interlode hangingwall
c3tr/pt.dm	DTM representing contact between lHWtbs and lHWtb units

12.6.2 File Storage

All files associated with the scope of work have been saved on the CSA Global Brisbane server under the directory \Clients\PNX Metals\2017_04_PNXMRE03.

13 Conclusions and Recommendations

13.1 Conclusions

CSA Global considers that data collection techniques are consistent with industry good practise and suitable for use in the preparation of a Mineral Resource estimate to be reported in accordance with The JORC Code. Although some issues were noted with recent CRM results, QC data largely supports the integrity of the analytical data which has been used to prepare the Mineral Resource estimate.

A 3D block model representing the mineralisation was created using Datamine software. High-quality diamond core and RC samples were used to interpolate grades into blocks using ordinary kriging . Several methods validated the block model including visual review and comparison of sampling and block model grades.

The Mineral Resource is considered to have reasonable prospects for eventual economic extraction due to the volume and grade of mineralisation, access to critical infrastructure, close proximity to surface and the potential to achieve economies of scale with dual development of the Mount Bonnie deposit.

13.2Recommendations

CSA Global recommends the following actions are completed to support the ongoing exploration effort at Iron Blow:

- The historical void model should be further validated and a work program designed to improve the accuracy of this model. This may involve geophysical methods (such as passive seismic, detailed 3D seismic, sonar and radar techniques or cross-hole seismic and radio-imaging), detailed assessment of historical data such as abandonment plans (which may be lodged with mines departments), making inferences from previous mining methods, drill hole void data or company report data. Discussions should be held with a geophysicist to discuss the relative merits and costs associated with each geophysical method. In addition to the requirement to deplete Mineral Resource block models, voids represent a significant safety risk in an operating environment. Most known open pit mining procedures involve demarcation and probe drilling prior to mining.
- In order to convert Inferred Mineral Resources to higher classification categories, further infill drilling is required. CSA Global recommends a drill spacing of 15 m E (along strike) by 15 m Z (down dip) to allow Mineral Resources to be considered for Measured classification, and a drill spacing of 25 m E (along strike) by 25 m Z (down dip) for Indicated Mineral Resources. Underground fan drilling would be recommended to support stope design if underground mining methods are adopted, while open pit grade control drilling would be recommended to support ore block delineation if open cut mining is adopted.
- A grade control pattern of 2.5 m to 10 m (E) by 5 m to 10 m (RL) is recommended initially over a 25 m or 50 m block, located in an area critical to early cash flow. This should be completed prior to start-up and would give a high level of confidence in local block estimates. This will enable detailed assessment of the geometry and grade of the mineralisation and allow drill spacing to be further assessed.
- There is limited drill hole information within the oxide and transitional zones. This area of the Mineral Resource is classified as Inferred should be drill tested as a matter of priority given the importance of early production on project economics. Density and analytical data should be collected from these holes.
- PNX should investigate base metal CRM results as a matter of priority. Many results from 2015 through 2016 are below the mean minus two standard deviation range. If there are issues with the CRMs, a

complete set of new CRMs should be sourced from a supplier. Alternatively, if there were issues with the laboratory, the original assay results should be replaced with results from an umpire laboratory. A representative set of pulps should be selected initially to submit to an umpire laboratory to quantify the issue.

- Data storage systems, including back-up and security should be externally audited.
- Although the controls to the mineralisation are relatively well understood, continued development of the geological model is recommended to support future Mineral Resource estimation and establishment of the mine geology function. Further understanding of the different styles of mineralisation, and their geological controls, within the interpreted East and West Lodes in particular is required.
- Establishment of the mine geology system should be considered well in advance of mining. Systems to ensure development of the geological model, high-quality sampling, rapid capture and storage of data, QC assessment, robust ore block interpretation, minimisation of ore loss and dilution, production tracking and reporting, and reconciliation should be established.

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15 Competent Persons Statements

I, Aaron Meakin confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code, 2012 Edition").
- I am a Competent Person as defined by the 2012 JORC Edition, having five years' experience which is relevant to the style of mineralisation and type of deposit described in this report, and to the activity for which I am accepting responsibility.
- I am a Member of The Australasian Institute of Mining and Metallurgy.
- I am a full-time employee of CSA Global Pty Ltd.
- I have disclosed to the reporting company the full nature of the relationship between myself and the company, including any issue that could be perceived by investors as a conflict of interest.

____

Aaron Meakin
Manager – Resources, CSA Global Pty Ltd

I, Andrew Bennett confirm that:

- I have read and understood the requirements of the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves ("JORC Code, 2012 Edition").
- I am a Competent Person as defined by the 2012 JORC Edition, having five years' experience which is relevant to the style of mineralisation and type of deposit described in this report, and to the activity for which I am accepting responsibility.
- I am a Member of The Australasian Institute of Mining and Metallurgy.
- I am a full-time employee of PNX Metals Limited.

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Andrew Bennett
Exploration Manager, PNX Metals Limited

Appendix 1: JORC Table 1

JORC Table 1 Section 1 – Key Classification Criteria

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	Samples used in the Mineral Resource estimate were mainly obtained through reverse circulation (RC) and diamond drilling methods collected from campaigns completed by several companies from 1963 through 2016. Limited costean and channel samples collected by PNX Metals Limited (PNX) from the base of the Iron Blow open pit have also been used.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Diamond core has been sawn in half or quarter using a core saw. The cut line for drill core is along the apex of the foliation or mineralisation. RC samples were collected using a riffle or cone splitter mounted at the bottom of the cyclone at regular 1 m intervals to collect a 1/8th fraction for assay and a 7/8th fraction for logging.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. "RC drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay"). In other cases, more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	Most RC and diamond drilling samples were used to obtain 0.5 m to 2 m samples which were pulverised and submitted for inductively coupled plasma optical emission spectrometry (ICP-OES) or inductively coupled plasma optical mass spectrometry (ICP-MS) for base metals and fire assay with determination by atomic absorption spectrometry (FA/AAS) for gold. Historic holes were sampled at similar intervals. For Geopeko Limited (Geopeko) percussion and diamond holes, Cu, Pb, Zn, Ag, Cd and Fe were determined by AAS following mixed acid digestion in mixed acids including hydrofluoric acid. Bi, As, Sb and Sn were done by pressed powder XRF. Au and Ag were by fire assay fluxing of a 30g sample followed by AAS. S was by a LECO titrimetric method.
Drilling techniques	*Drill type (e.g. core, RC, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	RC and diamond (primarily HQ and NQ) drilling were completed to support the preparation of the Mineral Resource estimate. Two holes were drilled at Iron Blow in the early 1900s, and the location of these holes could not be confidently determined. The Bureau of Mineral Resources (BMR) then completed 6 diamond holes in 1963. Geopeko and MGBUT completed 23 diamond holes from 1976 through 1988 and GBS Gold Australia Corporation (GBS) completed 6 diamond holes in 2008. Crocodile Gold Australia Pty Ltd (GGA), now Kirkland Lake, completed 13 diamond holes in 2011. PNX have drilled 48 reverse circulation (RC) and diamond holes since 2014. Drilling completed prior to 2007 is termed "Historical Drilling" and drilling completed after 2007 is termed "Modern Drilling" in this report. RC and diamond drilling dominate the database. Recent coring completed by PNX has been oriented using a Reflex ACE tool.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	Drilling recoveries are recorded by PNX for both RC chips and diamond core. In RC chips, recovery is visually estimated based on the size and weight of the sample bag and residue. Excellent recoveries were observed in dry samples and reasonable recovery was observed in wet samples with some loss of fines. Recoveries in diamond core were high below the limit of oxidisation. In rare holes that have intersected the mineralisation in the oxide zone, larger core losses were observed due to washing of clays.

Criteria	JORC Code explanation	Commentary
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	Triple tube drilling has occasionally been used in addition to larger (HQ) diameter core sizes to maximise sample recovery. RC drilling utilised an external booster typically keeping samples dry to about 60 m and maximising recoveries.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship between grade and recovery has been identified.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	Comprehensive logs capturing lithological, mineralogical, magnetic susceptibility, geotechnical, and portable x-ray fluorescence (pXRF) data are available for all recent drilling (2008 onwards). Historical drilling has been logged, however in most cases the logs are not available and the core location is unknown. The ability to test the veracity of this data is therefore limited. Logging codes are available however, hence the historical data is useful to assist interpretation.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging is generally qualitative in nature. All core stored at Brocks Creek has been photographed wet and dry.
	The total length and percentage of the relevant intersections logged.	All diamond core and RC drilling has been geologically logged.
Subsampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	Diamond samples are generally half-core, with core sawn in half using a core-saw. Occasionally quarter-core samples are taken.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	RC samples were collected using a riffle (2015) or cone (2016) splitter mounted at the bottom of the cyclone at regular 1 m intervals to collect a 1/8th fraction for assay. The splitter was blown out and cleaned after each 6-m drill rod to reduce contamination.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Samples submitted by PNX in 2015 were prepared at North Australian Laboratories Pty Ltd (NAL), which is an independent laboratory based in Pine Creek in the Northern Territory. Upon arrival at the laboratory, samples are sorted, reconciled against the accompanying sample despatch notice and dried in a gas fired oven at 130°C for three hours. Samples are removed from the oven and cooled prior to being crushed using a 200 by 125 Jacques Jaw Crusher, which is cleaned with compressed air between each sample. Nominal particle size discharge is 3 mm to 5 mm. Approximately 1 kg of sample is split from the crushed sample using a Jones riffle splitter. The 1 kg subsample is pulverised to a nominal 100 µm particle size in a vertical spindle pulveriser. The pulverised sample is roll mixed on a rubber mat to ensure the sample is homogenised and a 400 g and 50 g cut is taken from the mat rolled sample for base metals and gold analysis respectively. Two holes were prepared and assayed at Bureau Veritas in Adelaide (IBRC032D and IBDH045) in 2016 due to their dual purpose in metallurgical and geotechnical studies. Samples were oven-dried in calico bags at 105°C for a minimum of two hours. Whole samples were crushed to 3 mm in a Boyd Crusher and the whole sample was then milled in a LM5 pulveriser. Samples greater than 3 kg are double bowled. The grind specification was 85% passing 75-micron. Grind was determined at a rate of 1:20 by wet sieve analysis. A 200-g aliquot of ground pulp was packaged in a labelled and bar-coded sample bag. The bulk pulverised sample was return to the original calico bag and stored in 2001 drums for return to the client. CSA Global understands that sampling techniques used by Kirkland Lake and GBS were like those used by PNX, although all

Criteria	JORC Code explanation	Commentary
		drilling previously completed was diamond only. According to the analytical database, the GBS holes (IBDH001–6) were mainly sampled as quarter-core with some half-core. Kirkland Lake samples (IBDH007–22) were almost all half-core. GBS samples were crushed to 2–3 mm, split to less than 1 kg, and milled to approximately 100 microns from which 50 g was taken for assay. Kirkland Lake samples were crushed to a nominal 85% passing 75 microns. Sampling and sample preparation techniques used by Geopeko are not known in any detail, although half core was sampled in Q53-S/20 according to the analytical database. Sampling and sample preparation techniques adopted by BMR are not known. Percussion and diamond holes drilled by MGBUT in the 1980s were completed by Overland Drilling. Percussion holes were sampled in 3 m intervals via a cyclone and splitter (presumably riffle). Samples averaged 10 kg and were submitted to the Mount Bonnie assay laboratory for Au and Ag analysis. Diamond holes (S20/S21) were HQ, with recoveries generally exceeding 90%. Potentially mineralised core was cut into two equal halves perpendicular to bedding. Even metre marks terminated sampling intervals.
	Quality control procedures adopted for all subsampling stages to maximise representivity of samples.	Subsampling is performed during the preparation stage according to the assay laboratories' internal protocol.
	Measures taken to ensure that the sampling is representative of the in-situ material collected, including for instance results for field duplicate/second-half sampling.	RC field duplicates were inserted in the sample stream at a rate of one in every 25 samples. Results given confidence in sample collection procedures during the 2015 and 2016 RC drilling programs completed by PNX.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered to be appropriate to the grain size of the material being sampled.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	The techniques are considered total. For samples submitted in 2015 and 2016, the analytical methods vary according to tenor of the mineralisation. For very high grade samples, separate sample submissions are requested using the "G340" code, in which ammonium acetate is added to keep the Pb in solution. The "G300" and "G400" methods have lower detection limits and better precision for concentrations of the analyte below 1% compared with the G340 method. Once the concentration exceeds 1%, the G340 method is used which is an "ore grade" procedure and has a better precision. Determination is by ICP-OES or ICP-MS depending on the element. For gold, fire assay fusion with a lead oxide flux and various other reagents is used depending on the mineral type followed by cupellation of the recovered lead button in a magnesium oxide cupel. The dore prill is parted and the Au content analysed by AAS. Diamond core from 2016 was analysed by Bureau Veritas in Adelaide. A larger suite of elements was tested as part of the metallurgical work as follows: • PF101: Ca, Fe, Mg, Mn, S, Zn – peroxide fusion with ICPMS determination. • PF102: Ag, As, Ba, Bi, Cd, Ce, Co, Cu, La, Nd, Ni, Pb, Pr, Sb, Sn, W, Y – peroxide fusion with ICP-AES determination. • FA002; Au, Pt, Pd – lead collection fire assay by ICP-AES on 40 g sample.

Criteria	JORC Code explanation	Commentary
		Kirkland Lake's drill samples were submitted in 2011 and assayed at NTEL in Darwin. Gold assay results were based on 50 g fire assay. Base metal analysis was by ICP-MS. CSA Global understands drill samples were submitted in 2008 by GBS to NAL in Pine Creek using similar techniques to those applied in 2015 and 2016. Assay results for drilling undertaken by Geopeko also are available and complete. Analabs reports indicate that Cu, Pb, Zn, Ag and Cd and Fe were prepared using the "A6" code, which utilised a hydrofluoric acid mixture digestion with AAS finish. As, Sb, Sn and Bi were analysed using XRF on pressed powder. Au was analysed according to the "RG50" code, which is a 50-g fire assay and S was analysed by LECO. Standards and repeats were reported by Analabs in each batch. MGBUT samples were analysed for Au, Ag, cu, Pb, Zn, As ad Sn by the Mount Bonnie Laboratory. Assay results for drilling undertaken by BMR are available for gold, however analytical techniques are not known.
	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	Portable XRF instruments are used to assist with selection of the appropriate analytical technique. Limited XRF has been used where no assay data exists within the modelled mineralisation envelopes.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Kirkland Lake and GBS submitted duplicate samples at a rate of 1:25, certified reference materials (CRMs) at a rate of 1:25 and blanks at a rate of 1:50. PNX used the same QA processes, except blanks are submitted at a rate of 3:100. PNX also submitted a batch of samples to an independent laboratory (Bureau Veritas) for umpire analysis. QC results from the BMR, Geopeko and MGBUT drilling are not available. Given all available QC results, CSA Global considers that a relatively high level of confidence can be placed in the precision and accuracy of the analytical data used in the preparation of this Mineral Resource estimate. Some concern exists with the 2016 base metal CRM results. PNX is currently liaising with the primary laboratory regarding these results. Given the results are below the expected range, if any issue exists with the analysis, the analytical bias is likely to be low and therefore have a conservative effect on the Mineral Resource estimate.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intersections have been verified by alternative PNX company personnel.
	The use of twinned holes.	No twinning has been completed to verify historical intersections, however the location and tenor of historical intersections is broadly consistent with modern holes.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Templates have been set up to facilitate geological and geotechnical logging. Prior to the import into the central database, logging data is validated for conformity and overall systematic compliance by the geologist. Assay results are received from the laboratory in digital format. Once data is finalised it is transferred to an Access Database on the PNX server, which is backed up and stored offsite weekly.
	Discuss any adjustment to assay data.	No adjustments were made to the analytical data, other than replacing below detection results with a value equal to half the detection limit.
	Accuracy and quality of surveys used to locate drill holes (collar and downhole	Drill holes completed from 2008 onwards been surveyed by qualified surveyors using a differential global positioning system

Criteria	JORC Code explanation	Commentary
Location of data points	*surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	(DGPS) instrument, to a nominal +/- 20 cm accuracy in the X and Y directions. Downhole deviations have been measured by downhole survey instruments. In most cases, this has been by single shot camera, however a multi-shot camera and gyroscope have also been used. Where data is affected by magnetic interference, the azimuth readings have been adjusted manually based on adjacent values. Collars from historical drilling undertaken by BMR and Geopeko were georeferenced from available plans, and are probably accurate to +/– 10 m. The location of these holes is therefore subject to greater uncertainty than the holes completed from 2008 through 2016.
	Specification of the grid system used.	MGA Zone 52 is the adopted grid system.
	Quality and adequacy of topographic control.	An aerial photography and topographic survey was undertaken by drone in 2014 with a Canon Power Shot ELPH110HS camera flown with an average ground sampling distance of 5.26 cm. The topography file is considered extremely accurate.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	The data spacing is irregular, but overall averages 20 m section spacing over a strike length of about 300 m, with holes spaced approximately 15–50 m apart on section.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The Competent Persons believe the mineralised domains have sufficient geological and grade continuity to support the classification applied to the Mineral Resources given the current drill pattern. Mineral Resource estimation procedures are also considered appropriate give the quantity of data available and style of mineralisation under consideration.
	Whether sample compositing has been applied.	Samples were composited to 1 m prior to grade interpolation. This was considered appropriate given that most the samples have been collected over this interval. This allowed the natural variability of the sample data to be maintained prior to grade interpolation.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	The sectional azimuth is grid 090° and most holes are dipping 60° east. This allows the holes to intersect the mineralisation at a high-angle to its strike.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The relationship between the drilling orientation and the orientation of key mineralised structures is not considered to have introduced a sampling bias.
Sample security	*The measures taken to ensure sample security.*	A PNX geologist and field assistant are always present at the RC drill rig while samples are being drilled and collected. On completion of logging, samples were bagged and tied for transport to either the Brocks Creek compound for holding, or directly to the laboratory by PNX personnel. For diamond drilling, core is collected daily from the rig and transported to the Brocks Creek compound. The cut samples are bagged and tied and transported directly to the laboratory by PNX or laboratory personnel for analysis. The Brocks Creek compound is locked and has 24-hour camera security when no personnel are present. Sample security measures for drilling programmes completed prior to 2015 are unknown.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No audits or reviews of sampling techniques and data have been carried out.

JORC 2012 Table 1 Section 2 – Key Classification Criteria

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.*	Iron Blow comprises four granted Mineral Leases totalling 51.07 hectares, all 100% owned by PNX. All are 100% owned by PNX. The Mineral Leases include MLN214, MLN341, MLN343 and MLN349. The Mineral Leases are currently underlain by Exploration Leases (ELs) EL25748 to east, and EL10120 to the west. EL25748 is subject to an earn-in arrangement with Kirkland Lake, whereby PNX can earn 90% interest through staged expenditure commitments. As of January 2017, PNX has earned a 51% interest in this ELs. EL10120 is owned by a third party.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	Native Title has been extinguished over the Mineral Leases, nevertheless PNX is taking cultural heritage into consideration during project development studies, and engaged consultancy group "In Depth Archaeology" to undertake a field assessment and archaeological report. The Iron Blow leases show evidence of extensive mining disturbance, however in undisturbed areas there is evidence for Aboriginal occupation consistent with the broader region. Given the significant extent of disturbance within the leases, the assessment concluded that there is very low risk of further Aboriginal sites within the work area.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Iron Blow deposit has been subject to sporadic exploration by numerous parties since the early 1900s. A summary of the drilling history is provided in Table 1 Section 1.
Geology	*Deposit type, geological setting and style of mineralisation.*	The Iron Blow deposit lies near the bottom of the Mount Bonnie Formation close to the contact with the underlying Gerowie Tuff. Like Mount Bonnie, Iron Blow is thought to be a volcanogenic massive sulphide (VMS) deposit formed at or near the sea floor by submarine felsic volcanic activity. The fumaroles circulated metal-rich hydrothermal fluids into the local sediments. These units were then deformed at approximately 1875 Ma during an event which produced open upright folds in the sedimentary sequence. The fold's strike approximately north-south and plunge to the north. The deposit was rotated down towards the north-south trending axis of the Margaret Syncline and lie on their sides. Both the Iron Blow and Mount Bonnie deposits have been partly dismembered by east-west trending cross faults and sheared by thrust faults operating approximately along the bedding planes. The massive sulphides possibly represent ductile boudins in the more brittle enclosing sedimentary package and are the focus for shearing and offset faulting which occurred during the folding. Permeability created by deformation is interpreted to be the dominant control on the current geometry and location of the polymetallic mineralisation at Iron Blow.
Drill hole information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *Easting and northing of the drill hole collar* • *Elevation or RL (Reduced Level – Elevation above sea level in metres) of the drill hole collar* • *Dip and azimuth of the hole* • *Downhole length and interception depth*	Exploration results are not being reported.

Criteria	JORC Code explanation	Commentary
	• *Hole length.*	
	If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	Exploration results are not being reported.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	Exploration results are not being reported.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Exploration results are not being reported.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	Exploration results are not being reported.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results.*	Exploration results are not being reported.
	If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.	The sectional azimuth is grid 090° and most holes are dipping 60° east which means they generally intersect the mineralisation at a high-angle to its strike.
	If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. "downhole length, true width not known").	Exploration results are not being reported.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.*	Relevant maps and diagrams are included in the body of the report.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Exploration results are not being reported.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	No substantive exploration data not already mentioned in this table has been used in the preparation of this Mineral Resource estimate.

Criteria	JORC Code explanation	Commentary
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).*	Further work will be focused on testing for dip extensions and strike extensions and to confirm grade and geological continuity implied by the current block model.
	Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	Diagrams have been included in the body of this report.

JORC 2012 Table 1 Section 3 – Key Classification Criteria

Criteria	JORC Code explanation	Commentary
Database integrity	*Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.*	Logging is completed onto templates using standard logging codes. Analytical results are imported directly into the Access database by a database specialist.
	Data validation procedures used.	CSA Global completed numerous checks on the data. Absent collar data, multiple collar entries, suspect downhole survey results, absent survey data, overlapping intervals, negative sample lengths and sample intervals which extended beyond the hole depth defined in the collar table were reviewed. Only minor validation errors were detected which were communicated to PNX and corrected prior to the preparation of the Mineral Resource estimate.
Site visits	*Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*	Site visits have been completed by Andrew Bennett who assumes Competent Person status for the data and geological modelling components of the work. Aaron Meakin assumes Competent Person status for the Mineral Resource estimate and has not completed a site visit. The outcome of the site visits (broadly) were that data has been collected in a manner that supports reporting a Mineral Resource estimate in accordance with the JORC Code, and controls to the mineralisation are well-understood.
	If no site visits have been undertaken indicate why this is the case.	Andrew Bennett has undertaken a site visit.
Geological interpretation	*Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*	Geological interpretation was completed by Andrew Bennett from PNX. Peer review of the interpretation was completed by Aaron Meakin from CSA Global. Anomalous concentrations of Cu, Pb, Zn, Ag and Au are located toward the base of the Mount Bonnie Formation. The mineralised zone comprises lenses of gossanous mineralised breccia and highly altered, rotated and sheared blocks of siltstone and tuffaceous mudstone. The mineralised zones have been tilted to the west at between 60° and 75°. Geological modelling has aimed to separate the numerous different mineralisation styles.
	Nature of the data used and of any assumptions made.	All interpretations were based on both drill holes, surface mapping and other structural features. A mineralisation envelope was interpreted for the East Lode (Zn-Pb-Ag-Au) and West Lode (Zn-Au). Interpretation was based on both geological logging (brecciated carbonate altered intervals), bedding plane data, and/or elevated Zn or Au. Approximately 1 g/t AUEQ was used to interpret these lodes, with isoshells created rotated 10 degrees around the positive Y axis as a guide. Note that high grade massive sulphide units occur within these zones, and both gold only and gold plus base metal zones occur. Gold rich zones were also interpreted hangingwall to the East

Criteria	JORC Code explanation	Commentary
		Lode and Footwall to the West Lode, and some lodes (gold and base metal) were also interpreted between the East and West Lodes. A grade of 1 g/t AUEQ was used to define the boundaries to the mineralisation for these subsidiary lodes.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	Alternative interpretations are likely to materially impact on the Mineral Resource estimate on a local but not global basis.
	The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.	Geological logging and mapping from the Iron Blow open pit has been used to guide mineralisation interpretations. Continuity of mineralisation is good, however there is limited modern drilling data in some areas of the Mineral Resource, particularly in the oxide and transitional zones. Additional drilling is required to confirm geological and grade continuity in these areas.
Dimensions	*The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	The Mineral Resource is contained within an area defined by a strike length of 300 m and across-strike width of approximately 2 m to 40 m. All reported Mineral Resources lie within approximately 215 m of surface, which makes the deposit potentially amenable to open pit mining and /or underground mining.
Estimation and modelling techniques	*The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.*	The Mineral Resource estimate has been completed using two main grade estimation domains (East and West Lodes) and four subsidiary estimation domains (Footwall Gold, Hangingwall Gold, Internal Gold and Internal Base Metal). The following top cuts were applied following statistical analysis: East Lode: 50 g/t Au, 1500 g/t Ag West Lode: 20 g/t Au, 600 g/t Ag Footwall Gold: 10 g/t Au, 100 g/t Ag Internal Base Metal: 150 g/t Ag Hangingwall Gold: No top cuts Internal Gold: No top cuts. Quantitative kriging neighbourhood analysis was undertaken to assess the effect of changing key kriging neighbourhood parameters on block grade estimates. Kriging efficiency and slope of regression were determined for a range of block sizes, minimum/maximum samples, search dimensions and discretisation grids. A three-pass search ellipse strategy was adopted whereby search ellipses were progressively increased if search criteria could not select sufficient data for the block estimate. Dynamic anisotropy was used to ensure undulation in the mineralisation was captured by the search ellipses. Ordinary kriging was adopted to interpolate grades into cells, with variogram rotations consistent with search ellipse rotations. Statistical analysis was completed using Supervisor software. All geological modelling and grade estimation was completed using Datamine software.
	The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.	One previous Mineral Resource estimate was reported in accordance with the JORC Code in 2014. The Mineral Resource reported herein is similar in size and grade to the 2014 Mineral Resource estimate, however the Mineral Resource has largely been converted from Inferred to Indicated following additional drilling.
	The assumptions made regarding recovery of by-products.	Iron Blow is a polymetallic deposit. It is assumed that Zn, Pb, Cu, Ag and Au can be recovered.

Criteria	JORC Code explanation	Commentary
	Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).	As, Fe and S have been estimated to allow consideration of deleterious elements in mining studies.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A 2.5 m E by 10 m N by 10 m RL parent cell size was used with sub-celling to 0.5 m E by 1 m N by 1 m RL to honour wireframe boundaries. The drill hole data spacing is highly variable but approximates 20 m along strike by 15 m by 50 m down-dip.
	Any assumptions behind modelling of selective mining units.	No assumptions were made regarding selective mining units.
	Any assumptions about correlation between variables	No assumptions have been made regarding correlation between variables.
	Description of how the geological interpretation was used to control the resource estimates.	The following approach was adopted by PNX following consideration of the geology and statistical analysis of the global analytical dataset: • All interpretations were based on both drill holes, surface mapping and other structural features. • Mineralisation envelope was interpreted for the East Lode (Zn-Pb-Ag-Au) and West Lode (Zn-Au). Interpretation was based on both geological logging (brecciated carbonate altered intervals), bedding plane data, and/or elevated Zn or Au. Approximately 1 g/t AUEQ was used to interpret these lodes, with isoshells created rotated 10 degrees around the positive Y axis as a guide. Note that high grade massive sulphide units occur within these zones, and both gold only and gold plus base metal zones occur. Wireframing these units would have been complex; hence it was decided to attempt to select an appropriate interpolation algorithm to limit smoothing to ultimately reflect the Competent Persons view of the likely grade distribution within the broad envelope. • Gold rich zones were interpreted hangingwall to the East Lode and Footwall to the West Lode, and some lodes (gold and base metal) were also interpreted between the East and West Lodes. A grade of 1 g/t AUEQ was used to define the boundaries to the mineralisation.
	Discussion of basis for using or not using grade cutting or capping.	The coefficient of variation (COV), histograms and probability plots were reviewed for Au, Cu, Pb, Zn and Ag to help understand the distribution of grades, and assess the requirement for top cuts for each estimation domain. Top cutting was deemed necessary where the COV was high (>1.2) and individual high-grade samples were deemed to potentially result in biased block model results. The point at which the number of samples supporting a high-grade distribution diminishes was generally selected as the top-cut.
	The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.	Drillhole grades were initially visually compared with cell model grades. Domain drill hole and block model statistics were then compared. Swath plots were also created to compare drillhole grades with block model grades for easting, northing and elevation slices throughout the deposit. The block model reflected the tenor of the grades in the drill hole samples both globally and locally.
Moisture	*Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.*	Tonnages are estimated on a wet basis.

Criteria	JORC Code explanation	Commentary
Cut-off parameters	*The basis of the adopted cut-off grade(s) or quality parameters applied.*	The Mineral Resource reported above a cut-off grade of 1 g/t AUEQ. The adopted cut-off grade is considered reasonable for Mineral Resources which are likely to be extracted by open pit methods.
Mining factors or assumptions	*Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	In selecting the cut-off grades, it was assumed that open pit mining methods could be applied at Iron Blow. Some internal dilution exists within the interpreted mineralisation boundaries but this material was not modelled. Further drilling is required to ascertain if these zones are continuous and can therefore be selectively removed during mining.
Metallurgical factors or assumptions	*The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	A metallurgical test work programme is underway for the Iron Blow deposit. The work is being carried out to establish the optimal processing route to recover economic constituents at Iron Blow. Preliminary recovery results have been used to calculate metal equivalent grades. The formulae below were applied to the estimated constituents to derive metal equivalent values: Gold Equivalent (field = "AUEQ") (g/t) = (Au grade (g/t) * (Au price per ounce/31.10348) * Au recovery) + (Ag grade (g/t) * (Ag price per ounce/31.10348) * Ag recovery) + (Cu grade (%) * (Cu price per tonne/100) * Cu recovery) + (Pb grade (%) * (Pb price per tonne/100) * Pb recovery) + (Zn grade (%) * (Zn price per tonne/100) * Zn recovery) / (Au price per ounce/31.10348 * Au recovery) Zinc Equivalent (field = "ZNEQ") (%) = (Au grade (g/t) * (Au price per ounce/31.10348) * Au recovery) + (Ag grade (g/t) * (Ag price per ounce/31.10348) * Ag recovery) + (Cu grade (%) * (Cu price per tonne/100) * Cu recovery) + (Pb grade (%) * (Pb price per tonne/100) * Pb recovery) + (Zn grade (%) * (Zn price per tonne/100) * Zn recovery) / (Zn price per tonne/100 * Zn recovery)
Environmental factors or assumptions	*Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.*	Environmental considerations have not yet been considered due to the early stage of this project. It is therefore assumed that waste could be disposed in accordance with a site-specific mine and rehabilitation plan.
Bulk density	*Whether assumed or determined. If assumed, the basis for the assumptions.*	Bulk density determinations adopted the water displacement method.

Criteria	JORC Code explanation	Commentary
	If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	
	The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.	Both historical and recent core has been subject to density determinations. PNX have set up a specific gravity station at Brocks Creek for water immersion determinations. Porosity is generally not an issue with the determinations, at least below the limit of oxidation, although samples are soaked for at least 24 hours prior to measuring wet weights, or longer until they stop bubbling.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Density has been estimated in the fresh zone (where there is significant data). Values were assigned in the oxide and transitional zones (where there is limited data) as follows: • East Lode Oxide 2.60 g/cm^3 • East Lode Transitional 3.00 g/cm^3 • West Lode Oxide 2.60 g/cm^3 • West Lode Transitional 3.00 g/cm^3 • Internal Gold Oxide 2.50 g/cm^3 • Internal Gold Transitional 2.60 g/cm^3
Classification	*The basis for the classification of the Mineral Resources into varying confidence categories.*	The Mineral Resource has been classified following due consideration of all criteria contained in Section 1, Section 2 and Section 3 of JORC 2012 Table 1 as follows: • The East Lode and West Lode were classified as Indicated in the fresh zone. These areas are tested by modern drilling on a nominal 20 m N by 20–40 m RL pattern. Geological evidence is considered sufficient to assume geological and grade continuity between points of observation where data and samples are gathered. All transitional and oxide material in the East and West Lode was classified as Inferred due to a paucity of modern analytical data and limited density information. • Subsidiary lodes were classified as Inferred given drilling had sampling was more limited and these lodes were less coherent continuous. Geological evidence is considered sufficient to imply but not verify geological and grade continuity.
	Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).	Appropriate account has been taken of all relevant criteria including data integrity, data quantity, geological continuity, and grade continuity.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Mineral Resource estimate appropriately reflects the Competent Person's views of the deposit.
Audits or reviews	*The results of any audits or reviews of Mineral Resource estimates.*	The current model has not been audited by an independent third party but has been subject to CSA Global's internal peer review processes.
Discussion of relative accuracy/ confidence	*Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate,*	The Mineral Resource accuracy is communicated through the classification assigned to this Mineral Resource. The Mineral Resource estimate has been classified in accordance with the JORC Code, 2012 Edition using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this Table.

Criteria	JORC Code explanation	Commentary
	a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.	
	The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The Mineral Resource statement relates to a global tonnage and grade estimate. Grade estimates have been made for each block in the block model.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	No detailed production figures are available for Iron Blow.

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