# MT CARBINE BANKABLE FEASIBILITY STUDY

## CHAPTER 3: GEOLOGY AND RESOURCES

**DECEMBER 2021**

# Document History

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# 1. Introduction

## 1.1 Context

This Chapter 3: Geology and Resources shall be read in conjunction with Chapter 1: Executive Summary and additional references as listed in Section 14.

## 1.1. Purpose

The purpose of Chapter 3: Geology and Resources is to detail the geological framework for the low grade ore stockpile (LGS) and open cut ore bodies within the Mt Carbine lease area. It contains descriptions on how supporting data has been captured and modelled to gain an understanding of subsurface lithology and structure, and the relative confidence in estimating tonnage, grade and physical characteristics of the resource.

# 2. Tenure

The Mt Carbine mining area is confined within two Mining Leases, ML4867 and ML 4919 totalling 366.39 hectares. The mining licenses are surrounded by EQR's EPM Tenements EPM 14872, EPM 14871 and EPM 27394 covering an additional 115 $km^2$.

A map of the tenure boundaries is shown in Figure 1.

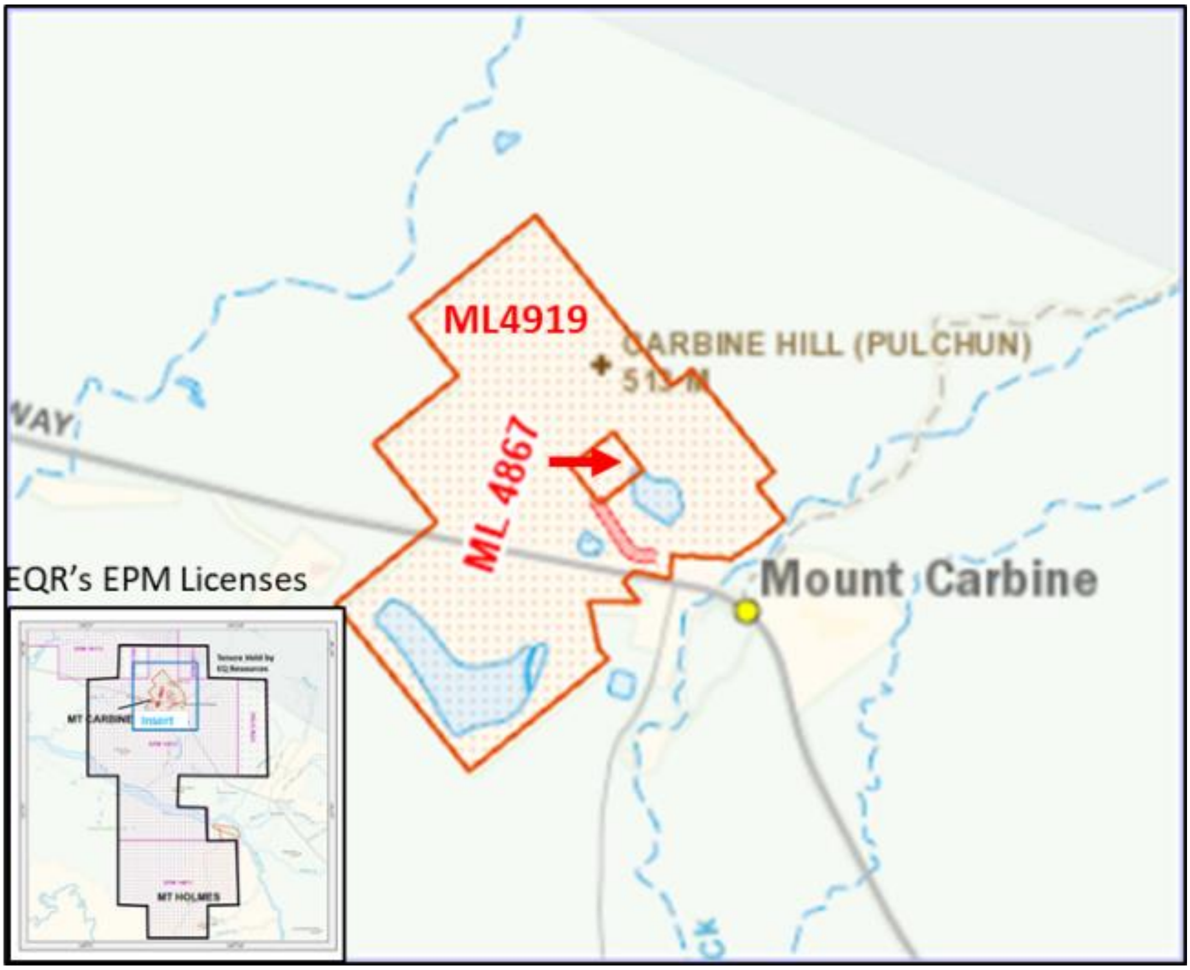


Figure 1: Mt Carbine Lease Boundaries and Surrounding Exploration Tenements

ML4867 (358.5 Ha) was first granted on 25 July 1974 and has been continually renewed until today. The latest renewal of 19 years expires on 31 July 2022, before which time EQR will submit a renewal application for a further 19 years. The renewal will be based on the new resource and completion of the Mt Carbine feasibility study outlining the planned future mining activity. ML4919 (7.891 Ha) was first granted on 24 August 1974 and has been continually renewed with the latest 19 year renewal expiring on 23 August 2023 and likewise a renewal application will be submitted in Q1, 2022.

Mt Carbine mining licenses are not associated with Native Title, having been granted prior to 1 September 1994.

In June 2019 EQR acquired a 100% interest Mt Carbine Quarries Pty Ltd and has ownership of the two Mining Leases and surrounding exploration projects.

Mt Carbine currently has approvals to mine up to 1 Mtpa of ore from the two Mining Leases. In addition to mining, the operation crushes rock from the Mt Carbine mine waste stockpile to make different grades of road base and construction materials.

# 3. Exploration and Mining History

The Mt Carbine tungsten deposit was discovered around 1883, with production first commencing in 1895 and was mined up to the end of the First World War by small-scale underground narrow vein mining. Ore was processed through a stamp battery and wolfram concentrates recovered by gravity recovery methods.

Approximately 150 miners occupied the site in groups and worked in over 30 small underground operations. Each group hand mined ore on rich veins some of which followed the same vein for a strike distance over 300m and 60m vertically. A major shaft was placed down the Bluff zone in an area where the vein widened to over 10m and became very rich. This became the central point for the Mt Carbine mining activity. A gravity processing plant with a 10 head stamper was built on a co-operative basis, ore was treated, and concentrates returned to the miner. Historical workings at the mine from 1946 are shown in Figure 2.

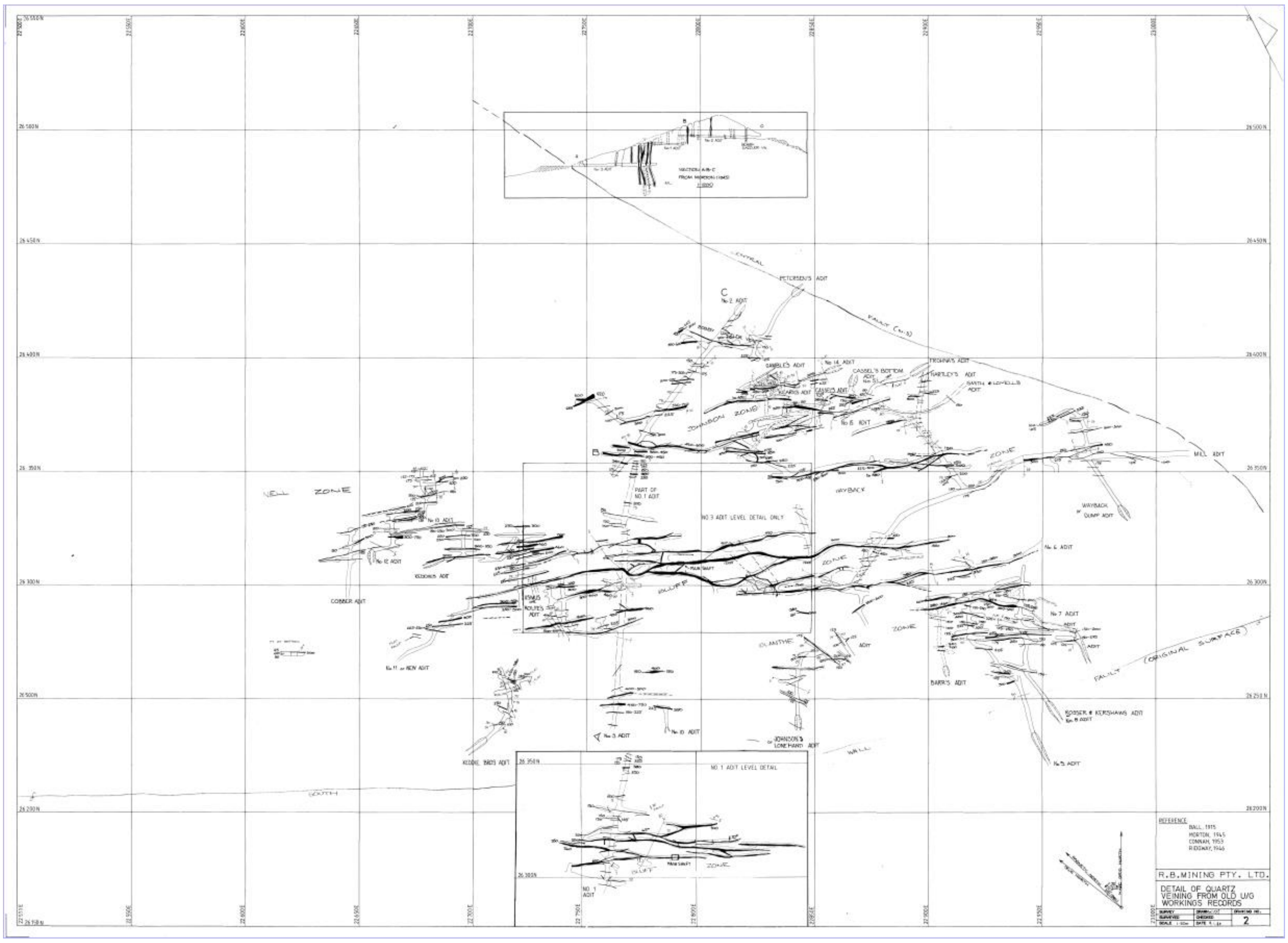


Figure 2: 1946 Government Map of Historical Workings

Following the purchase of the property from North Broken Hill Ltd, who carried out significant exploration diamond drilling, Queensland Wolfram Limited processed the deposit from 1974 to 1987 by means of an open pit at a rate of around 1 Mt per annum. During this period the mine produced an average of 1,000 tonnes per annum of high grade wolframite (72% $WO_3$) and scheelite (68% $WO_3$) concentrates in the ratio of approximately 4 tonnes of wolframite to 1 tonne of scheelite. The impurities in the products were exceptionally low, and although not known with certainty, the recovered grade of ore was reported to be approximately 0.12% $WO_3$.

Before the mine closed in 1987, Queensland Wolfram Limited entered a joint venture with Poseidon Limited, whereby Poseidon Limited funded the proposed underground development which aimed at a bulk underground mine by sub-level cave retreat, with the intent of mining panels of ore totalling 7.5 Mt with an estimated grade of >0.22% $WO_3$. Four hundred metres of 8 x 4.5 metre decline was developed with an underground conveyor system installed. The mine's final closure was in 1988 and it has remained closed until the present.

Since its closure, the site has changed hands and additional exploration and study activities have been conducted. Carbine Tungsten Limited and Icon Resources (predecessors of EQR) carried out further exploration drilling in 2011 and 2012 and produced two resource statements published by Geostats and Geosun in 2010 and 2013 respectively.

In June 2019, EQR purchased the mine and quarry. EQR re-established the processing plant and currently it has been repurposed to treat tailings and existing stockpiles of low grade ore produced from previous mining activities.

Figure 3 below illustrates how EQR found the project in 2019 with a total of 22 Mt of rock taken out by conventional mining methods. Water level in the pit was 55m deep in July 2019 and found to be clean uncontaminated water of slightly alkaline nature (pH 7.1).

Figure 3: Mt Carbine Open Pit

Figure 4 illustrates the low grade stockpile at Mt Carbine that remains from previous mining activities that is currently being processed by EQR.

Figure 4: Aerial View of Low Grade Stockpile

During the historic mining activities, 12 Mt of low grade material was sent directly to the LGS and 10 Mt was optically sorted to extract white quartz from the ore. The optically sorted ore resulted in 6 Mt of sorter reject and 4Mt of higher grade ore, that was sent for processing. This processed ore generated 4Mt of quartz rich tailings.

Head grades were not recorded but rather back calculated from recovered grade using a nominal 70% recovery figure to be 0.14% $WO_3$. Several authors e.g. A. White 2006 have subsequently postulated a higher feed grade based on a lower recovery at the processing plant with the head grade being as high as 0.16% $WO_3$ globally. The tailings current grade of approximately 0.08% $WO_3$ is similar to the LGS of 0.075% $WO_3$.

During the mining years, grade control on the pit was difficult since mining focused on quartz vein content and deciding whether it was ore or waste was based on percentage of quartz. Since then, it has been observed that an early major barren quartz vein event occurred. Typically mining was done on the +5% quartz content level with the LGS stockpile being below the 5% quartz content marker.

This process placed high ore into the waste pile and diluted the ore that was processed. Hence, the lack of an effective grade control system was instrumental in a significant quantity of high grade material ending up in the LGS.

# 4. Regional Geology

The Mt Carbine mine site is located within the Siluro-Devonian Hodgkinson sedimentary province. The thick sedimentary sequence was complexly folded and regionally metamorphosed prior to and during extensive granitic intrusions in the Carboniferous and Permian. The regional geology is shown in Figure 5.

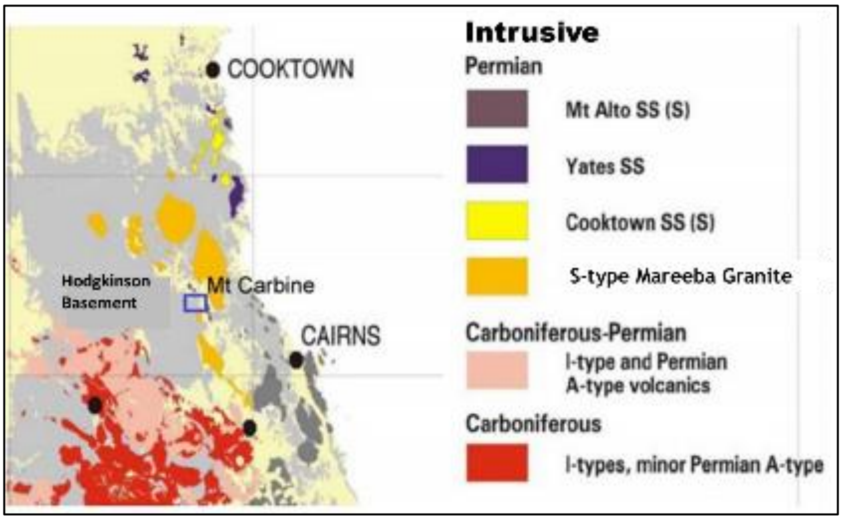


Figure 5: Regional Geological Setting of Mt Carbine

Within the permit north-north-west trending Hodgkinson Formation turbidite and siltstones are intruded by the Mareeba Granite dated at 277My, and the Mt Alto Granite, dated at 271±5My (Bultitude et al., 1999). Contact metamorphic aureoles marked by formation of cordierite Hornfels surround the granite intrusive and numerous acid to intermediate dykes intrude the metasediments. In the western portion of the tenement, a prominent metabasalt-chert ridge is a significant Hodgkinson formation stratigraphic component.

Fluids from the large granite batholith (>400km$^2$) has provided the hydrothermal fluids for mineral deposition around the margins of the intrusive. The Mt Carbine deposit is a direct result of these fluids travelling out from the granite into surrounding structurally prepared ground (granite formations can be seen in Figure 6). There is a preference for the better tungsten mineralisation (Mt Carbine & Peterson) to be located on failed fold hinges in the isoclinal folding Hodkinson Formation. These sites have the highest structural deformation to allow these fluids to penetrate and deposit quartz and minerals. The fact that the granite is a ‘S’ Type Granite dictates that the fluids will carry Sn, W, Rare Earths and Mo as the main economic minerals.

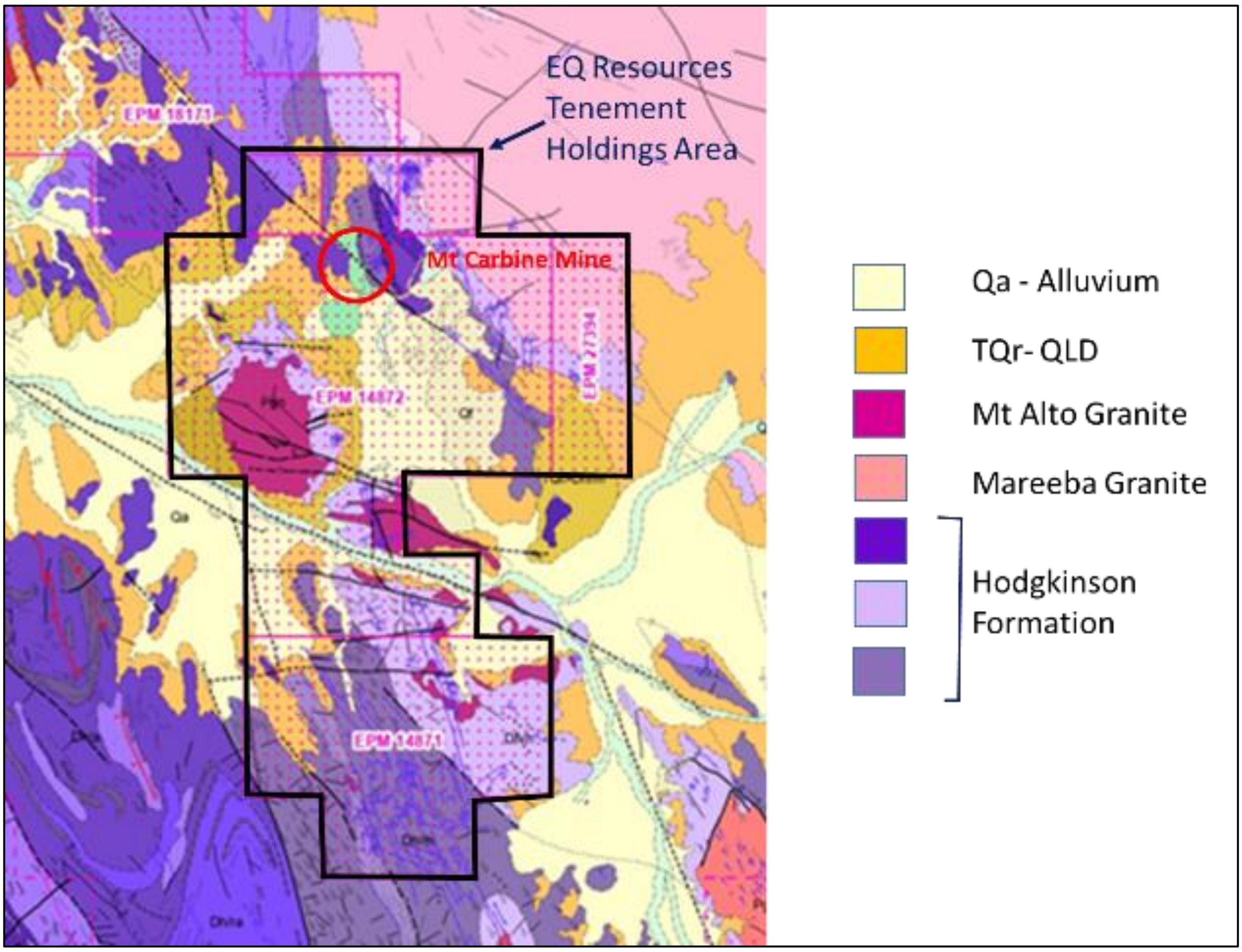


Figure 6: Mt Carbine Geology Area Showing Intrusives and Sediments of the Hodkinson Formation

# 5. Deposit Geology

## 5.1. Host Rock Geological History

The simplified geological history at Mt Carbine (after Forsythe and Higgins, 1990) is as follows:

- Deposition of the Siluro-Devonian Hodgkinson Formation sequence.
- Several stages of complex folding and faulting of the Hodgkinson Formation.
- Intrusion of minor andesite and dolerite dykes.
- Intrusion of mineralizing granite plutons with associated hornfelsing of country rock.
- Emplacement of major sheeted quartz-wolframite-tin veining and hydrothermal alteration of wall-rock
- Intrusion of post mineralisation dykes

In the pit the following rock types are encountered in order of abundance:

**Metasedimentary** – a range of hornfelsed mudstones and interbedded rudites. The major rock unit in the pit can look like slate with prominent cleavage. Various alteration from pervasive silicification to only hornfelsed cordierite chlorotic rock. Breaks along cleavage and schistosity planes. Tends to break down to form a nice gravel sized rock. No clay development and would form about 70% of the dump material.

**Metavolcanic** – located on the eastern end of the pit and on the south side of the SWF this unit is pale green with greenschist facies alteration. Forms about 20% of the dump material and is less likely to contain the mineralisation, as it is a peripheral unit. It contains locally hard siliceous chert bands that form some of the larger rocks on the waste dump

**Quartz Veins** – these are the white rocks and reach up to 10% by volume of the dump material, and are found in all sizes but typically less than 20cm in size. Angular pieces of hard material yet fractures and shatters when blasted so ends up as powders and shards throughout a lot of the dump. Can be barren or contain tungsten.

**Dyke Material** – two types of dykes are observed, 1) a pale uniform fine-grained felsic dyke that is seen to be exposed over a 10-15m wide dyke at the western end of the pit 2) a dark green/grey basic dyke that is present on most benches as a 0.5-1m dyke cross cutting the pit. In the dumps, it is not obvious these rock types and would form less than 2% of the dump material.

## 5.2. Mineralisation

The Mt Carbine tungsten deposit consists of a number of vertical to sub vertical sheeted quartz veins ranging in width up to 7m but averaging around 50cm. Only about 20% of the quartz veins are mineralised due to an early barren quartz event and a later high-grade quartz event. Economic minerals are the tungsten minerals of wolframite and scheelite mineralisation.

A typical section through the canter of the deposit has over 35 quartz veins ranging from 10cm to 6m in width with 5-8 zones of overprinting narrow mineralised quartz veins of 10-150cm in width. These high grade veins containing rich quartz - feldspar tungsten minerals and have been designated as “King Veins”.

The tungsten occurs as coarse crystalline varieties of Wolframite up to 10cm crystal size and with varying degrees of intergrown scheelite that is volumetrically less significant. Tungsten minerals can form up to 50% of the quartz vein zone, as intersected and with such coarse nature to the zones has potential to cause a nugget effect to the mineralisation. In later retrograde stages of the mineral deposition, a later scheelite overprinting event occurred that is represented mostly as fine scheelite fractures and replacement over wolframite. The Scheelite-Wolframite ratio is seen to increase to the grid north and grid east of the deposit and this mostly appears to be a local effect due to the host rocks they are crossing becoming more calcareous. In general the veins are persistent and strong and cross all rock types and occur due to structural control.

Examples of mineralisation in core samples are shown in Figure 7 and Figure 8.


Figure 7: King Veins Showing Coarse Vein Textures of Wolframite Crystals

Figure 8: Core Showing Late Replacement of Wolframite by Fine Network Retrograde Scheelite

The mineralisation interpretation is that there are two primary mineralising events with the first phase being a pervasive gaseous front that forms broader scale silicification / veining and deposits a lower grade background level of tungsten mineralisation. A rich brine fluid then entered later through later fracturing of the now silicified host rock. These brine veins (king veins shown above) are recognised to have higher temperature and higher salinities in fluid inclusion work attesting to their direct magmatic origin. Conversely the gaseous veins result in fluid inclusions with more gases and a composition showing mixing with groundwater has occurred. The king veins can be as high as 50% $WO_3$ but typically are in the 1-2% $WO_3$ range.

Minor molybdenum is found in the deeper parts of the system and to the western parts of the veins. Molybdenum generally deposits before tungsten and this gives a rough fluid outflow direction. Mineralisation at Mt Carbine with the exception of the Johnson vein demonstrates a localised level control, with the bulk of the tungsten occurring in the 200-350m RL zone. At these RLs the veins are 10-50cm thick but as the same veins go deeper below 200m RL we see the vein width increase dramatically and a decrease in tungsten content. Similarly, at higher elevations, the veining also changes dramatically, thinning down to 1-10cm veins/ stringers with low and variable amounts of wolframite.

Along the Mt Carbine ridge line which sits above +450m RL, a number of these narrow stringer veinlets are seen that may be leaders to better grades of mineralisation at depth.

Along the grid E-W strike to the mineralisation, the veins have been grouped into lenses, where one or more of the high-grade king veins are close enough to define a composite value above a cut off of 2m 0.25% $WO_3$.

It should be noted that these king veins often form on the margins to silicified zones or on margins of pre-existing barren quartz veins. Typically, an ore zone or lens is 3-5m in width and will contain one or more king veins. Widths of high grade can occur up to 15m wide where five or six king veins are seen close together.

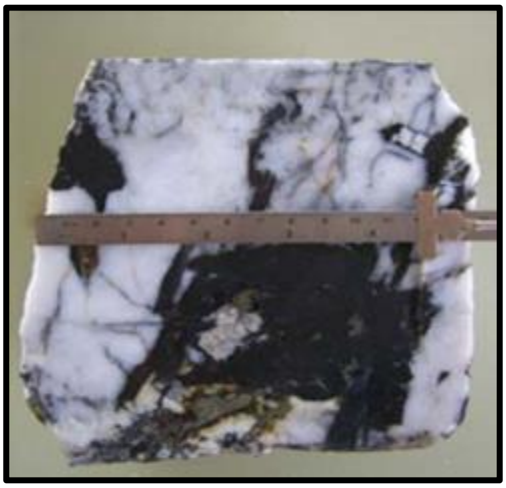

Figure 9: Close up of Wolframite from Drilling

Figure 10: Sheeted Veins Widening at Depth

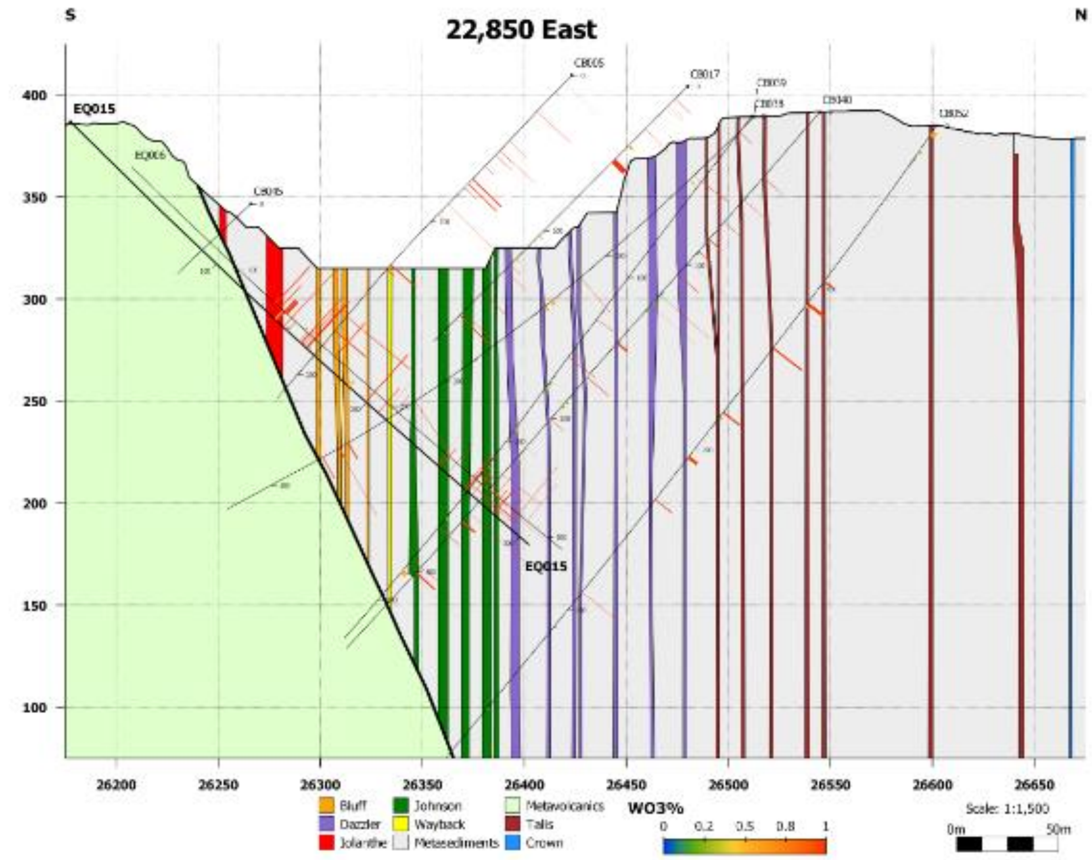


Figure 11: Typical Ore Section Through Open Pit

Alteration minerals associated with the wolframite mineralisation consist of brown tourmaline, biotite-muscovite, apatite, clinopyroxene and silicification. Very minor molybdenite and bismuthinite occur with the wolframite. Minor fluorite – chlorite – cassiterite – pyrite/arsenopyrite and calcite are randomly present.

There is only mild marginal vein alteration typically of sericite-clay-chlorite for only a few centimetres if at all. The mineralised veins appear to have had little effected on the host rocks with the fluids entering hot rocks at depth.

The observed fact that Mt Carbine is a boron system (significant tourmaline) as compared to a fluorine system (little fluorite) would suggest that the deposit occurred in hydrostatic equilibrium with the rising brine fluids with little or no pressure build up occurring. Fluorine rich deposits are more volatile and typically form breccia pipes, stock working and large intensive alteration systems (Wolfram Camp is a nearby example of this).


Figure 12: Zone of Silicified Cherts & Metasediments with King Veins on Margins

## 5.3. Structure

Mt Carbine sits at a spur on a major arc parallel fault called the South Wall Fault (SWF -Along the Mossman Orogeny trend) which can be traced through the Hodkinson formation for over 100km strike length. At an intersection of a major fault junction the SWF we see an inflection point likely due to a change in compressional regime due to oblique pressures. The SWF is a thrust that appears to be a long lasting fault forming at the time of compression and the district scale isoclinal folding of the basement rock right through to post tungsten mineralisation movement.

EQR has kept this terminology consistent, on the local scale, with this thrust also called the 'South Wall Fault' (SWF). The SWF truncates the tungsten orebody at an angle of 70 degrees to the grid north. It forms a boundary fault on the south west side of the mineralisation (deposit). Evidence suggest it is a reverse thrust fault (N.Oliver 2021) and by studying stratigraphic marker beds (chert-metabasalt unit) it is postulated movement is of the order of 2-300m. The truncated parts of the Mt Carbine ore body should still be at depth in the footwall region of this fault.

Other minor faults occur, orientated in a northerly direction and show less severe movement. The Central / Iron Duke and Christmas Faults both show strike slip movement and in the case of the central fault there is strike movement across a dyke of 120m in a left lateral sense.  Little movement is detected on the Christmas fault.

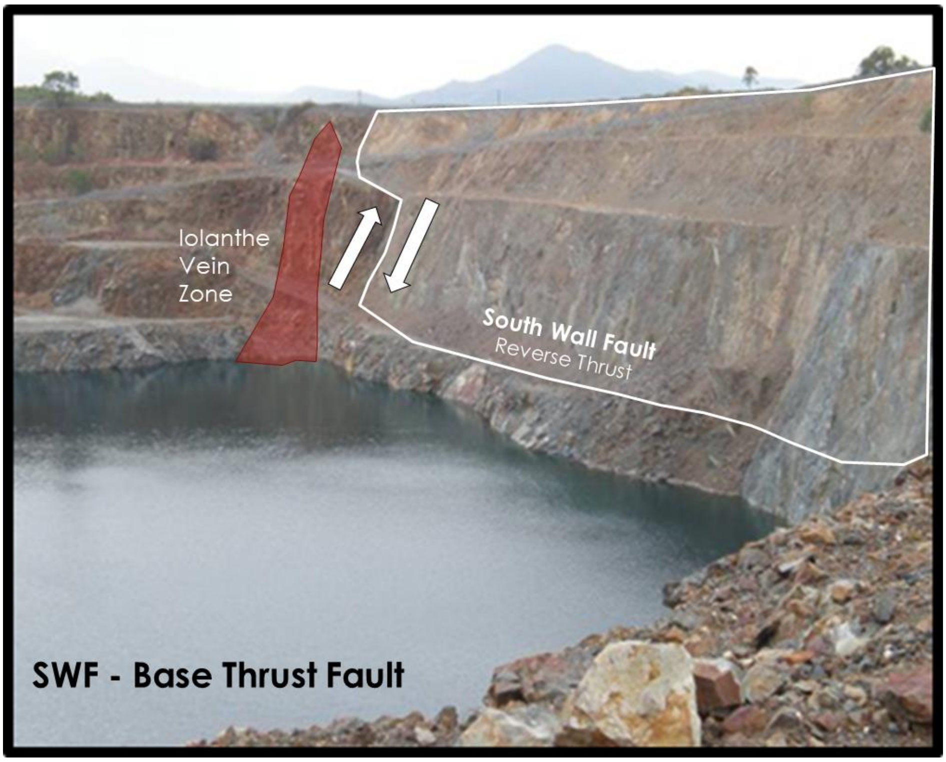


Figure 13: Open Pit Showing South Wall Fault

Within the confines of the pit the rocks, have been hornfelsed but several deformation lineation's can still be seen i.e. S0 bedding, S1 minor folding & S2 isoclinal folding planes. The mineralised veins postdate this basement deformation and EQR sees little or no movement on the pit scale.

Veins can be traced over vertical distances of 3-400m and strike distances for over 1,200m without much offsets. Occasionally in the pit, a regular low angle fault occurs that locally shifts the veins up to 3-4 meters. This low angle fracture forms a blocky fracture which is the main geotech assessment needed when underground mining occurs.

A structural consultant Mr Nick Oliver was engaged to interpret the structure at Mt Carbine and his findings are summarised in Figure 14, Figure 15 and Figure 16.

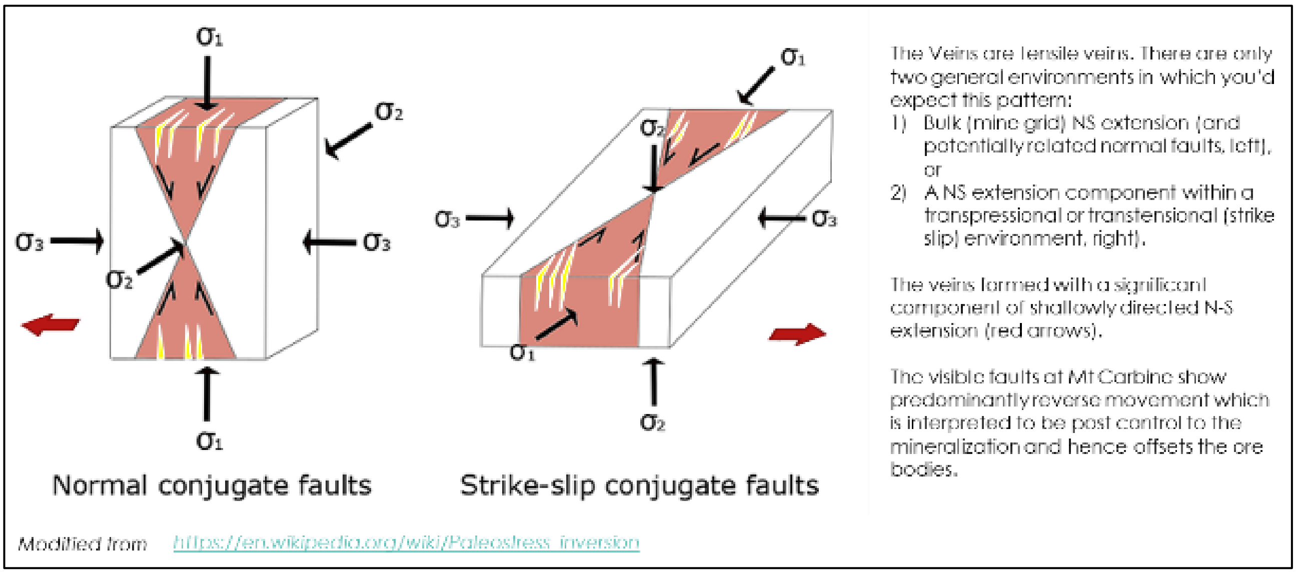


Figure 14: Formation of Veins at Mt Carbine Outlining the Structural Stress at the Time

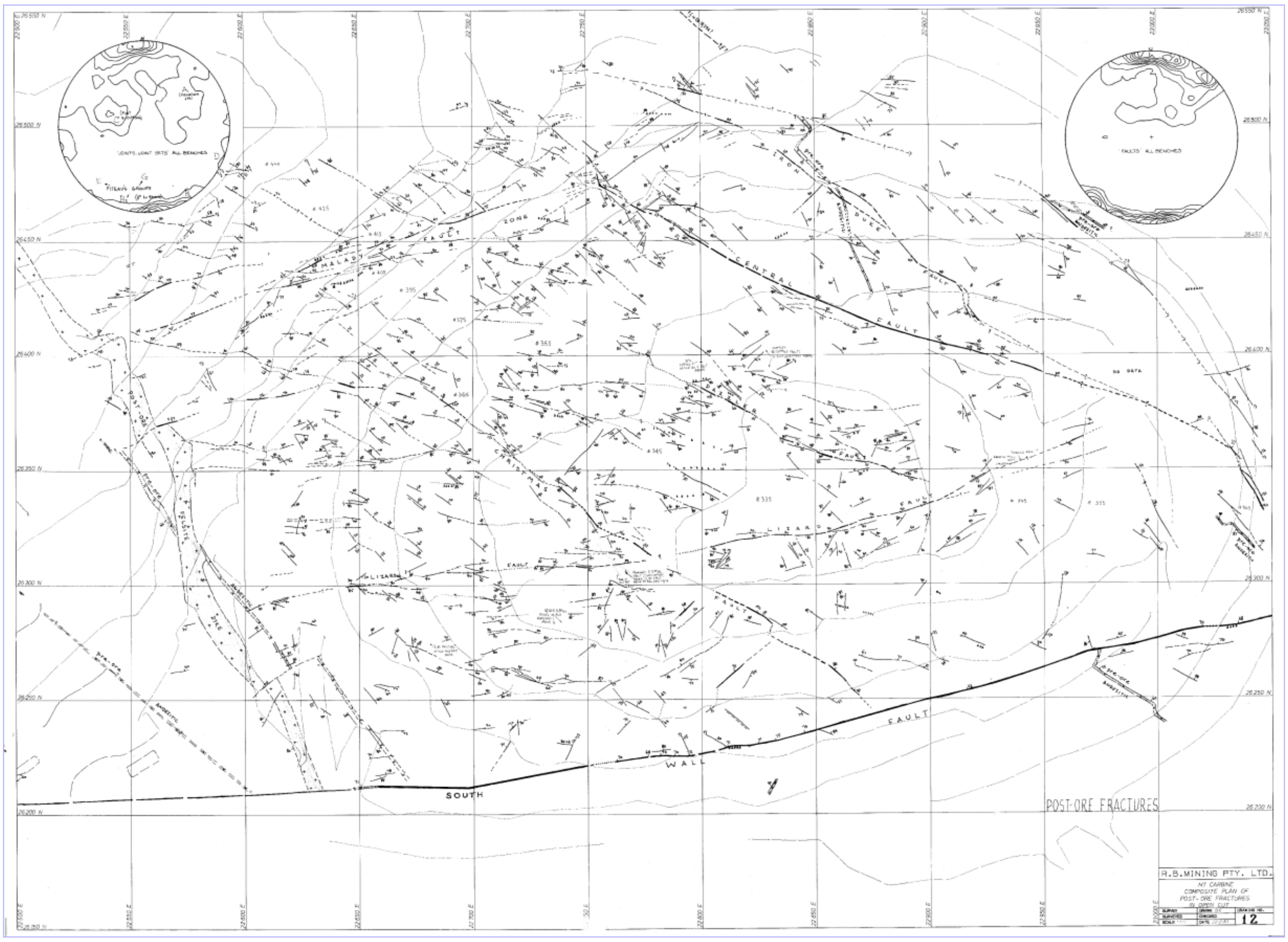


Figure 15: Consistent Representation of Faults in Structure of Pit Area Deposit

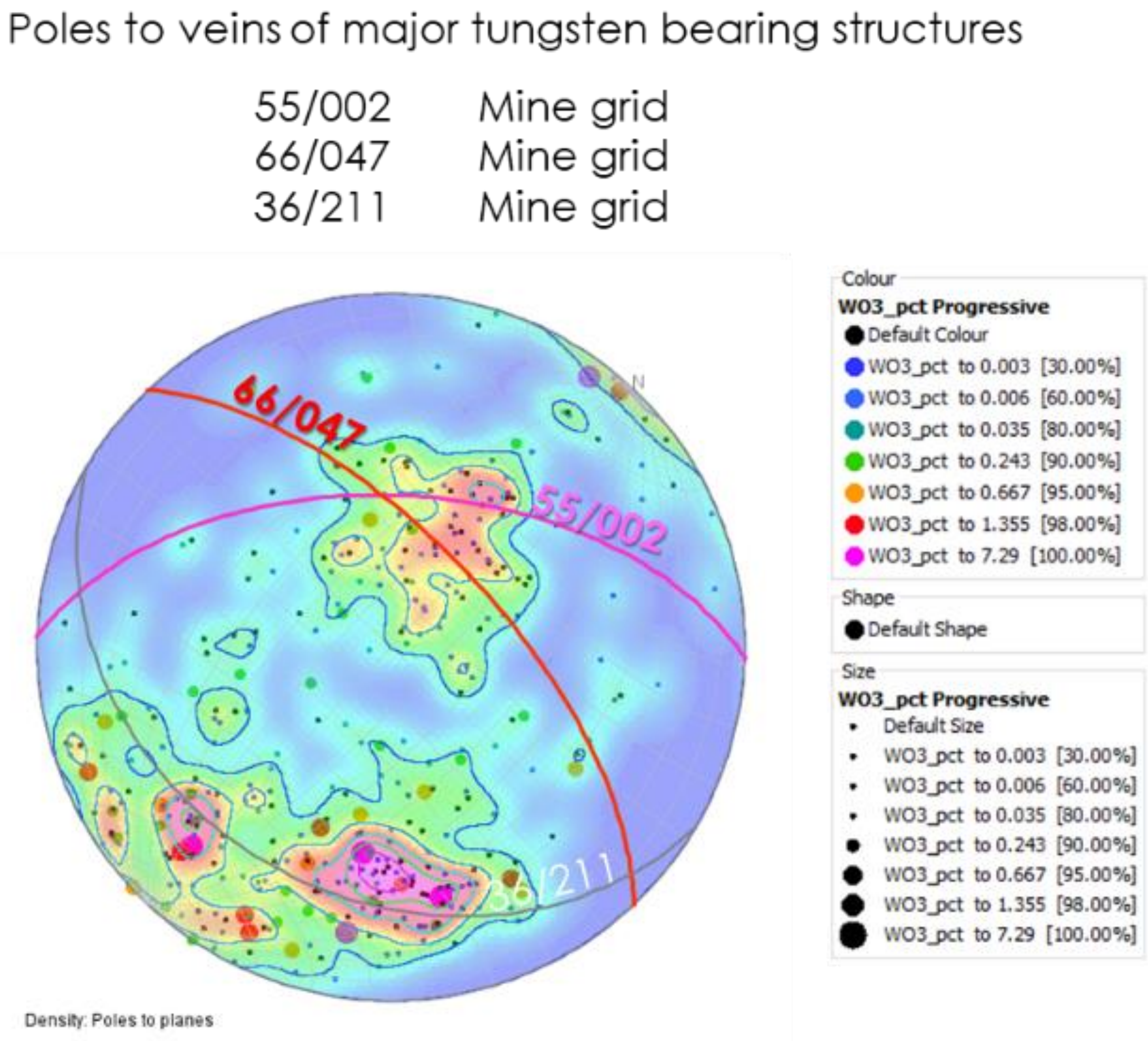


Figure 16: Poles to Mineralised Veins Highlighting the Conjugate Set of Veins

## 5.4. Tungsten Model

The Mount Carbine tungsten deposit is similar to well documented sheeted vein-type tungsten deposits in South China and these are divided into endo-contact (granite hosted) and exo-contact (wall-rock hosted) types. Mt Carbine is an exo-contact type.

The vertical structural zoning model for vein type exo-contact tungsten deposits observed in China (Yidou,1993) directly applies to the Mount Carbine vein system.

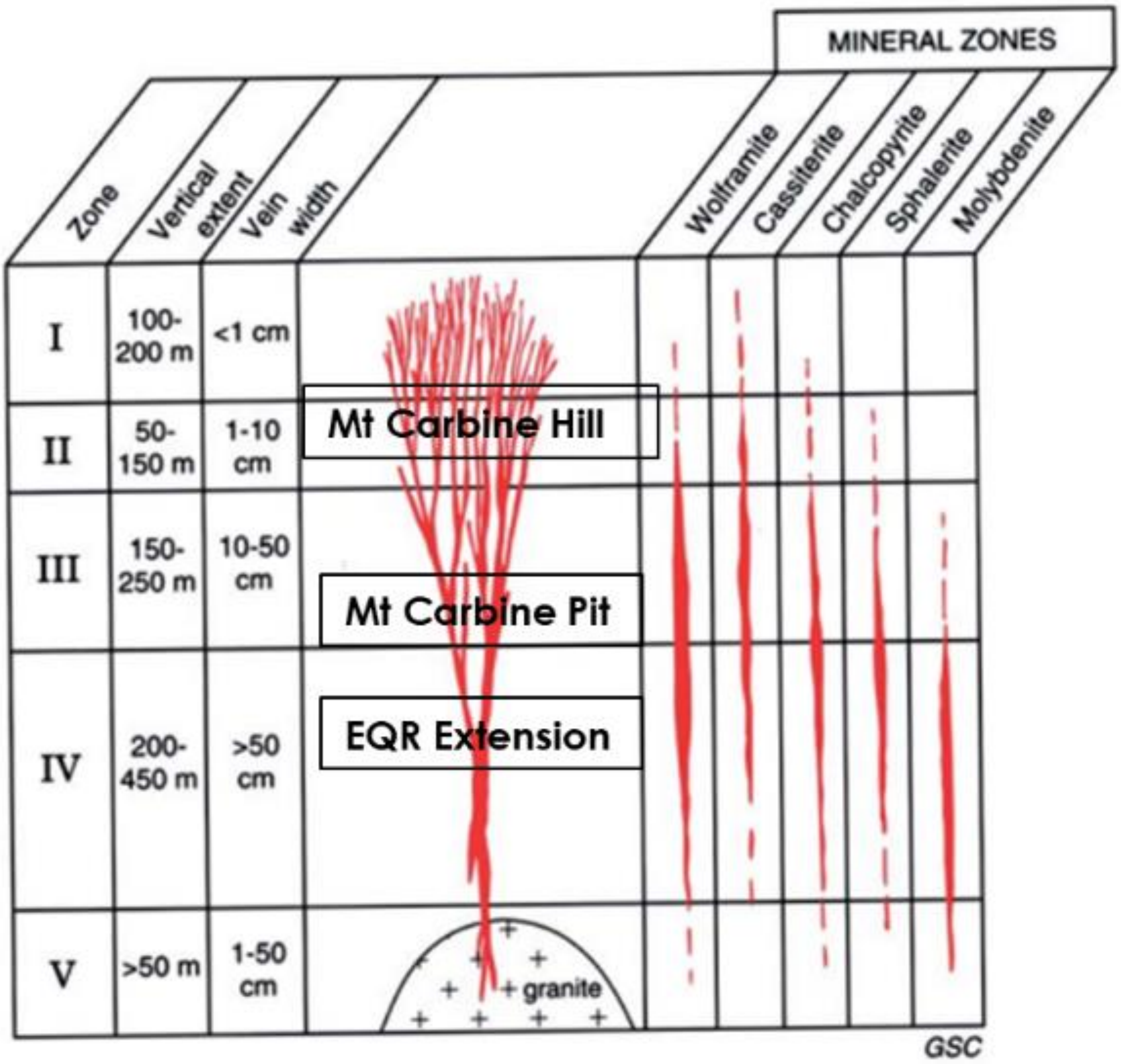


Figure 17: Tungsten Model Concepts on sheeted Vein Systems in China

# 6. Exploration

## 6.1. Previous Exploration

The information below provides a summary of the exploration work undertaken at Mt Carbine by EQR's predecessor companies prior to EQR acquiring it in 2019.

A summary of the major exploration work is summarised in Table 1.

Table 1: Historical Mt Carbine Studies

| Work Carried out up to 2012 | Date | Prepared by |
|---|---|---|
| **Reserve** | | |
| Ore Reserve Assessment | 2011 | Icon Resources Limited |
| Resource Estimate | 2010 | Geostat Pty Ltd |
| Resource Estimate | 2012 | Geostat Pty Ltd |
| **Feasibility Studies** | | |
| Preliminary Mine Design | 2012 | Mine One |
| Ore Sorter Mass Balances | 2012 | John McIntyre & Assoc |
| **Environmental Studies** | | |
| Environmental Impact Study – Stage 1 | 2010 | Landline |
| **Metallurgy** | | |
| Testwork: Comminution Testing | 2012 | JK Tech |

In July 2019, EQR acquired a 100% interest in Mt Carbine Quarries Pty Ltd, an entity that owns mining leases ML4867 and ML4919 along with the associated quarry.

EQR re-established the processing plant which has been re-purposed to treat tailings and existing stockpiles of low-grade ore produced from previous mining activities.

EQR acquired the Project in 2019 with a total of 22 Mt of rock taken out by conventional mining methods and a water level in the pit that was 55m deep.

## 6.2. Data Collection

Best practice techniques were adopted for pit sampling and drill core assessment and data collected for each component is summarised below.

### 6.2.1. Core Logging

The following items were measured during the process of core logging:

1. Hole location;
2. Date, of start & stop of hole;
3. Geologist;
4. Depth;
5. Down hole surveys;
6. Sample interval;

7. Depth of water table (BOX, POX boundaries);
8. Recovery by drill interval;
9. Lithology sescription;
10. Alteration Facies & Minerals;
11. Mineralisation sescription;
12. Key mineral percentages;
13. Quartz seins;
14. Orientation of bedding, fractures and quartz veins;
15. RQDs;
16. Fracture measurement & analysis;
17. Meter marking;
18. Hardness and porosity of core;
19. Density of core rocks;
20. Photography – wet and dry;
21. Sample interval markers;
22. Cut Core in half over sampling zones;
23. Petrography markers;
24. Core Boxes marked and tagged;
25. Core Stored on pallets & cling wrapped;
26. Petrographic analysis of each rock type and alteration;
27. Chemical analysis of core sample for multi-element amounts;
28. Storage of well-marked rejects should further assaying be required;
29. Plotting of hole using Leapfrog software;
30. Updating database with key hole information;
31. Highlighting zones that are mineralised and section interpretations;
32. Connection of zones over drill sections; and
33. 3D interpretation of mineralised zones (Measured Group Brisbane).

The location and grade of the drill results are shown in Figure 18.

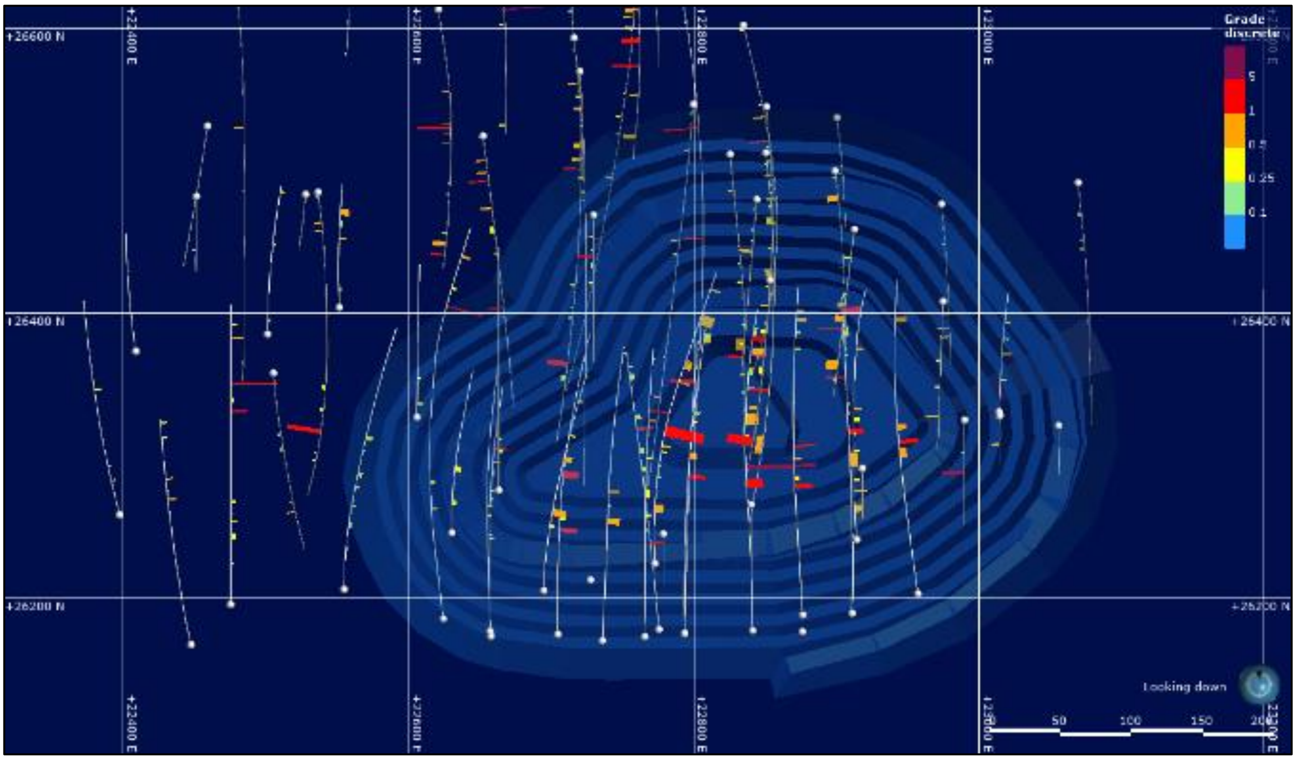


Figure 18: Drill Results

### 6.2.2. Mapping

The following activities were recorded and undertaken in the mapping process:

1. Base maps prepared that have accurate survey information;
2. GPS location mapping;
3. Recording lithology, faults & fractures, mineralisation and alteration; and
4. Identification of any sampling required.

### 6.2.3. Survey

Brazier Motti Surveying Consultancy was engaged to re-establish the local grid and pick up accurately the collars of the previous and current drilling programs. In addition, all key survey markers around the open cut were re-established. (Refer Appendix F)

A LIDAR survey was flown over the mining license using a Drone with a 10cm accuracy on topography. This was important to establish the accuracy of historical contour maps for the pit and LGS. (Refer Appendix F).

Given there is currently 44m of water in the open pit, a sonar survey of the pit floor was completed. The sonar survey confirmed the pit floor contours were the same as the digital survey pit shape left from the end of mining in 1987 and was accurate in that no further disturbance to the pit had occurred.

A summary of the survey coordinates are shown in Figure 19.

| Hole | Local East | Local North | Collar RL | Hole Depth | MGA20E | MGA20 N |
|---|---|---|---|---|---|---|
| EQ001 | 22793.29492 | 26175.82106 | 389.439 | 309.1 | 300503.874 | 8172066.78 |
| EQ002 | 22793.41779 | 26175.39402 | 389.476 | 341.8 | 300503.622 | 8172066.414 |
| EQ003 | 22735.67684 | 26170.49057 | 387.446 | 299 | 300463.183 | 8172107.92 |
| EQ004 | 22704.38819 | 26174.92271 | 386.265 | 327.3 | 300446.748 | 8172134.911 |
| EQ005 | 22657.44611 | 26173.67852 | 386.836 | 312.3 | 300415.991 | 8172170.395 |
| EQ006 | 22876.19613 | 26188.5927 | 383.632 | 309.3 | 300566.363 | 8172010.826 |
| EQ007 | 23014.29447 | 26328.15149 | 364.188 | 48 | 300761.86 | 8171992.695 |
| EQ008 | 23014.27784 | 26329.30655 | 364.092 | 60.5 | 300762.742 | 8171993.441 |
| EQ009 | 23013.84874 | 26330.95831 | 364.151 | 171.5 | 300763.746 | 8171994.821 |
| EQ010 | 22656.84169 | 26177.01685 | 386.88 | 243.3 | 300418.187 | 8172172.981 |
| EQ011 | 22765.35824 | 26173.37812 | 388.697 | 285.3 | 300484.254 | 8172086.817 |
| EQ012 | 22624.09483 | 26185.78499 | 387.839 | 414.6 | 300404.177 | 8172203.851 |
| EQ013 | 22910.78033 | 26189.68667 | 382.757 | 294.2 | 300589.16 | 8171984.796 |
| EQ014 | 22956.99776 | 26203.604 | 382.717 | 300.4 | 300629.25 | 8171957.916 |
| EQ015 | 22841.07576 | 26177.61216 | 386.779 | 306.3 | 300535.586 | 8172030.995 |
| EQ016 | 23055.56556 | 26321.2707 | 380.383 | 48.4 | 300782.739 | 8171956.436 |

***These Coordinates are final survey points collected by Motti Survey using Differential GPS.***

Figure 19: Survey Coordinates

## 6.3. Exploration Results

The infill drilling of sixteen diamond drill holes for 4,074m by EQR during Q2 2021 showed that the high-grade lenses have integrity and could be traced and linked back to the old underground mapping recorded. The reclogging of the historical core completed this new interpretation and resource model. All mineralised samples have been assayed at either ALS, Analabs or Amedel laboratories with two laboratories often being used to check results.

Only the recent EQR drilling used core orientation systems, to provide definitive direction to the logged rock boundaries, structure and veining. This definitive orientation has provided the basis to join the mineralsed zones from hole to hole.

The breakdown of the drilling to date used in the resource modelling is shown in Table 2, and the hole locations are shown in Figure 20. Three early drill holes remain as visual results only due to poor core records of these holes. Any other drill holes with visual results were all re-assayed (this work is detailed further in Section 8).

Table 2: Total Drill Hole Statistics

| Hole Type | Pre-2021 Drilling | 2021 Drilling | Total Holes |
|---|---:|---:|---:|
| Diamond Drilling | 16,355.55m | | 63 Holes |
| Diamond Drilling | | 4,068.30m | 16 Holes |
| **TOTAL** | | **20,423.85m** | **79 Holes** |

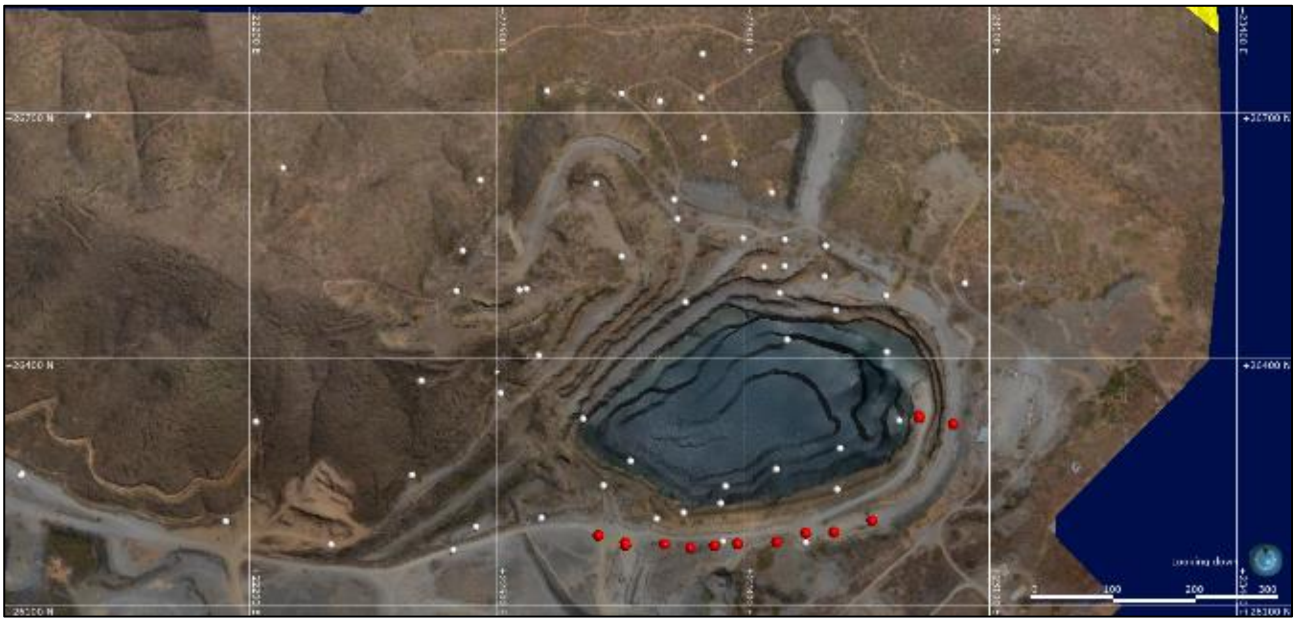

Figure 20: Drill Hole Location Map

EQR engaged Brisbane-based consultancy, Measured Group, to complete the independent resource re-calculation. The re-assessment of the resource was seen as the priority and work was supported by a 2021 program of 4,074m of diamond drilling and a successful completion of a METS Ignited Grant funded trial operation campaign for the material from the LGS.

The revised in-situ hard-rock resource of 9.21 Mt at 0.63% $WO_3$ replaces the previous resource estimate published by EQR (by GeoSun, dated 2013). With the addition of the 12 Mt LGS grading at 0.075% $WO_3$, the total metal (in form of $WO_3$) contained is approximately 6.7 million metric tonne units (MTUs equal to 10 kg). This is detailed further in Section 9.

As seen in Figure 21, when compared to the historical Mt Carbine Geostat resource, the area covered is only 60% of the previous block model area. The model defines 2-12m wide tungsten lenses separated by barren waste zones in sufficient detail.

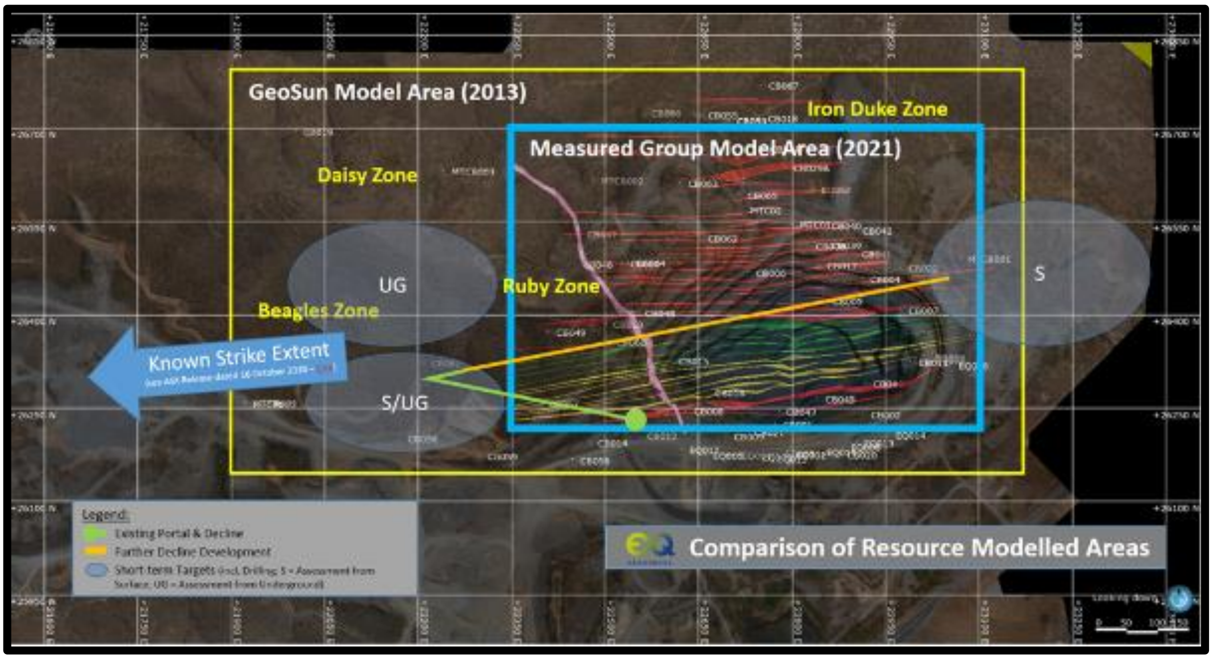


Figure 21: Current and Previous Resource Definition Areas

In Figure 21, the blue area outlines the current resource calculation area whilst the yellow reflects the GeoStat previous resource calculation. The green line represents the existing decline with orange indicating the historical extension plan. Grey areas are future drill targets with the strike extent of Mt Carbine open to the west and depth.

Appendix C details the significant drilling results from the whole database of 79 holes including the 16 recent holes by EQR. Significant results are above 2m @ +0.25% $WO_3$.

## 6.4. Exploration Potential

This feasibility study is confined to the red square area in Figure 22. The green square represents the inferred resources also delineated. The blue zone shows the brownfield exploration targets that aim to achieve four key objectives:

- Upgrade the Iron Duke inferred resources into indicated resources. Iron Duke has 5.8Mt @ 0.59% $WO_3$;
- Extend the known veins along strike extents both grid west and east;
- Drill to depth where tungsten continues in Iron Duke – Talis Zone; and
- Evaluate and test the True Blue, Daisy, MacDonald's and Red Cap Zones.

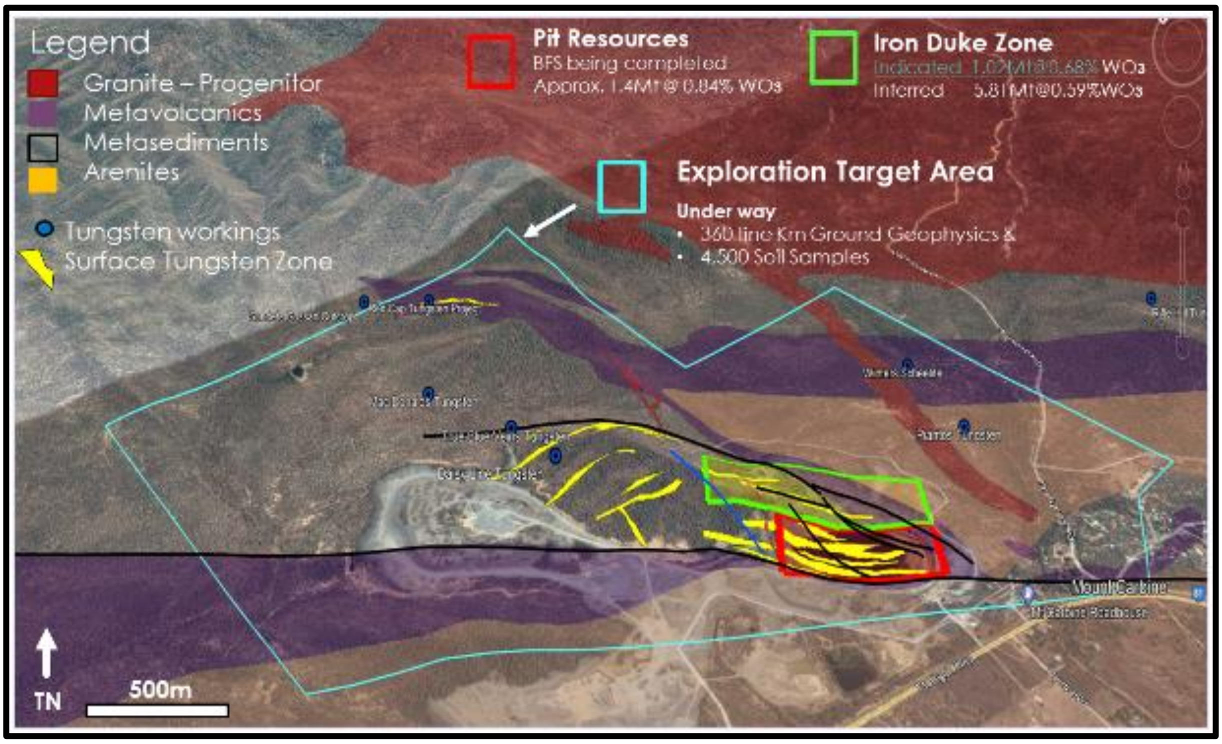


Figure 22: Open Pit and Location of Iron Duke Prospect

Given the extent of surface vein traces, the open depth consideration and the five immediate tungsten working areas it is conceivable that the resource could significantly increase from its current size. Much of the future drilling will be targeting to continue to replace mined ore.

On a regional scale, there are over 50 past diggings within the EQR tenements that have located either tungsten or tin. Knowledge that the surface exposure might be minimal for this style of deposit and rather a blossom zone occurs at the right RLs, many of these know occurrences will be drill tested. The potential exploration targets within EQR's exploration permits are shown in Figure 23 below.

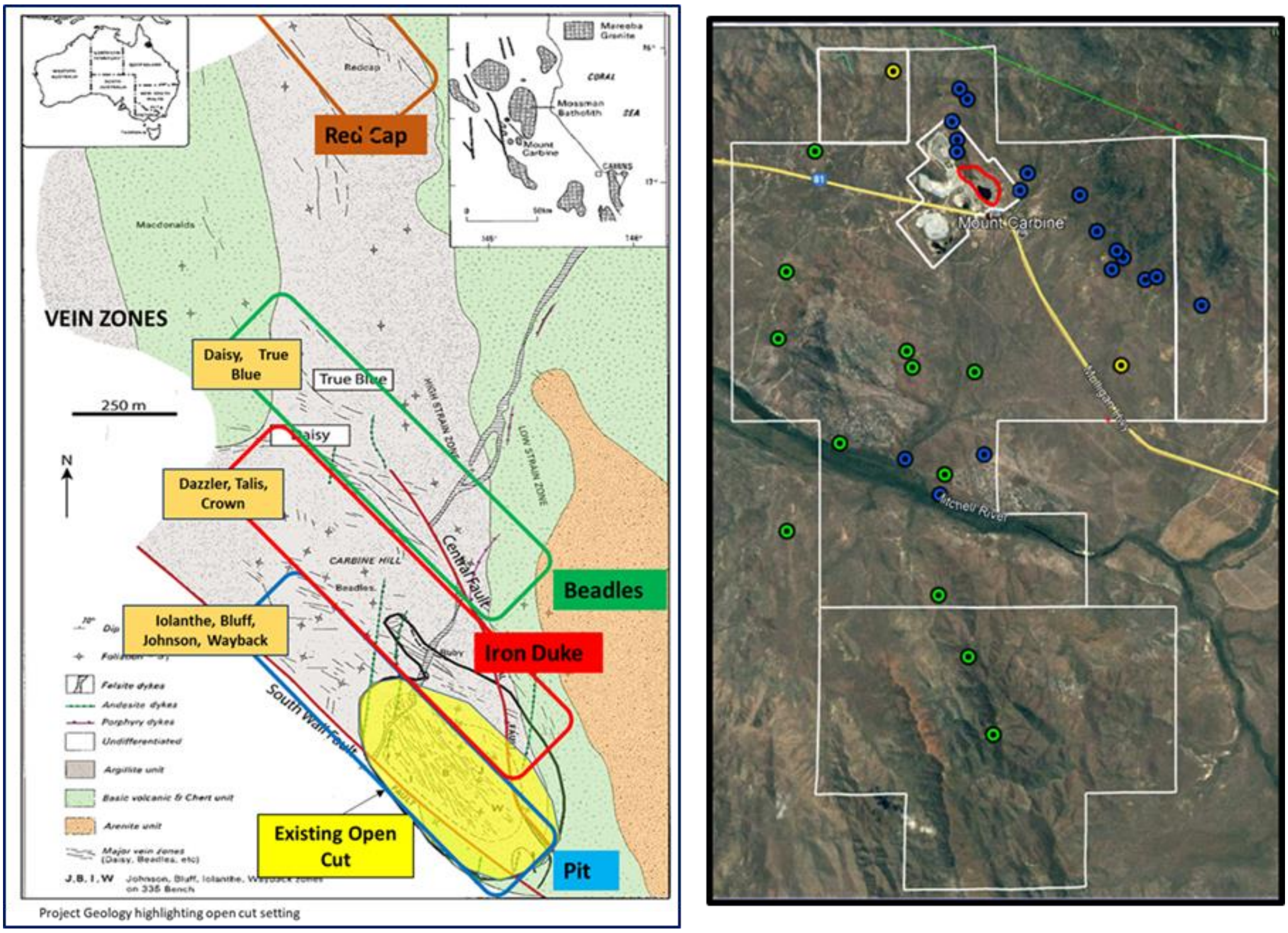


Figure 23: Regional Exploration Targets

# 7. Low Grade Stockpile Assessment

## 7.1. LGS Summary

The LGS consists of material from fine dust to large 1-1.5m boulders consisting of the waste rock blasted and hauled direct from the pit. It is heterogeneous in nature and reflected loosely in bands of material depending on where the blasting was occurring. In several isolated locations, banded layers are occurring that reflect an increasing quartz content from a brown earthy upper bank with less quartz to a clean rock quartz mix. This cycle may in fact represent a strip back from top of pit to bottom with the lower quartz content being the upper layers where the quartz narrows and the quartz rich layers being in the lower benches where the veins are much larger and occupy more of the face.

Table 3, taken from the METS Ignited Study Report (attached as Appendix B) shows the size distribution of the material on the LGS.

Table 3: LGS Grade by Size Distribution

| Particle Size Fraction (mm) | Grade (% $WO_3$) | Particle Size Distribution (%) |
|---|---:|---:|
| +170 | 0.043 | 30 |
| -170x100 | 0.050 | 14 |
| -100x30 | 0.077 | 14 |
| -30x6 | 0.095 | 20 |
| -6x0 | 0.110 | 22 |

## 7.2. Historical Ore Extraction & Dump Formation

The LGS is material that has come directly from the open cut during the mining process. It is all random and unsorted direct from where the mining was occurring.

The basis for determining whether the mined rock went to the LGS rather than being sent through to the primary Jaw Crusher and then onto the optical sorting circuit was primarily based on quartz content.

The grade control used in the bench blast system was designed to take material with +10% quartz content to the plant and the lower quartz material to the dumps. No drilling or sampling grade control was done during mining with only the quartz content being the guide to ore.

It has been demonstrated that there is a poor correlation of quartz vs tungsten and grade reconciliation was one of the biggest historical issues. The fact that much of the historical ore (0.13% WO3) veins showed up in the dump showed that the quartz alone criteria was not effective.

The historical 'ore head grade' was nominally 0.13% WO3, and the LGS grade holistically at 0.075% WO3 shows approximately 41% of the tungsten was reporting to the LGS.

The dumps were deposited in two layers with mining from years 1978 to 1983 being the larger 8 Mt layer and from 1983 to 1987 being the 4 Mt layer from deeper in the pit.

## 7.3. Sampling

Sampling of large dumps is never easy and great care was taken to determine at what scale would a sample be representative. As such, the main sampling to determine overall grade was taken as follows

**Sites Selection** – The dump was divided into quadrants with a major and minor sample location being marked. In two of the quadrants, two sample sites were selected to see repeatability.

**Sample Size -** 6 trench samples (each trench taken at approximately 10m wide x 5m deep x 40m length was deemed to be representative of that part of the dump each comprising a 3,500t sample.

**Method** – The sample was collected using 25t trucks and 30t excavator being careful to load all the material from the sample trench and the run over the weighbridge to determine weight before being added to a large stockpile. A total of 22,000t was collected form the 6 separate locations. This was then cone and quartered down to a subset sample of 2,000t which was fully crushed to a nominal 40mm and sampled.

The bulk sample average was 0.075% $WO_3$.

The LGS sampling locations are shown on Figure 24.

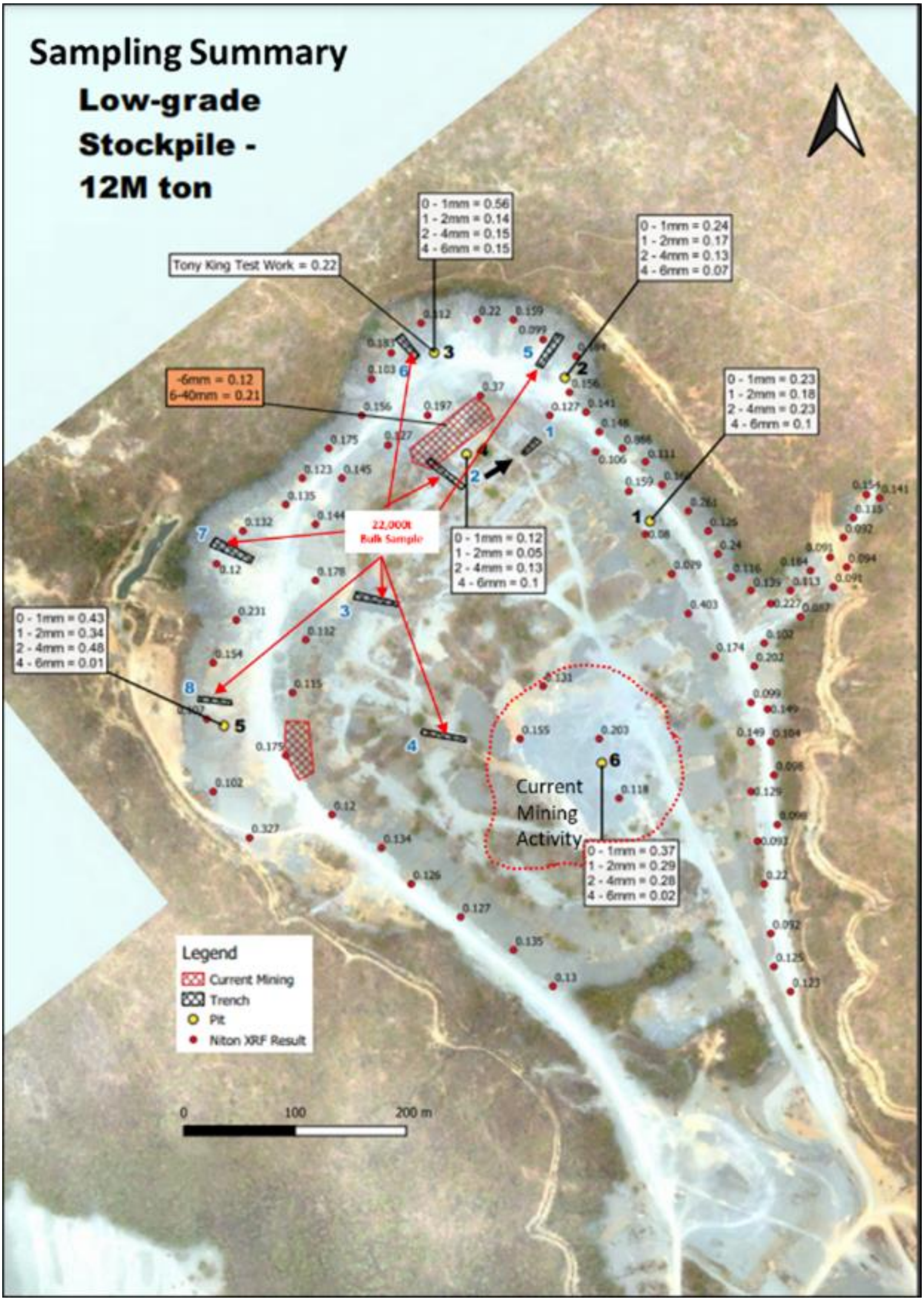


Figure 24: LGS Sampling Locations

Further sampling of the LGS for environmental permitting purposes involved taking 80 grab samples from the surface of the stockpile. Each sample was approximately 20kg of -100mm material. The average grade of these samples was 0.088% $WO_3$. Trails indicated that at optimum settings, the XRT Sorter produces a pre-concentrate that is approximately 12% of the original feed and has a grade of approximately 0.65% $WO_3$ at 90% $WO^3$ recovery. 88% of the material sent to the sorter was rejected as waste. Local grade distribution within the stockpile is expected to vary and has not been quantified.

To date, two larger pits have been mined – the NE pit and the Central pit have had 30,000t and 86,000t respectively mined at the timing of this report and is ongoing. The methodology involves screening out the -6mm direct for processing and crushing with all the material +6mm, -170mm down to -40mm size being sent for XRT sorting.

This extensive test work was designed to mimic EQR's planned flow sheet and to determine the LGS grades based on the fines and sorter product. Both these categories were crushed to fine size prior to sampling. A summary of the sampling results is shown below in Figure 25.

**Sorter Fines -8mm**

| Size (µm) | Head Feed (kg) | % Total HF | Head Grade % | Weight x grade | Con (g) | Con Grade | Mids (g) | % Total Mids | Mids Grade | Weight x grade mids | Tails (kg) | % Total Tails | Tails Grade | Weight x grade tails | Recovered Grade % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **-300** | 116.20 | 32.15 | 0.24 | 27.89 | 530 | 26.4 | - | - | - | - | 115.67 | 32.11 | 0.14 | 16.19 | 0.12 |
| **300-850** | 245.25 | 67.85 | 0.21 | 51.50 | 440 | 49 | 290 | 100 | 16.6 | 4814 | 244.52 | 67.89 | 0.06 | 14.67 | 0.09 |
| **Total** | **361.45** | **100** | | 79.39 | **970** | | **290** | **100** | | 4814 | **360.19** | **100** | | 30.87 | 0.10 |
| **ighted average** | | | | **0.22** | | | | | | **16.6** | | | | **0.09** | |

**Sorter Product**

| Size (µm) | Head Feed (kg) | % Total HF | Head Grade % | Weight x grade | Con (g) | Con Grade | Mids (g) | % Total Mids | Mids Grade | Weight x grade | Tails (kg) | % Total Tails | Tails Grade | Weight x grade | Recovered Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **-300** | 72.00 | 25.00 | 1.43 | 102.96 | 801 | 64.4 | 438 | 19.51 | 21.8 | 9548.4 | 70.76 | 25.05 | 0.18 | 12.74 | 0.72 |
| **300-850** | 135.65 | 47.10 | 2 | 271.30 | 1873 | 57.9 | 1497 | 66.68 | 25.3 | 37874.1 | 132.28 | 46.82 | 0.15 | 19.84 | 0.80 |
| **850+** | 80.35 | 27.90 | 0.72 | 57.85 | 582 | 48.2 | 310 | 13.81 | 12.75 | 3952.5 | 79.46 | 28.13 | 0.17 | 13.51 | 0.35 |
| **Total** | **288** | **100** | | 432.11 | **3256** | | **2245** | **100** | | 51375 | **282.50** | **100** | | 46.09 | 0.65 |
| **ighted average** | | | | **1.50** | | | | | | **22.88** | | | | **0.16** | |

Figure 25: LGS Sampling Summary

The crushing of the sample feed generated further 0-6mm fines and although the quantity varied considerably total fines that were natural and crushed is approximately 30-35%. +170mm oversize was returned to the stockpile and was also about 30% of the dump, leaving approximately 40% of the dump that was sorted through the XRT Sorter.

Below in Figure 26 is a summary of the regular sampling in size fractions taken from the 0-6mm natural fraction at 6 pit site locations separate to the initial 6 trench locations.

**Trench 1**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1494 | 1194 | 2038 | 760 | 5486.74 |
| Grade | 0.23 | 0.18 | 0.23 | 0.1 | |
| Weight % | 27.23 | 21.76 | 37.14 | 13.85 | 100 |
| Weight x grade | 343.62 | 214.92 | 468.74 | 76.00 | 1103.28 |
| Weight x grade % | 31.15 | 19.48 | 42.49 | 6.89 | 100.00 |
| Weighted Average | 0.20 | | | | |

**Trench 2**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1399 | 858 | 1878 | 1207 | 5342.61 |
| Grade | 0.24 | 0.17 | 0.13 | 0.07 | |
| Weight % | 26.19 | 16.06 | 35.15 | 22.59 | 100 |
| Weight x grade | 335.76 | 145.86 | 244.14 | 84.49 | 810.25 |
| Weight x grade % | 41.44 | 18.00 | 30.13 | 10.43 | 100.00 |
| Weighted Average | 0.15 | | | | |

**Trench 3**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1415 | 728 | 1424 | 262 | 3830 |
| Grade | 0.56 | 0.14 | 0.15 | 0.15 | |
| Weight % | 36.95 | 19.01 | 37.18 | 6.84 | 100 |
| Weight x grade | 792.40 | 101.92 | 213.60 | 39.30 | 1147.22 |
| Weight x grade % | 69.07 | 8.88 | 18.62 | 3.43 | 100.00 |
| Weighted Average | 0.30 | | | | |

**Trench 4**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1642 | 1349 | 1605 | 304 | 4900.4 |
| Grade | 0.12 | 0.05 | 0.13 | 0.1 | |
| Weight % | 33.51 | 27.53 | 32.75 | 6.20 | 100 |
| Weight x grade | 197.04 | 67.45 | 208.65 | 30.40 | 503.54 |
| Weight x grade % | 39.13 | 13.40 | 41.44 | 6.04 | 100.00 |
| Weighted Average | 0.10 | | | | |

**Trench 5**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1086 | 825 | 1215 | 600 | 3727.26 |
| Grade | 0.43 | 0.34 | 0.48 | 0.01 | |
| Weight % | 29.14 | 22.13 | 32.60 | 16.10 | 100 |
| Weight x grade | 466.98 | 280.50 | 583.20 | 6.00 | 1336.68 |
| Weight x grade % | 34.94 | 20.98 | 43.63 | 0.45 | 100.00 |
| Weighted Average | 0.36 | | | | |

**Trench 6**

| | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 895 | 782 | 945 | 139 | 2761.96 |
| Grade | 0.37 | 0.29 | 0.28 | 0.02 | |
| Weight % | 32.40 | 28.31 | 34.21 | 5.03 | 100 |
| Weight x grade | 331.15 | 226.78 | 264.60 | 2.78 | 825.31 |
| Weight x grade % | 40.12 | 27.48 | 32.06 | 0.34 | 100.00 |
| Weighted Average | 0.30 | | | | |

Figure 26: Sampling Size Fraction Summary

Figure 27 shows an example of the pit sampling being undertaken on the LGS.

Figure 27: Example of Pit Sampling Underway

Figure 28 shows the variation in different size fractions in the 0-6mm material with generally the finer fractures showing slightly higher results.

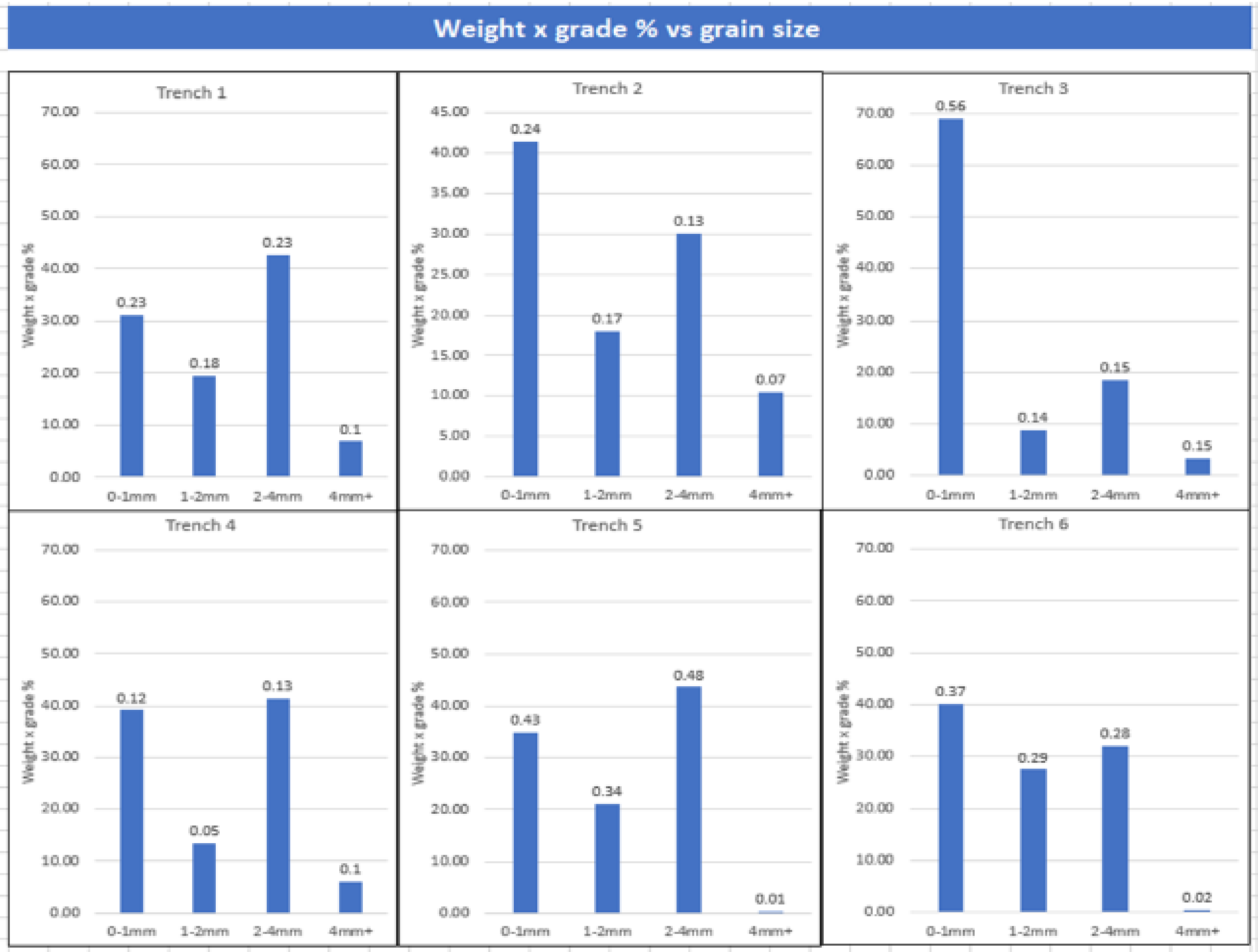


Figure 28: Weight by Grade Summary

## 7.4. Current Mining of LGS

Table 4 summarises the head feed of 0-8mm taken during mining of approximately 100,000t of LGS material.

This material is elevated from the overall dump grade of 0.075% $WO_3$ due to the fact that the tungsten minerals are soft and preferentially break down and end up naturally in the finer size fractions. Conversely the larger rocks have less tungsten.

Table 4: LGS Head Grade

| Date | Head Feed (%) |
|---|---|
| 2020-11-27 | 0.22 |
| 2020-11-24 | 0.18 |
| 2020-12-11 | 0.38 |
| 2020-12-22 | 0.16 |
| 2021-01-06 | 0.27 |
| 2020-11-26 | 0.15 |
| 2020-11-28 | 0.13 |
| 2021-01-12 | 0.11 |

| Date | Head Feed (%) |
|---|---|
| 2021-01-27 | 0.16 |
| **Average** | **0.20** |

Figure 29 shows the process by which the LGS material was scalped to separate the various size fractions.

Figure 29: Scalping Size Fractions for Testwork at LGS

# 8. Quality Assurance, Control and Sampling

## 8.1. Recheck of Old Core Visual Results

A total of 58 samples that remained in the database as visual results, were resampled and laboratory analysis completed. These intervals were resampled using half core as per normal sample procedures.

Comparison results are shown here with the low grade results (below 0.25% $WO_3$) show an increase of 105% in grade for the same intervals but the high grade ore samples dropped 24% in grade from the visual results.

In the database only results assayed by the laboratory under quality assurance and quality control (QAQC) conditions were used in calculating resources. This eliminated any inaccuracies by using visual estimates.

A comparison of the visual results compared with the assay results is shown in **Error! Reference source not found.**.

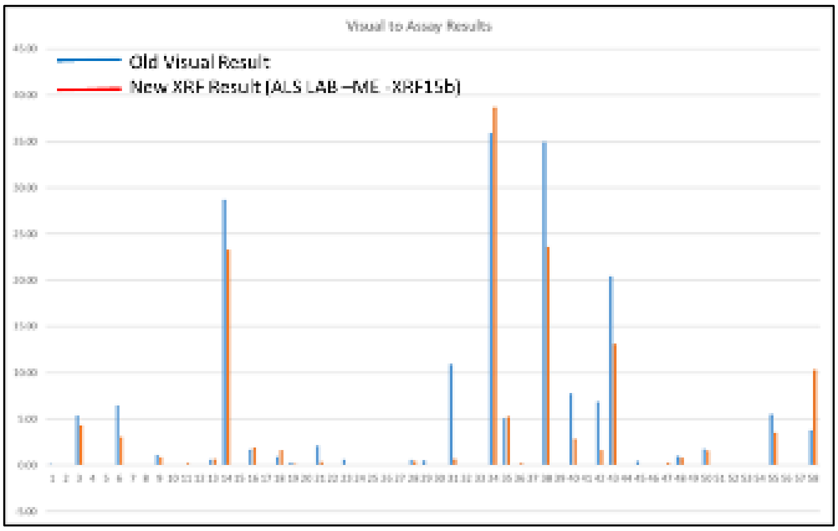


Figure 30: Comparison of Visual vs Assay Results

## 8.2. Drillings Sampling Procedure

From the total of 4,068m of drilling completed in 2021, 1,404 samples were sent to ALS Laboratories (ALS) in Brisbane, Queensland. QAQC samples were included in all assay sheets using the JORC Code 2012 guidelines and full details of the sampling methodology and procedures are outlined in attached JORC Tables 1 and 2 attached to the Geology and Mineral Resource Estimate attached in Appendix A.

All zones of potential mineralisation were logged and sampled by cutting the core interval selected in half and the complete half core being sent to ALS for analysis.

Before cutting and sampling, the core is logged, photographed in high resolution images with clear depth markers and geotechnical logs completed. All zones with visual minerals of wolframite and scheelite are recorded by their percentages. Scheelite glows under ultraviolet light and although difficult to distinguish under ordinary light from quartz-carbonate it is visual under the shortwave 254nm UV light with a common technique to estimate grade being to trace out individual crystals and determine the overall percentage shown on the face of the core. Often the mineralisation is manifested as very coarse tungsten mineral crystals of up to 10cm in size.

The method used by ALS for the analysis of tungsten was the ME-XRF15b with 10% of the samples being QAQC either blanks or known standards. The entire core sample was pulverised and spilt into a small subsample that was melted into a fusion disk to produce a homogenised clear glass disk. This disk was then analysed by a Bruker x-ray fluorescent machine.

ALS is a registered laboratory that conducts internal and external round-robin analysis to maintain its accreditation and does its own calibration test work to ensure accuracy. The assaying is completed at 10ppm accuracy. It is important in this process that the sample is homogenous, and as such the sample is prepared by crushing and grinding to less than 75 microns to ensure homogeneity.

All quartz veins intersected in the drilling have been assayed as separate samples. Where the veins are more than 1m in downhole length then the sample is broken into two or more samples each with a maximum of 1m interval. The minimum sized vein that was assayed separately was 5cm in width with stringer zones below this assayed on larger meter intervals. Since the mineralisation at Mt Carbine often occurs in narrow vein widths of 5-500cm then it is important to assay each such narrow zone. On either side of the mineralised zone, samples were also taken of the host rock at intervals of 1m to ascertain if the mineralisation extended into the host rocks.

Drilling at Mt Carbine was completed by an HQ and NQ sized diamond drilling rig that used both double and triple tube-drilling techniques. HQ was drilled down until the south wall fault was intersected and then cased off before continuing in NQ drill size. The footwall of this fault has no mineralisation as noted in Section 5 and this fault truncates all observed mineralisation. The full core collected was marked for its depth and orientation. The drilling was done using digital orientation methods, specifically the Reflex Act III tool system. The recording hole orientation and hole survey orientations were wirelessly transmitted to the back-end computer for recording.

The core is cut in half using a diamond saw along the centre line marked as being the line mark for the orientation of the core. Half core was used in all sampling collections.

Each sample was weighed and marked correctly in consecutive order with a space left for the insertion of standards and this was done every 10$^{th}$ sample for 10% checks and balances. No samples were combined for assay with each sample assayed separately and noted as either a vein or host rock.

EQR completed a comprehensive assessment of past core including duplicates and repeats to establish that the ALS assaying shows consistency and accuracy, and historical results were accurate. With each batch of results sent there is a minimum of five check samples inserted.

## 8.3. QAQC Results

The total number of standards and blanks samples inserted into this assaying program was 146 samples comprising just over 10.2% of the samples submitted. These were subdivided as follows:

- 79 tungsten sample standards were analysed on a 1 in 20 basis; and
- 67 blank samples were tested inserted on a 1 in 20 basis.

The figures below are plots of the standards against the normalised known value. The errors were within a 3% margin for all QAQC results with the likely variation being that stated variation within the standard itself. The laboratory checking showed there was little drift or errors in the results and that quality and accuracy were established at ALS.

The QAQC results are tabled in Appendix E.

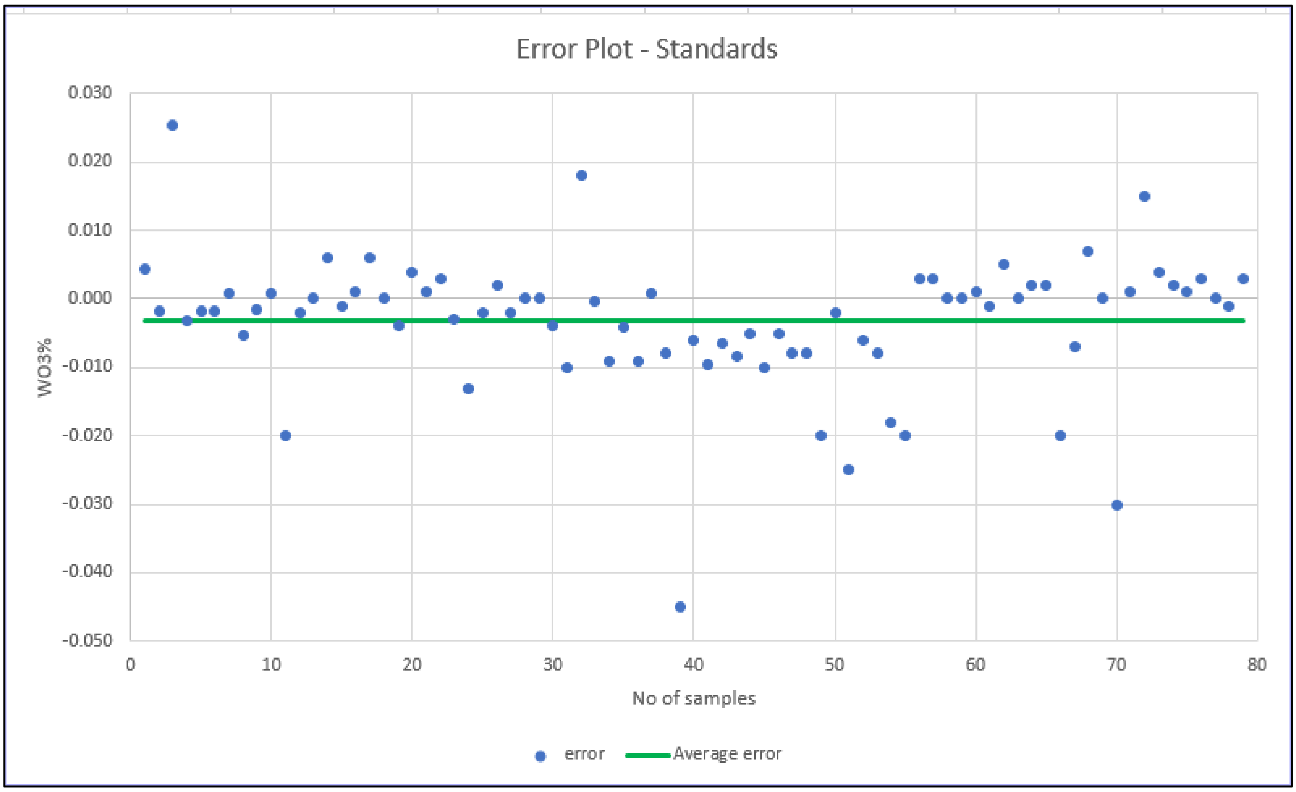


Figure 31: QAQC Results Compared to Known Value

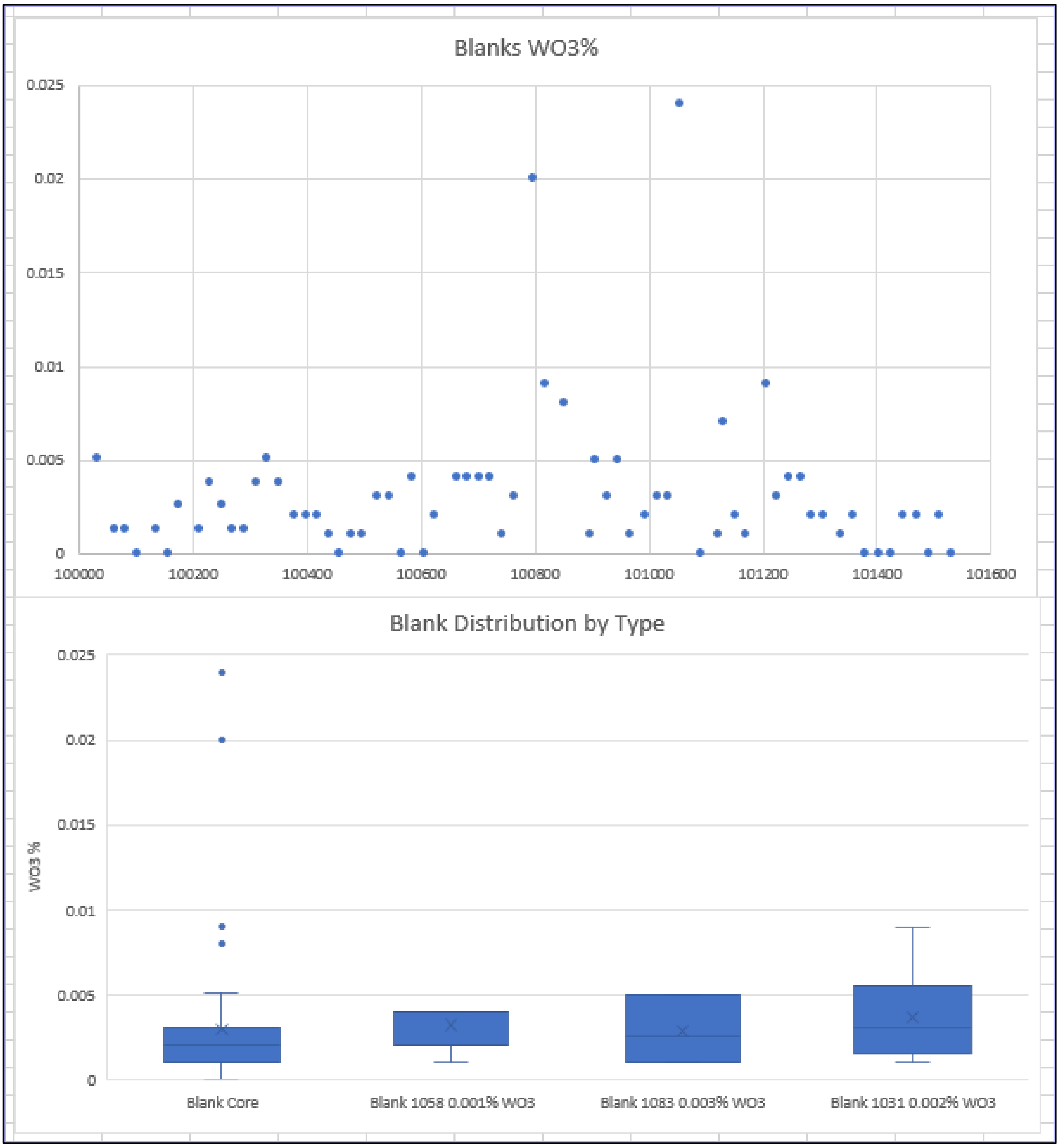


Figure 32: Results of Inserted Blank with Variations Shown on the Below Box Plats

The Blanks were within 0.0055 of known value. Slightly higher results were observed only when using blank core which although perceived to be barren by the geologists had slight background tungsten values up to 0.025% $WO_3$. This slight variance in stand blank sample values was noted in six blanks out of the 67 sample blanks used, where half core showed very low background values were encountered.

# 9. Resource Estimation

Appendix A includes the full independent Geology and Mineral Resource Estimate prepared by Measured Group and signed by Competent Person, Chris Grove as Principal Geologist. The resource has been reviewed by James Knowles, Principal Geologist and Director of Measured Group and approved by Lyon Barett, Managing Director of Measured Group.

It was determined by Measured Group, drilling indicated mineralisation continues for up to a 1,300m strike and up to 600m in width. The limits of mineralisation have not been completely defined and are open at depth and along strike.

The methodology for the resource calculation was undertaken by constraining the ore body to defined lenses based on geological interpretation from the drilling. By the use of orientated drilling, it allowed the interpretation of the geology and to pin down the high-grade ore shoot directions into a 3D Model.

A complete geostatistical evaluation of the orebody was undertaken to determine the variography of the deposit with attention on highlighting the acceptable range for grade projections for mineralisation and their domains. All domains were interpolated using ordinary kriging (OK) with mineralisation modelled as three-dimensional blocks with a parent block size 10m x 10m x 10m with sub-celling block size of 0.5m x 0.5m x 0.5m.

Validation of the block model was made by:

- Checking that drill holes used for the estimation plotted in expected positions;
- Checking that flagged domains intersections lay within, and corresponded with, domain wireframes;
- Ensuring whether statistical analyses indicated that grade cutting was required;
- Checking that the volumes of the wireframes of domains matched the volumes of blocks of domains in the block model; and
- Checking plots of the grades in the block model against plots of drill holes.

The resource estimation for the LGS and in-situ hard rock resources is summarised in

Table 5: Mt Carbine Mineral Resource – September 2021

| Classification | Tonnes (million) | Grade (% $WO_3$) | $WO_3$ (mtu) |
|---|---|---|---|
| **Low Grade Stockpile** | | | |
| Indicated | 12.00 | 0.075 | 900,000 |
| **In-Situ Hard Rock Resources** | | | |
| Indicated | 2.40 | 0.74 | 1,776,000 |
| Inferred | 6.81 | 0.59 | 4,017,900 |
| **Sub-Total** | **9.21** | **0.63** | **5,793,900** |
| **Total Mt Carbine Mineral Resource** | | | |
| | **21.21** | | **6,693,900** |

**NOTES:**

1. Total estimates are rounded to reflect confidence and resource categorisation.

2. Classification of Mineral Resources incorporates the terms and definitions from the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) published by the Joint Ore Reserve Committee (JORC)

3. No upper cut was applied to individual assays for this resource, a lower cut of 0.25% WO3 was applied

Compared to the Mt Carbine historical resources published by Icon Resources Limited (Geosun, 2013) the revised resource covers only 60% of the previous block model area. The model defines 2 -12m wide tungsten lenses separated by barren waste zones in sufficient detail. With the tightening of the drill spacing, it allows the model to more clearly define the resources into higher grade narrower lenses.

Most of the previously inferred resources around the open cut, have now been converted to indicated resources, and confidence was gained that further drilling will continue to also convert the inferred Iron Duke Zone into indicated resources.

# 10. Metallurgical Characterisation

Attached in Appendix D is a description from Petrology for the major rock types at Mt Carbine. The rocks hosting the ore are dominantly pelitic schists, metavolcanics and minor cherts. Quartz content may reach as high as 20% of the rock content and but mineralisation is less than 1% by volume.

Alteration minerals are minor other than pervasive early-stage green schist facies, which has replaced the pelitic mudstones with fine chlorite.

Gangue for the mineralised lenses include quartz, feldspar, tourmaline, muscovite (biotite) with minor amounts of apatite, calcite, pyrite - arsenopyrite, magnetite and zircon. In places in the host rock cordierite is developed. Only arsenopyrite and apatite concentrate alongside with wolframite – scheelite with arsenic reaching up to 1-2% in concentrate samples from a low base of 300ppm.

Economic tungsten minerals are wolframite and scheelite with a typical ratio of 4:1 in the deposit. Each of these minerals contain different tungsten percentages and have different properties. The overriding property that assists in the processing of these minerals is their specific density being high in the 6-7 gm/cm$^3$ range compared to the host quartz-mudstones at 2-3 gm/cm$^3$.

The composition of the wolframite mineral summarised in Figure 33.

| | |
|---|---|
| **Chemical Formula:** | (Fe,Mn)WO4 |
| **Composition:** | Molecular Weight = 303.24 gm<br>Manganese 9.06 % Mn 11.70 % MnO<br>Iron 9.21 % Fe 11.85 % FeO<br>Tungsten 60.63 % W 76.46 % $WO_3$<br>Oxygen 21.10 % O<br>100.00 % 100.00 % = TOTAL OXIDE |
| **Empirical Formula:** | $Fe^{2+}_{0.5}Mn^{2+}_{0.5}(WO_4)$ |
| **Environment:** | Group name for the hübnerite - ferberite series. |
| **IMA Status:** | Not Approved IMA 1863 |
| **Locality:** | Link to MinDat.org Location Data. |
| **Name Origin:** | From the German, Wolfram, name for tungsten. |

Figure 33: Wolframite Composition

The composition of the scheelite mineral is summarised in Figure 34.

| | |
|---|---|
| **Chemical Formula:** | CaWO4 |
| **Composition:** | Molecular Weight = 287.93 gm<br>Calcium 13.92 % Ca 19.48 % CaO<br>Tungsten 63.85 % W 80.52 % $WO_3$<br>Oxygen 22.23 % O<br>100.00 % 100.00 % = TOTAL OXIDE |
| **Empirical Formula:** | $Ca(WO_4)$ |
| **Environment:** | A primary tunsten ore mineral commonly found in contact-metamorphic deposit |
| **IMA Status:** | Valid Species (Pre-IMA) 1821 |
| **Locality:** | Bispberg iron mine, Säter, Dalarna, Sweden Link to MinDat.org Location Data. |
| **Name Origin:** | Named after the Swedish chemist, Karl Wilhelm Scheele (1742-1786). |

Figure 34: Scheelite Composition

By the process of XRT sorting, pit ore and LGS ore will be upgraded approximately 10 times which significantly reduces the tonnage required to be processed, ie. < 25% of this material will be sent to the plant. The final ore is ground down to <1mm for gravity processing.

There are no significant sulphides in the deposit with sulphur at 0.147% on average relating to less than 0.3% sulphides in the pit rocks. No acid rock drainage nor acid-metal issues have been evident on the dumps and it should be noted that over the 44 years that water has resided in the pit, it remained slightly alkaline and is clear clean water with plentiful fish. Some water tests record slightly high in fluorine.

Future waste rock and tailings from mining a pit extension is a continuation of the same rock that is being stored now (in the LGS). The minor amounts of sulphides in the deposit as noted above report in the gravity circuit to the concentrate. This will be separated from the concentrates by flotation.

A full 26-element analysis was done on over 2,000 drill core samples with the following average geochemistry noted.

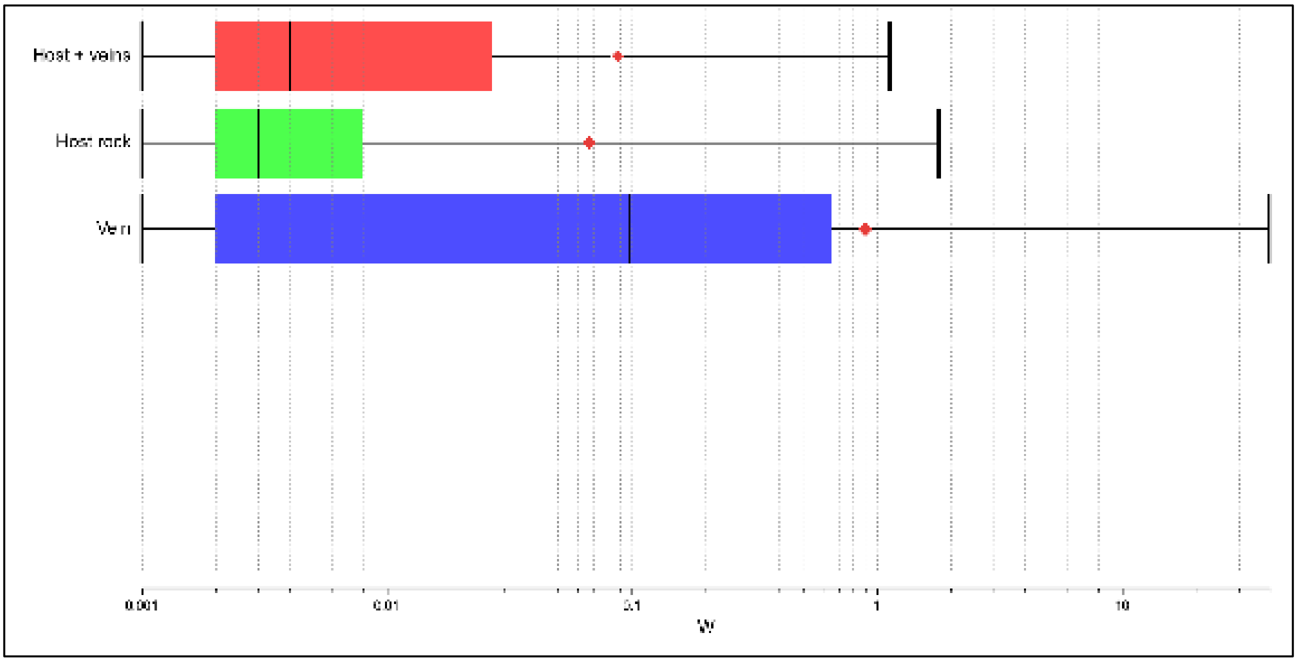


Figure 35: Box Plots of Ore Zones

Tungsten distribution within the site domains is shown above. This distribution plot shows the effects of mining the ore zones separately compared to mining the entire pit zone. Mean results for the ore is 0.72% W whilst 0.13% W is for combined rock - waste. Effectively this is what RB Mining did by sending most of the material direct to the ore sorting plant.

A complete analysis for 26 elements has been performed on all core samples submitted to ALS. As the ore occurs in a quartz vein rather than silicified host several key multi-element differences can be noted in Table 6 and Figure 36.

Table 6: Element Differences in Host and Ore Bodies

| Element | Host | Ore | Comment |
|---|---|---|---|
| Al2O3 | 16.3 % | 4.16 % | Low Silicate minerals in the ore. |
| SiO2 | 64.9 % | 88.4 % | Ore is in qtz, host rock is highly silicified. |
| K2O | 3.12 % | 1.02 % | A lot of biotite surrounding alteration. |
| S | 0.09 % | 0.06 % | Ore & host have low sulphide contents. |
| Fe | 3.79 % | 1.61 % | Less ferromagnesium minerals in ore. |
| TiO2 | 0.62 % | 0.08 % | Host has a lot of rutile alteration. |
| MgO | 1.78 % | 0.25 % | Host has tourmaline alteration. |

**Statistics of Multi-Element for Mt Carbine**

| Domain | Element | Count | Length | Mean | Standard deviation | Coefficient of variation | Variance | Minimum | Lower quartile | Median | Upper quartile | Maximum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Host + veins | Al2O3 | 48 | 24.35 | 14.382 | 4.216 | 0.293 | 17.778 | 3 | 12.9 | 15.7 | 16.95 | 23.2 |
| | As | 39 | 18.43 | 0.042 | 0.063 | 1.510 | 0.004 | 0.01 | 0.01 | 0.01 | 0.03 | 0.27 |
| | BaO | 46 | 23.54 | 0.053 | 0.020 | 0.367 | 0.000 | 0.01 | 0.04 | 0.05 | 0.07 | 0.11 |
| | Bi | 7 | 3.37 | 0.027 | 0.020 | 0.746 | 0.000 | 0.01 | 0.02 | 0.02 | 0.03 | 0.08 |
| | CaO | 48 | 24.35 | 1.402 | 0.533 | 0.381 | 0.285 | 0.39 | 1.11 | 1.36 | 1.68 | 2.86 |
| | CeO2 | 24 | 12.21 | 0.011 | 0.003 | 0.292 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 1 | 0.44 | 0.030 | | | | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| | Cu | 37 | 18.01 | 0.017 | 0.045 | 2.610 | 0.002 | 0.005 | 0.006 | 0.007 | 0.014 | 0.335 |
| | Fe | 48 | 24.35 | 3.512 | 0.930 | 0.265 | 0.865 | 1.24 | 3.15 | 3.69 | 3.93 | 7.73 |
| | HfO2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | K2O | 47 | 23.86 | 3.117 | 1.065 | 0.342 | 1.134 | 0.59 | 2.8 | 3.33 | 3.8 | 5.72 |
| | La2O3 | 25 | 12.76 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | MgO | 48 | 24.35 | 1.607 | 0.847 | 0.527 | 0.717 | 0.29 | 1.3 | 1.71 | 1.88 | 6.62 |
| | Mn | 48 | 24.35 | 0.071 | 0.022 | 0.308 | 0.000 | 0.02 | 0.06 | 0.07 | 0.09 | 0.14 |
| | Mo | 4 | 1.08 | 0.019 | 0.021 | 1.109 | 0.000 | 0.007 | 0.007 | 0.008 | 0.022 | 0.05 |
| | Nb | 1 | 1.17 | 0.007 | | | | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| | Ni | 4 | 2.67 | 0.007 | 0.002 | 0.233 | 0.000 | 0.006 | 0.006 | 0.006 | 0.006 | 0.009 |
| | P2O5 | 48 | 24.35 | 0.244 | 0.278 | 1.139 | 0.077 | 0.09 | 0.12 | 0.14 | 0.25 | 1.54 |
| | Pb | 4 | 0.9 | 0.019 | 0.019 | 0.966 | 0.000 | 0.005 | 0.005 | 0.016 | 0.041 | 0.041 |
| | Rb | 46 | 23.06 | 0.031 | 0.014 | 0.444 | 0.000 | 0.006 | 0.026 | 0.03 | 0.037 | 0.106 |
| | S | 48 | 24.35 | 0.158 | 0.424 | 2.682 | 0.180 | 0.02 | 0.05 | 0.07 | 0.14 | 3.59 |
| | Sb | 1 | 0.24 | 0.007 | | | | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| | SiO2 | 48 | 24.35 | 68.171 | 8.393 | 0.123 | 70.450 | 52.3 | 63.1 | 65.8 | 69.7 | 92.3 |
| | Sn | 41 | 21.77 | 0.009 | 0.003 | 0.321 | 0.000 | 0.005 | 0.008 | 0.009 | 0.012 | 0.022 |
| | Sr | 43 | 21.66 | 0.016 | 0.007 | 0.441 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| | TiO2 | 48 | 24.35 | 0.503 | 0.161 | 0.320 | 0.026 | 0.1 | 0.42 | 0.57 | 0.62 | 0.68 |
| | V | 34 | 18.37 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 43 | 21.85 | 0.087 | 0.257 | 2.943 | 0.066 | 0.001 | 0.002 | 0.004 | 0.027 | 1.125 |
| | Y2O3 | 31 | 14.64 | 0.006 | 0.001 | 0.164 | 0.000 | 0.005 | 0.005 | 0.006 | 0.007 | 0.01 |
| | Zn | 46 | 23.23 | 0.016 | 0.016 | 1.010 | 0.000 | 0.005 | 0.01 | 0.011 | 0.016 | 0.135 |
| | Zr | 45 | 22.71 | 0.013 | 0.004 | 0.353 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 |
| Host rock | Al2O3 | 110 | 79.19 | 16.015 | 1.937 | 0.121 | 3.751 | 4.58 | 15.7 | 16.3 | 17.05 | 19.2 |
| | As | 79 | 55.04 | 0.030 | 0.059 | 1.971 | 0.003 | 0.01 | 0.01 | 0.02 | 0.02 | 0.43 |
| | BaO | 109 | 78.96 | 0.051 | 0.013 | 0.248 | 0.000 | 0.01 | 0.04 | 0.05 | 0.06 | 0.09 |
| | Bi | 3 | 2.06 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | CaO | 110 | 79.19 | 1.192 | 0.428 | 0.359 | 0.183 | 0.53 | 0.93 | 1.12 | 1.32 | 4.05 |
| | CeO2 | 69 | 48.38 | 0.010 | 0.001 | 0.134 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 3 | 1.42 | 0.012 | 0.006 | 0.468 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Cu | 75 | 52.15 | 0.011 | 0.015 | 1.302 | 0.000 | 0.005 | 0.007 | 0.008 | 0.01 | 0.115 |
| | Fe | 110 | 79.19 | 3.759 | 0.516 | 0.137 | 0.266 | 1.88 | 3.66 | 3.79 | 3.96 | 5.65 |
| | HfO2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | K2O | 110 | 79.19 | 3.060 | 0.642 | 0.210 | 0.413 | 0.78 | 2.76 | 3.12 | 3.39 | 5.33 |
| | La2O3 | 67 | 47.77 | 0.010 | 0.001 | 0.065 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | MgO | 110 | 79.19 | 1.725 | 0.268 | 0.155 | 0.072 | 0.43 | 1.7 | 1.78 | 1.86 | 2.06 |
| | Mn | 110 | 79.19 | 0.075 | 0.020 | 0.262 | 0.000 | 0.05 | 0.06 | 0.07 | 0.09 | 0.21 |
| | Mo | 3 | 1.68 | 0.005 | 0.000 | 0.000 | 0.000 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| | Nb | 3 | 1.66 | 0.006 | 0.002 | 0.446 | 0.000 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 |
| | Ni | 13 | 7.96 | 0.012 | 0.007 | 0.610 | 0.000 | 0.005 | 0.006 | 0.007 | 0.016 | 0.024 |
| | P2O5 | 110 | 79.19 | 0.160 | 0.083 | 0.520 | 0.007 | 0.05 | 0.12 | 0.14 | 0.16 | 0.53 |
| | Pb | 12 | 9.84 | 0.006 | 0.001 | 0.234 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.009 |
| | Rb | 110 | 79.19 | 0.026 | 0.007 | 0.253 | 0.000 | 0.005 | 0.023 | 0.027 | 0.03 | 0.048 |
| | S | 110 | 79.19 | 0.101 | 0.078 | 0.772 | 0.006 | 0.01 | 0.06 | 0.09 | 0.12 | 0.5 |
| | Sb | 3 | 2.46 | 0.005 | 0.001 | 0.113 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.006 |
| | SiO2 | 110 | 79.19 | 65.686 | 3.749 | 0.057 | 14.052 | 58.6 | 64 | 64.9 | 66.4 | 88.5 |
| | Sn | 82 | 57 | 0.008 | 0.003 | 0.335 | 0.000 | 0.005 | 0.006 | 0.007 | 0.009 | 0.019 |
| | Sr | 105 | 76.18 | 0.015 | 0.006 | 0.410 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| | TiO2 | 110 | 79.19 | 0.600 | 0.096 | 0.160 | 0.009 | 0.13 | 0.59 | 0.62 | 0.65 | 0.73 |
| | V | 102 | 72.52 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 84 | 60.5 | 0.067 | 0.287 | 4.292 | 0.083 | 0.001 | 0.002 | 0.003 | 0.008 | 1.79 |
| | Y2O3 | 65 | 48.96 | 0.006 | 0.001 | 0.170 | 0.000 | 0.005 | 0.005 | 0.006 | 0.006 | 0.009 |
| | Zn | 110 | 79.19 | 0.013 | 0.007 | 0.535 | 0.000 | 0.006 | 0.01 | 0.011 | 0.014 | 0.079 |
| | Zr | 109 | 77.9 | 0.014 | 0.005 | 0.360 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| Vein | Al2O3 | 155 | 46.93 | 5.552 | 4.585 | 0.826 | 21.021 | 0.15 | 2.32 | 4.16 | 7.64 | 19.1 |
| | As | 90 | 27.55 | 0.035 | 0.055 | 1.562 | 0.003 | 0.01 | 0.01 | 0.01 | 0.02 | 0.35 |
| | BaO | 112 | 30.97 | 0.029 | 0.029 | 0.996 | 0.001 | 0.01 | 0.01 | 0.02 | 0.03 | 0.18 |
| | Bi | 58 | 17.96 | 0.018 | 0.019 | 1.059 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.22 |
| | CaO | 154 | 46.82 | 0.881 | 1.211 | 1.374 | 1.466 | 0.08 | 0.36 | 0.61 | 1 | 9.31 |
| | CeO2 | 13 | 2.32 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 1 | 0.54 | 0.010 | 0 | 0 | 0 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | Cu | 58 | 17.09 | 0.049 | 0.128 | 2.602 | 0.016 | 0.005 | 0.006 | 0.012 | 0.02 | 0.742 |
| | Fe | 155 | 46.93 | 1.697 | 0.867 | 0.511 | 0.751 | 0.58 | 0.99 | 1.61 | 2.06 | 10.05 |
| | HfO2 | 3 | 0.36 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | K2O | 144 | 45.56 | 1.875 | 2.220 | 1.184 | 4.927 | 0.03 | 0.51 | 1.02 | 2.5 | 13.15 |
| | La2O3 | 18 | 2.27 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | MgO | 155 | 46.93 | 0.359 | 0.365 | 1.016 | 0.133 | 0.02 | 0.11 | 0.25 | 0.44 | 2.03 |
| | Mn | 155 | 46.93 | 0.066 | 0.122 | 1.829 | 0.015 | 0.01 | 0.02 | 0.03 | 0.05 | 1.73 |
| | Mo | 26 | 4.99 | 0.012 | 0.012 | 0.966 | 0.000 | 0.005 | 0.006 | 0.007 | 0.013 | 0.069 |
| | Nb | 23 | 7.64 | 0.020 | 0.039 | 1.922 | 0.002 | 0.005 | 0.007 | 0.014 | 0.021 | 0.317 |
| | Ni | 10 | 2.45 | 0.015 | 0.015 | 0.994 | 0.000 | 0.005 | 0.008 | 0.011 | 0.014 | 0.052 |
| | P2O5 | 154 | 46.24 | 0.161 | 0.191 | 1.188 | 0.036 | 0.01 | 0.04 | 0.11 | 0.19 | 1.34 |
| | Pb | 62 | 18.08 | 0.009 | 0.009 | 1.007 | 0.000 | 0.005 | 0.005 | 0.006 | 0.011 | 0.119 |
| | Rb | 106 | 31.31 | 0.020 | 0.018 | 0.890 | 0.000 | 0.005 | 0.006 | 0.013 | 0.028 | 0.081 |
| | S | 147 | 44.8 | 0.137 | 0.237 | 1.721 | 0.056 | 0.01 | 0.03 | 0.06 | 0.13 | 2.45 |
| | Sb | 10 | 2.47 | 0.007 | 0.001 | 0.196 | 0.000 | 0.005 | 0.006 | 0.008 | 0.008 | 0.01 |
| | SiO2 | 155 | 46.93 | 85.268 | 10.874 | 0.128 | 118.248 | 6.28 | 81.7 | 88.4 | 92.8 | 99.7 |
| | Sn | 51 | 12.99 | 0.013 | 0.012 | 0.914 | 0.000 | 0.005 | 0.007 | 0.012 | 0.014 | 0.068 |
| | Sr | 58 | 13.07 | 0.019 | 0.030 | 1.551 | 0.001 | 0.01 | 0.01 | 0.01 | 0.02 | 0.22 |
| | TiO2 | 153 | 45.8 | 0.115 | 0.120 | 1.048 | 0.014 | 0.01 | 0.04 | 0.08 | 0.15 | 0.68 |
| | V | 19 | 3.23 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 123 | 34.6 | 0.896 | 2.792 | 3.117 | 7.796 | 0.001 | 0.002 | 0.097 | 0.653 | 39.7 |
| | Y2O3 | 28 | 6.5 | 0.005 | 0.001 | 0.144 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.009 |
| | Zn | 84 | 22.03 | 0.016 | 0.037 | 2.284 | 0.001 | 0.005 | 0.006 | 0.007 | 0.01 | 0.203 |
| | Zr | 38 | 8.4 | 0.011 | 0.003 | 0.259 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |

Figure 36: Summary of Multielement Analysis

# 11. Hydrogeology

The hydrogeological regime at Mt Carbine was originally assessed in 2012 by Rob Lait and Associates, and a further gap analysis was performed by Australasian Groundwater and Environmental Consultants in 2020.

Further hydrogeological assessments and modelling are currently ongoing to support the Project's environmental approvals process, which is described in Chapter 10: Environment and Approvals. This work is ongoing and no outcomes have been included in this study.

The details below are based off the work completed in 2012 and 2020 by Rob Lait and Associates and Australasian Groundwater and Environmental Consultants.

## 11.1. Groundwater

The greatest potential for groundwater at Mt Carbine occurs within the Hodgkinson Formation. Fractured rocks within the Hodgkinson Formation contain aquifers that generally have secondary porosity, may be hydraulically disjointed and can be difficult to analyse because of these characteristics.

Figure 37 shows the almost vertical attitude of cleavage within fine-grained rocks of the Hodgkinson Formation. These rocks are situated in Manganese Creek just to the east of the existing open pit. Open cleavage partings such as those shown in Photograph 1 offer the greatest opportunity for recharging rainfall to penetrate fractured rock aquifers and accumulate as groundwater at depths of 50 to 60m.

Groundwater primarily resides along the cleavage partings and along the traces of fractures.

Figure 37: Cleavage Partings in Hodgkinson Formation Rocks (Near Open Pit)

### 11.1.1. Groundwater Recharge

The primary mechanism for recharge to the aquifers in the area is the direct infiltration of rainfall. Recharge to fractured zones in the Hodgkinson Formation will be rapid in areas where open cleavage partings are both exposed at the surface and persist to depths of 50 to 60m. There are significant areas to the north of the Mulligan Highway where such conditions exist.

A secondary mechanism for recharge to the aquifers at Mt Carbine is episodic or flood recharge. During a major rainfall event, 80% of water not lost by evaporation may discharge as surface runoff. The maximum opportunity for recharge to these aquifers will occur where cleavage partings are exposed in ephemeral gullies that traverse the site and flow during the wet season.

There is little or no evidence of exposed Hodgkinson Formation to the south of the Mulligan Highway.

### 11.1.2. Groundwater Supply Opportunities

After the raw water supply from the open pit is exhausted, an additional supply of water is required.

Rob Lait and Associates have performed an analysis of the ground water supply opportunities and identified a bore location suitable to supply sufficient flow rate to meet the Project's requirements.

This is detailed further in Chapter 6: Infrastructure.

### 11.1.3. Groundwater Flow

The elevations of the groundwater in the monitoring bores were calculated from the groundwater level measurements, and the elevations of the measurement reference points. The elevation of the water level in the open pit is also known. Groundwater flow is from the northeast to the south and to the west.

### 11.1.4. Groundwater Discharge

There is no evidence of springs or seeps in the ephemeral gullies during the dry season. There is no report of springs or seeps in the immediate vicinity of Mount Carbine either in the Natural Resources Management (NRM) groundwater database or anecdotally.

There are no recognisable or known groundwater dependent ecosystems within the Project's operation area.

## 11.2. Water Quality

Mt Carbine's EA requires quarterly measurements of pH, electrical conductivity (EC), major cations and anions, fluoride, filtered metals (aluminium, antimony, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, molybdenum, nickel, selenium, tungsten and zinc), total petroleum hydrocarbons and total hardness. The EA contains groundwater quality objectives (GQOs) against which monitoring data from compliance bores are assessed. The GQOs for the shallow compliance bores are either default values or values derived from the shallow reference site concentrations. For the deep compliance bores, reference site concentrations are used.

Groundwaters at Mt Carbine are generally circumneutral (pH 7.1 to 7.8), fresh to moderately saline (EC 1,500 to 7,000 µS/cm) and with relatively low dissolved metal concentrations (limit of reporting to <1mg/L). EA trigger values for electrical conductivity (EC), sulfate, copper (filtered) and zinc (filtered) are commonly exceeded in groundwater beneath the Mt Carbine site. These exceedances tend to follow a pattern whereby a specific bore consistently exceeds for a specific analyte. This suggests that the current reference bore approach is not appropriate for the groundwater quality conditions on site. These conditions may be due to natural variability or mine related influences on the chemical quality of groundwater.

## 11.3. Ongoing Hydrogeological Assessment

A hydrogeological assessment to support the Project's approvals process is ongoing. EQR has engaged Rob Lait and Associates to develop a hydrogeological model based on the outcomes of 10 years' worth of bore monitoring from the wells installed in 2011. EQR is planning to install additional monitoring bores to assist in this assessment and the ongoing monitoring and management of groundwater.

# 12. Geotechnical Appraisal

A geotechnical assessment was undertaken for the project by Ian McEnhill of Geotechnical Consultants Pty Ltd.

## 12.1. Drill Hole Data

79 holes in the deposit have been tested by geotechnical analysis. The holes are spread across the resource area covering a zone of 1.3km in strike and 600m in width. The holes were all diamond drilling so a good understanding of structure, recovery, morphology and domains could be established. All the core is stored safely at site in a core shed and on pallets. Clear labelling of the depth and hole number exists.

The holes vary from 50 to 741m in depth with an average of 261m. Recovery observed in the drilling was above 98% as the core is very competent with few clay zones. Mineralised bodies are hard with very few strong boundary factures showing that the core rarely preferentially breaks on the vein margins.

Attached in Appendix D is a summary of the geotechnical characteristics of the rock types. It was found in completing over 430m of decline tunnel on a large 8 x 4m size that there was no need for rock bolting of the backs as the ground was competent. The 20m bench rock faces exposed now for 48 years are in remarkable preservation with only a few minor rock falls.

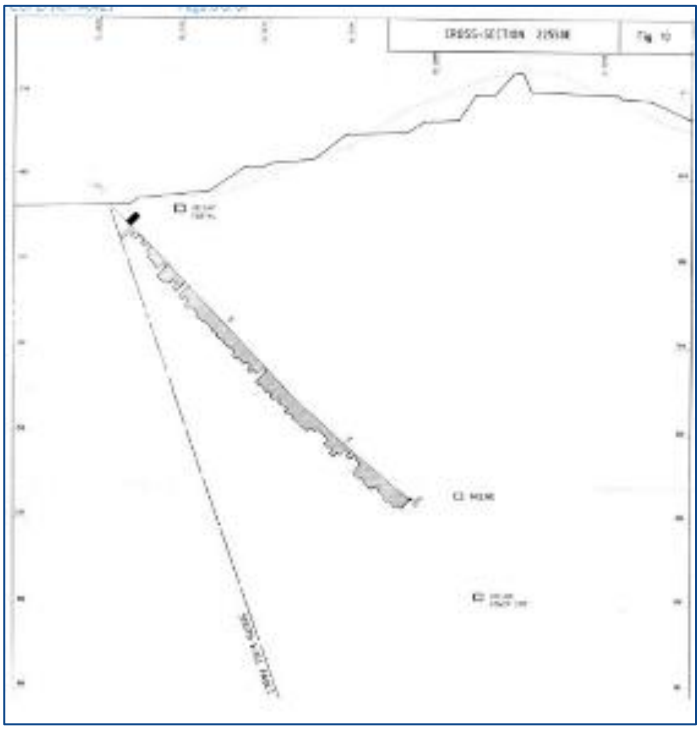

Figure 38: Typical Section Showing RQD Through the Centre of the Deposit

## 12.2. Geotechnical Conditions

Significant geotechnical data has been collected during the previous mining of the 22 Mt open cut and 430m of large-scale decline. Geotechnical Consulting Pty Ltd (GCPL) completed a desktop review of the following reports and documents.

- Piteau Report HD042 : Slope Stability Analysis & Design (April 1982);
- Golder Report HD035 : Review of Rock Mechanics (July 1984);

- Australian Coal Industry Research Laboratories UCS Test Results (December 1984);
- Baczynski : Plan of Action to DME for Re-Opening the Mt Carbine Decline (April 2021) and
- MOSHAB Code of Practice : Surface Rock Support for Underground Mines (Feb 1999).

GCPL examined the historical data and concluded that in the initial 30m or so of surface the rock mass appears to be moderately weathered with an estimated intact rock strength of 10 to 30MPa. Up to four joint sets bisect the rock, to define moderately - sized slabs and flaggy conditions. GCPL stereographic analysis indicate that the pronounced slabs are delineated by persistent, steeply SW – dipping foliation, sub-vertical quartz veins and B1 jointing which runs near-parallel to the decline.

Potential release from the backs of a decline or from slopes of a pit face, will probably be controlled by dominant joint set C1, spaced at 0.5 to 1.0m and dipping flatly at 15 to $30^0$ to the east.

In GCPL's analysis of these joints the situation is more relevant to the interaction of any future decline with the dominant structure as it indicates that the formation of potentially unstable tetrahedral wedges in the backs of the decline is kinematically feasible (refer Figure 39).

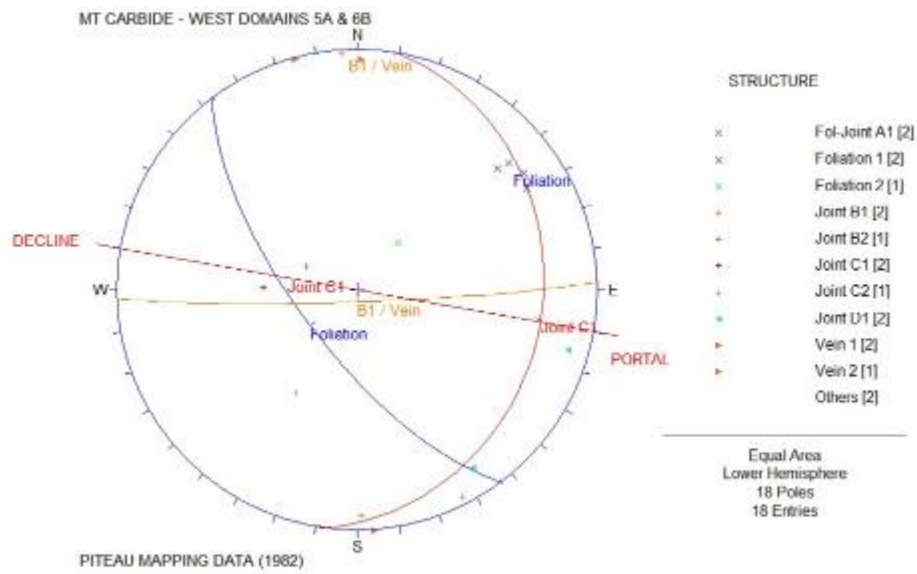


Figure 39: Kinematic Analysis of interaction of Foliation with Joint Sets B1 and C1

The geotechnical data for the open pit is summarised in Table 7.

Table 7: GCPL Interpretation of Strength of Intact Rock and Structure

| Lithology | Weathering Grade | Degree of Weathering | Estimated Hardness | Estimated Strength (MPa) | Drillhole | Depth (m) | UCS Parallel to Schistosity (MPa) | UCS Normal to Schistosity (MPa) |
|---|---|---|---|---|---|---|---|---|
| Fill & Residual Soil | A | Extremely | S4 to R0 | < 0.7 | - | - | - | - |
| Highly Weathered | B | Heavily | R1 | 0.7 to 7 | CB3 | 17 | 6 | 6 |
| Schist & Greywacke | | | | | CB20 | 24 - 29 | - | - |
| Moderately Weathered | C | Moderately | R2 | 7 to 28 | CB20 | - | - | 10 |
| Schist & Greywacke | | | | | CB21 | - | - | - |
| Unweathered | D to E | Slightly | R4 | 56 | CB3 | 71 - 77 | - | 62 |
| Hornfels | | | | | | | | |

| Structural Domain | Number of Poles | Defect Set | Dip Angle | Dip Direction | Average Spacing (m) | Continuity (m) | Roughness | Waviness | Infill | Shear - Strength Friction (deg) | Cohesion (kPa) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 111 | Foliation 1 | 71 | 230 | < 0.1 | Continuous | | | | | |
| | | Foliation 2 | 21 | 221 | < 0.1 | Continuous | | | | | |
| 5 A | 82 | Fol-Joint A1 | 66 | 229 | 0.5 | 5 to 10 | Sl Rough | Undulating | None | | |
| in | 400 | Joint B1 | 86 | 333 | 0.5 to 1 | Continuous | Slickensided | Planar to Sl Und | Quartz | | |
| Silicified | | Joint B2 | 83 | 359 | 0.5 to 1 | Continuous | Slickensided | Planar to Sl Und | Quartz | 36 | 0 |
| Siltstone | | Joint C1 | 19 | 115 | 0.5 to 1 | Continuous | | Planar to Sl Und | | | |
| (Hornfels) | | Joint D1 | 80 | 286 | 1 to 2 | Continuous | | Undulating | | | |
| | | Random G1 | 50 | 0 | Widely | > 10 | | | | | |
| | 48 | Vein 1 | 89 | 165 | | Continuous | Rough | Irregular | 0.02 to 1m Quartz | | |
| | | Vein 2 | 85 | 181 | | Continuous | Rough | Irregular | 0.02 to 1m Quartz | | |
| | 119 | Foliation 1 | 71 | 239 | < 0.1 | Continuous | | | | | |
| 6 B | 40 | Fol-Joint A1 | 73 | 235 | 0.5 | 5 to 10 | Sl Rough | Undulating | None | | |
| in | 243 | Joint B1 | 88 | 176 | 0.5 to 1 | Continuous | Slickensided | Planar to Sl Und | Quartz | | |
| Silicified | | Joint C1 | 32 | 92 | 0.5 to 1 | Continuous | | Planar to Sl Und | | | |
| Siltstone | | Joint C2 | 41 | 31 | 0.5 to 1 | Continuous | | Planar to Sl Und | | 36 | 0 |
| (Hornfels) | | Joint D1 | 77 | 327 | 1 to 2 | Continuous | | Undulating | | | |
| | | Random G1 | 50 | 356 | Widely | > 10 | | | | | |
| | 134 | Vein 1 | 90 | 356 | | Continuous | Rough | Irregular | 0.02 to 1m Quartz | | |

## 12.3. Geotechnical Considerations to Mining

The geotechnical assessment, with consideration to mining activities, is detailed in Chapter 4: Mining.

# 13. Grade Control

## 13.1. Ongoing Grade Control Activities

Work will be ongoing to define the correct grade control methodology and the spacing for accurate ore deposit reconciliation determination. Initially a 12m centre pattern is planned for grade control holes and this is below the statistical figure required for measured resources. Some of the lens locations and grade will be determined by using the following methods

- Blast hole sampling;
- UV light surveys to recognize the ore zones;
- Channel sampling in the pit;
- Plotlogic alteration imagery to determine location of the ore zones;
- Mapping of the veins themselves;
- Structural interpretation of vein movements;
- Photography and observation during mining; and
- PIMA alteration mapping of the chips, core and outcrops.

Data from the above techniques will be kept in 3D digital format using Deswick software that allows remote learning of the ore body characteristics and this process will continue to lead to a greater understanding of the deposit and success in future exploration. The aim is to understand why the high-grade occurs where it does. Close work on mineralogy and alteration is being done in conjunction with the University of Queensland to piece together a robust resource model.

Capital costs for the pre-production work is summarised in Table 8.

Table 8: Grade Control Cost Estimate

| WBS | Item | Cost (AUD) | Comment |
|---|---|---|---|
| **Core Shed & Sample Prep Laboratory** | | | |
| 34300 | Core Shed | 150,000 | 20 x 10m size – Roof Only on slab. Lighting & Toilet etc. |
| 34200 | Automated Core Saw | 35,000 | Automated Cutting Machine. |
| 34200 | Prep Lab Crushing Equipment | 65,000 | 1 x Lab Jaw Crusher, LM5 Ring Grinder and Oven. |
| 32500 | Base Radio & Safety Equipment | 3,000 | First Aid, Fire Extinguishers, Radio, etc. |
| | **Subtotal** | **253,000** | |
| **Analysis Laboratory** | | | |
| 34200 | XRF Machine (Lease Deposit) | 40,000 | Rigaku WD XRF Analyser. |
| 34200 | Fusion Disk Maker (Lease Deposit) | 20,000 | Desk top 15 disk per hour. |
| 34200 | Laboratory Fit Out | 25,000 | Benches, Air Conditioner, Timber Panel, Extraction Fans, Weight Scale and Instruments. |
| | **Subtotal** | **85,000** | |

| Geological Office | | | |
|---|---|---|---|
| 81900 | Mining Software | 50,000 | Leapfrog License & Deswick License. |
| | **Total** | **388,000** | |

The ongoing operational costs for the running of the Project's Geological Department are summarised in Table 9.

Table 9: Geological Department Operational Costs

| Item | Description | Cost (AUD/year) | Comment |
|---|---|---|---|
| Grade Control Reverse Circulation | RC Hire / $70/m All in | 120,000 | Total for 3 year pit mine life is expected to be 5,000m of grade control drilling. |
| XRF Lease | Monthly Lease | 48,000 | Lease Cost for XRF & Fusion Machine |
| Mining Software | Maintenance Cost of Software | 10,000 | Leapfrog & Deswick |
| Geology Consumables | Grade Control Drilling Consumables, Prep Lab Consumables | 30,000 | Core trays, Maintenance for Lab Sample Bags, Survey markers etc. |
| Staff Costs | Labour | 460,000 | |
| **Total** | | **668,000** | |

One of the major ongoing costs for mining operations is the grade control drilling.

Essentially each of the lenses will be drilled on a 20 x 10m x 20m cross pattern prior to mining. This drilling will be done on two bench levels at a time (40m vertical).

The drilling will be completed by a reverse circulation drilling rig using four inch holes and taking 1m sample intervals. These holes will be angled from the pit floor or from prepared upper benches and each hole is designed to intersect the lens at a high angle to strike as shown in Figure 40: Grade Control Drill Pattern.

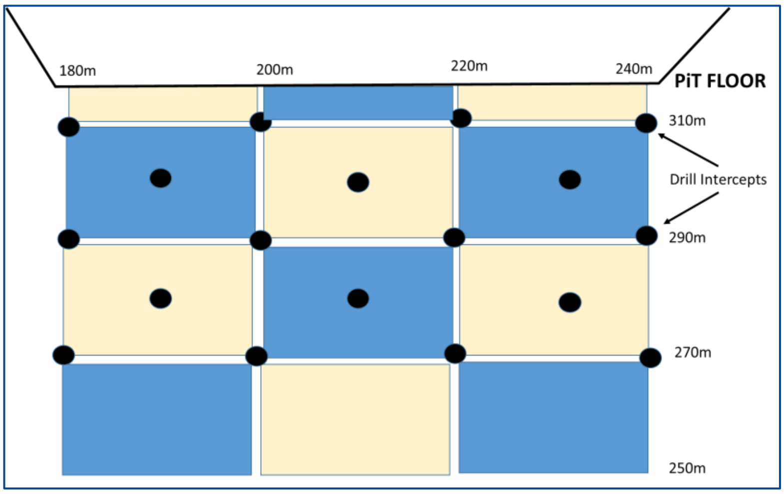


Figure 40: Grade Control Drill Pattern

Sampling of the 1m grade control intervals will generate a detailed flitch map for that bench with the 1m intervals being composited into the lens widths and provide a single grade point on that lens position. Ongoing reconciliation of predicted grade and actual grade is a daily basis, and this in turn can be used to verify the grade control pattern to ultimately reach the optimised pattern. Where possible the blast holes will also be used as additional data points and may replace some of the grade control holes in time.

The target is to generate a more detailed block model with robust grade on 1.0 x 1.0 x 1.0m size within the larger lens blocks of 20 x 20m x lens width having a minimum of 400 grade-controlled subblocks. This will allow for detailed mark-up of the ore for mining on minimum mine widths based on the nearest metre.

Given the lenses on average are 3.8m mining equipment will be specialised for the ore as opposed to the larger waste lenses.

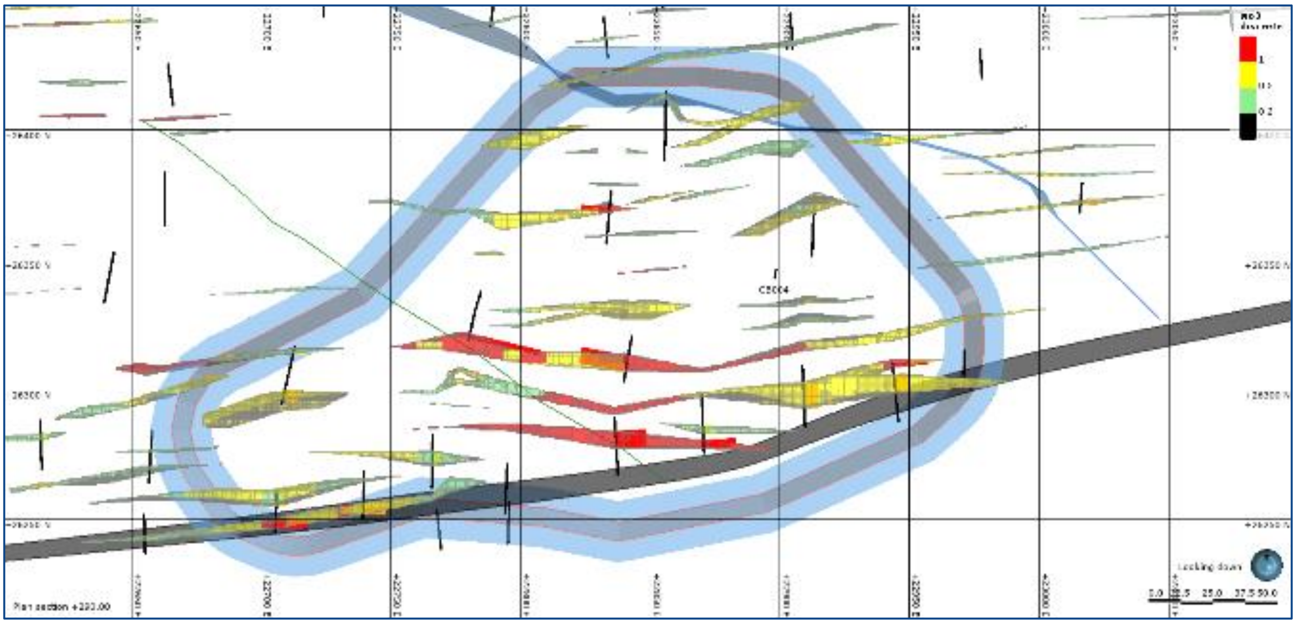

Figure 41: Flitch of the 290m RL Level Showing Ore Zones and Grade

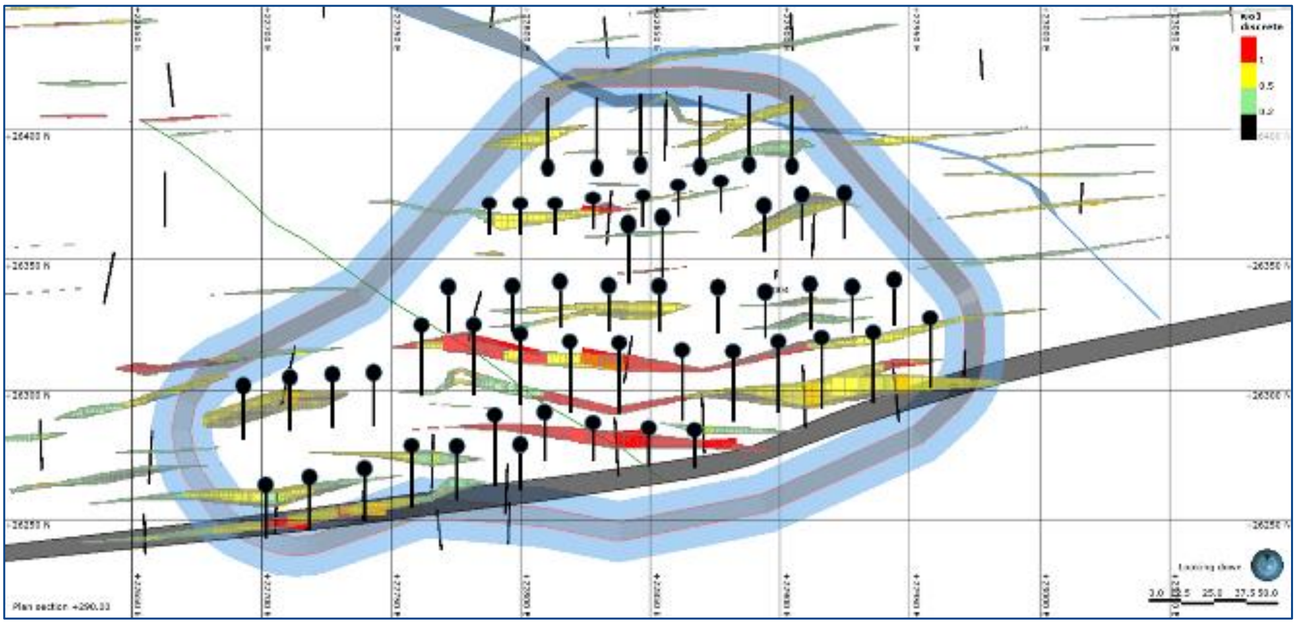

Figure 42: Same Flitch Showing Grade Control Pattern to Define Lens Location

## 13.2. Geological Department Functions

Geology and grade control require daily sampling, mapping, marking out of ore zones, control of mining and waste designations, updating the model daily with new results, structural analysis, geotechnical assessment and grade reconciliation. Exploration work and location of additional resources is also part of this Department's responsibility. The Department is to be staffed by the personnel summarised in Table 10.

Table 10: Geological Department

| Role | Quantity |
|---|---|
| Pit Geologist | 1 |
| Resource Geologist | 1 |
| Core Shed Manager | 1 |
| Laboratory Manager | 1 |
| Field Assistant | 1 |
| **TOTAL** | **5** |

The tungsten ore zones have the benefit that they can be visually recognised using a UV light and will be checked and marked up during night shift. This will be reconfirmed by both channel sampling and grade control drill holes. It is expected on average,15 samples per shift will be collected for the in-house laboratory.

# 14. References


| Title | Author | Date |
|---|---|---|
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| Brief review and structural assessment/scoping of Iron Duke Petersens Mt Carbine EPM 14872 | N. Oliver | 2020 |
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| Report on Geological Mapping of Iron Duke and Petersens Lodes Scheelite Prospects, Mt Carbine Tungsten District | A. White | 2013 |
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| Report on the Compilation of Information Pertaining to the Geology, Resources and Mining History of the Mt Carbine Tungsten Deposit, North Queensland | Grahame Hamilton Cullen Exploration Pty Ltd | Aug-06 |
| Mt Carbine Diamond Drill Hole Register 1969-1984 | Unknown | 1984 |
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| First Supplement to Diamond Drill Core Logs CB1- CB29A x 2 documents Quartz Vein Premeasurement with Preliminary Observations of Feldspar and Muscovite | D.L. Forsythe | Jun-85 |
| Mt Carbine D.D.H.'s CB 38-45 x 2 documents Supplementary Logs & Data i) Survey ii) Mechanical Properties Logs iii) Foliation iv) R.Q.D. v) U.C.S. Quartz Content vi) Vein Mineral Summary Sheets | Unknown | Jun-85 |
| Mt Carbine Diamond Drill Hole Surveys | Unknown | Unknown |
| The Mt Carbine Mine Review of Underground Mining Proposal | Golder Associates Pty Ltd | Apr-84 |
| Mt Carbine Project Remaining Tungsten Mineralization within the Mining Leases 4867 & 4919 | John Sainsbury Consultants Pty Ltd | Mar-05 |
| Proposal for Development of X-ray Transmission Wolframite Detector & Sorter Interface System | Ritz Ore Sorters | Mar-81 |
| Quartz Content, Etc of Drill Core Samples x 2 documents | A.S. Joyce Ceochempet Services | Dec-84 |
| R.B. Mining Pty Ltd Mt Carbine Mine Review of Underground Mining Proposal | Golder Associates Consulting Geotechnical & Mining Engineers | Apr-84 |

| Title | Author | Date |
|---|---|---|
| Recent Observations on the Feldspar – Mica Selvage Transition at Mt Carbine | D.L. Forsythe | Feb-85 |
| Report on the Mt Carbine Wolframite Deposit Report 1/70 | R.B. Mining Pty Ltd | Nov-70 |
| Mt Carbine Tungsten Project Scoping Study for Icon Resources + Appendices (2 Separately Bound Documents) | AJE Project Development Consultancy | Oct-09 |
| Underground Mining at Mt Carbine Preliminary Schedules, Geological Requirements, Grade and Volume Parameters | H. Stevensen | Feb-83 |
| Geostatistically Analysis and Ore Body Modelling (Extract) Mt Carbine Tungsten Project | University of Queensland Steven David Potter | Jun-94 |
| Geology of Mt Carbine Area, North Queensland | D.L. Forsythe, R.B. Mining Pty Ltd | Aug-83 |
| Icon Resources Ltd Mt Carbine Project Resource Estimate | Geostat Services | Oct-10 |
| Resource Estimate Audit Report | Geosun Pty Ltd | Apr-13 |

# 15. List of Abbreviations

| Abbreviation | Description |
|---|---|
| ALS | ALS Laboratories |
| EA | Environmental Authority |
| EC | Electrical conductivity |
| EQR | EQ Resources Limited |
| GCPL | Geotechnical Consulting Pty Ltd |
| GQO | Ground Quality Objective |
| Ha | Hectare |
| LGS | Low grade stockpile |
| ML | Mining lease |
| OK | Ordinary kriging |
| QAQC | Quality assurance and quality control |
| RL | Relative level |
| SWF | South wall fault |
| UV | Ultra violet |

# Appendix A Geology and Mineral Resource Estimate

A REPORT BY MEASURED GROUP PTY LTD

# GEOLOGY AND MINERAL RESOURCE ESTIMATE

## MT CARBINE TUNGSTEN PROJECT

## EQ RESOURCES PTY LTD

3 December 2021

REPORT NO: MG748_MT CARBINE GEOLOGY AND MINERAL RESOURCES_03122021

# DOCUMENT ISSUES AND APPROVALS

## DOCUMENT INFORMATION

| | |
|---|---|
| Project: | Mt Carbine Tungsten Project |
| Document Number: | MG748_Mt Carbine Geology and Mineral Resources_03122021 |
| Title: | Geology and Mineral Resource Estimate |
| Client: | EQ Resources Pty Ltd |
| Date: | 03 December 2021 |

## CONTRIBUTORS

| | Name | Position | Signature |
|---|---|---|---|
| Prepared by: | Chris Grove | Principal Geologist | |
| Reviewed by: | Marcus Trost | Principal Geologist | |
| Approved by: | James Knowles | Director and Principal Geologist | |

## DISTRIBUTION

| Company | Attention | Hard Copy | Electronic Copy |
|---|---|---|---|
| EQ Resources Pty Ltd | Kevin MacNeill | No | Yes |

# PURPOSE OF REPORT

Measured Group Pty Ltd (MG) has prepared this report for the management of EQ Resources Pty Ltd (EQR). The purpose of the report is to provide EQR with an objective assessment, estimation and statement of Mineral Resources that is consistent with the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves, 2012 edition (The JORC Code).

The report includes a summary of steps taken to verify and validate all available geoscience data used to build geoscience models for the Mt Carbine orebodies that will be used as the basis for feasibility studies and mine design activities. The report also includes a Mineral Resource estimate for Insitu orebody and the Low-Grade Stockpile (LGS).

# LIMITATIONS AND LIABILITY

Measured Group, after due enquiry and subject to the limitations of the Report hereunder, confirms that:

- The conclusions presented in this report are professional opinions based solely upon Measured Group's interpretations of the documentation received, interviews and conversations with personnel knowledgeable about the site and other available information, as referenced in this report. These conclusions are intended exclusively for the purposes stated herein.
- For these reasons, the reader must make their own assumptions and their own assessments of the subject matter of this report.
- Opinions presented in this report apply to the site's conditions and features as they existed at the time of Measured Group's investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this report, about which Measured Group have had no prior knowledge nor had the opportunity to evaluate.

Limited Liability

Measured Group will not be liable for any loss or damage suffered by a third party relying on this report regardless of the cause of action, whether breach of contract, tort (including negligence) or otherwise unless and to the extent that that third party has signed a reliance letter in the form required by Measured Group (in its sole discretion). Measured Group's liability in respect of this report (if any) will be specified in that reliance letter.

Responsibility and Context of this Report

The contents of this report have been created using data and/or information provided by or on behalf of the Customer. Measured Group accepts no liability for the accuracy or completeness of data and information provided to it by, or obtained by it from, the Customer or any third parties, even if that data and information has been incorporated into or relied upon in creating this report.

The report has been produced by Measured Group using information that is available to Measured Group as at the date stated on the cover page. This report cannot be relied upon in any way if the information provided to Measured Group changes. Measured Group is under no obligation to update the information contained in the report at any time.

# COMPETENT PERSONS STATEMENT

I, Chris Grove, confirm that I am the Competent Person for this Report and:

- 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 JORC Code 2012 Edition, having at least five years of experience that 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 (AusIMM).
- I am the author of the Report to which this Consent Statement applies.

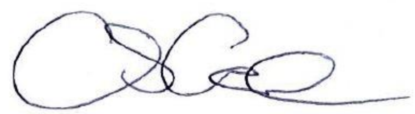
I am a full-time employee of Measured Group Pty Ltd and have been engaged by EQR to prepare the documentation for the Mt Carbine Tungsten Project on which the Report is based, for the period ended October 2021.

I have more than 24 years of experience in the estimation of Mineral Resources both in Australia and overseas. This expertise has been acquired principally through exploration and evaluation assignments at operating mines and exploration areas.

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.

I verify that the Report is based on and fairly and accurately reflects in the form and context in which it appears, the information in my supporting documentation relating to Mineral Resources.

Pursuant to the requirements of ASX Listing Rules 5.6, 5.22 and 5.24 and Clause 9 of the JORC Code 2012 Edition, I consent to the release of this Report and this Consent Statement by EQR.



.....................................................................................

Chris Grove B. App Sci.(Geol), MAusIMM

Member AusIMM – 310106

# EXECUTIVE SUMMARY

Measured Group Pty Ltd (MG) has prepared this report for the management of EQ Resources Pty Ltd (EQR). The purpose of the report is to provide EQR with an objective assessment, estimation and statement of Mineral Resources that is consistent with the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves, 2012 edition (The JORC Code).

The report includes a summary of steps taken to verify and validate all available geoscience data used to build geoscience models for the Mt Carbine orebodies that will be used as the basis for feasibility studies and mine design activities. The report also includes a Mineral Resource estimate for Insitu orebody and the Low-Grade Stockpile (LGS).

The Mt Carbine Mine is located 130 km north of the city of Cairns in Far North Queensland, Australia. EQR acquired the mine and associated quarry in July 2019 and have been operating the mine and quarry concurrently, with the mine currently processing tailings and low-grade ore stockpiles located on the site that are remnant from previous operations on the site.

The Mt Carbine mining area is contained in two Mining Leases - ML 4867, ML 4919 and three Exploration Permit for Minerals - EPM 14872, EPM 14871, EPM 27394.

The Mt Carbine project is located within the Siluro-Devonian Hodgkinson sedimentary province. The thick sedimentary sequence was complexly folded and regionally metamorphosed before and during extensive granitic intrusions in the Carboniferous and Permian.

The Mt Carbine tungsten deposit consists of several vertical to sub-vertical sheeted quartz veins ranging in width up to 7 metres but averaging around 50 cm. Economic minerals are the tungsten minerals of wolframite and scheelite mineralisation.

A typical section through the centre of the deposit shows quartz veins ranging from 10 cm to 6 m in width with 5-8 zones of secondary narrow mineralised quartz veins of 10 cm to 150 cm in width. These high-grade veins contain rich quartz-feldspar tungsten minerals and have been designated as “King Veins”.

The Mt Carbine tungsten deposit was discovered in 1883 by prospectors following on from the discovery of tungsten located in Manganese Creek south of the deposit. The area was mined sporadically until Queensland Wolfram Limited systematically mined the deposit from 1972 to 1987 and extracted approximately 22 Mt via open-pit mining at a rate of 1.5 Mt per annum. As a result of the previous mining 12 Mt of low grade material was wasted directly to what is now referred to as the Low-Grade Stockpile (LGS).

Since its closure, the mine has changed hands and additional exploration and study activities have been conducted to reopen the mine. Limited exploration drilling was completed in 2011 and 2012, with two Mineral Resource estimates in 2010 and 2013 respectively.

Recently (2021) 16 oriented drilling holes (EQ001 – EQ016) were completed totalling 4,074 metres of diamond drilling. These drill holes and the historical data has enabled an updated geological interpretation and model to be developed to support an estimate of Mineral Resources for the insitu orebody.

In addition, recent sampling and investigation into the tonnage and grade of the Low-Grade Stockpile (LGS) has enabled an estimate of Mineral Resources for the LGS orebody.

The following is a summary of the Mineral Resource estimate for the insitu and Low-Grade Stockpiles, as at 21 September 2021:

Table 1-1: Mt Carbine Resource Estimate, as at September 2021

| Orebody | Resource Classification | Tonnes (Mt) | Grade ($WO_3$ %) | $WO_3$ (mtu) |
|---|---|---|---|---|
| Low-Grade Stockpile | Indicated | 12 | 0.075 | 900,000 |
| In Situ | Indicated | 2.40 | 0.74 | 1,776,000 |
| | Inferred | 6.81 | 0.59 | 4,017,900 |
| | *Total* | *9.21* | *0.63* | *5,793,900* |
| **All** | **Total** | **21.21** | | **6,693,900** |

Notes:
1. Total estimates are rounded to reflect confidence and resource categorisation.
2. Classification of Mineral Resources incorporates the terms and definitions from the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) published by the Joint Ore Reserve Committee (JORC)
3. No uppercut was applied to individual assays for this resource, a lower cut of 0.15% WO3 was applied, which is the grade where the mineralisation forms distinct veins.
4. Drilling used in this methodology was all diamond drilling with ½ core sent according to geological intervals to ALS for XRF15b analysis.
5. Resource estimation was completed using Kriging Methodology.
6. Indicated spacing is approximately 30 m x 30 m; Inferred is approximately 60 m x 60 m.
7. The deposit is a sheeted vein system with subparallel zones of quartz tungsten mineralisation that extend for >1.2 km in length and remain open. At depth, the South Wall Fault cuts the Iolanthe to Johnson veins but the Iron Duke zones remain open to depth.

EQR is completing various studies on the Mt Carbine orebodies to assess the viability and economics of maintaining the current operations and developing future mining domains in the deeper orebodies. The results of work completed for Mt Carbine is assisting EQR in refining the current plan for the ongoing studies for the Mt Carbine Open cut and Underground project. EQR has multiple paths to continue to mine and develop future mining domains in the various orebodies at Mt Carbine.

Measured Group is satisfied that there has been sufficient study, economic analysis, and the opportunity to apply technological developments in mining methods to meet the reasonable prospects for the eventual economic extraction (“RPEEE”) test. Currently, there is a reasonable basis to assume the Mineral Resource estimated for Mt Carbine orebodies will be mined in future.

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# 1. SCOPE OF WORK

The geological review of the Mt Carbine region and geoscience data verification, modelling and resource estimation for the Mt Carbine Project ("the project") commenced on 21 April 2021. The following is a summary of the agreed scope:

1. Data receipt, validation, and database build:
   - a). Access, retrieve and collate critical data within the priority ore deposit.
   - b). Process, Validate and Develop Database;
     - i). Validate drilling, update as required.
     - ii). Accurately correct orebody contact depths using both historical data and recent data/core photography.
     - iii). Review and correct downhole Azimuth surveys.
     - iv). Review, validate and correct Assay Data against original laboratory reports.
     - v). Review, collate and validate any other data/reports considered pertinent by MG to the accuracy of the final model build.
   - c). Complete QA/QC of final database and test database for accuracy and error validation.
2. Geoscience modelling:
   - a). Model Validation (wireframe checks).
   - b). Grade Estimation.
   - c). Block modelling.
   - d). Geostatistical review.
   - e). Interpolation.
   - f). Model Validation.
3. Resource Estimate and reporting:
   - a). Resource Classification and Reporting.
   - b). Points of observations/classification passes.
   - c). Reporting tonnage and grades.
   - d). Resource estimation; and,
   - e). Final Report and Model Delivery.

# 2. INTRODUCTION

## 2.1 LOCATION

Mt Carbine Mine is located at the northern end of the Atherton Tablelands approximately 130 km northwest of Cairns and 40 km west of Port Douglas (see Figure 2-1). There is a and a small town, historic hotel and caravan park located adjacent to the mine site.

## 2.2 TENURE

EQR acquired the mine and associated quarry in July 2019 from Mt Carbine Quarries Pty Ltd and retains 100% ownership of two Mining Leases (ML) and three Exploration Permits for Minerals (EPM). EQR have recently been operating the mine and quarry concurrently. The mine is currently processing tailings and low-grade ore stockpiles located on the site, which are remnant from previous mining operations.

The Mt Carbine mining area is contained within two Mining Leases (ML) - ML 4867 and ML 4919, which cover 366.39 hectares. The mining leases are surrounded by Exploration Permit for Minerals (EPM) - EPM 14872, EPM 14871, EPM 27394 that are held by EQR and cover an additional 115 km$^2$. A summary of the tenements held by EQR is provided in Table 2-1, and a map of the Mt Carbine Mining Lease boundaries is shown in Figure 2-2.

ML 4867 and ML 4919 have both been renewed continually since their grant date and both tenements are due to expire within the next two years. EQR have advised MG that they will submit applications to renew both tenements for a further 19 years at the appropriate time prior to expiry of he tenements. The renewal applications will be supported by MG's Mineral Resource estimate and the updated Mt Carbine feasibility studies, which sets out the company's planned future mining activities.

Table 2-1: Tenure Summary

| Tenement | Name | Area | Grant Date | Expiry Date |
|---|---|---|---|---|
| ML4919 | Mt Carbine Open Pit | 7.891 Ha | 24/08/1974 | 31/8/2023 |
| ML4867 | Mt Carbine Tailings Project | 358.5 Ha | 25/07/1974 | 31/7/2022 |
| EPM 14872 | | | | |
| EPM 14871 | | | | |
| EPM 27394 | | | | |

Mt Carbine currently has approval to mine up to 1 Mtpa of ore from two Mining Leases. In addition to mining, the operation crushes rock from mine waste stockpiles to make various grades of road metal and construction materials. Mt Carbine operates the quarry and mining activities under Environmental Authority permits EPPR00438313 and EPML00956913 (respectively).

The operation is situated on the Brooklyn Pastoral Holding and is subject to a compensation agreement that requires Mt Carbine to supply 500 m$^3$ of gravel per year. Mt Carbine's mining licenses are free and clear of Native Title, having been granted before 1 September 1994.

Figure 2-1: Mt Carbine Location

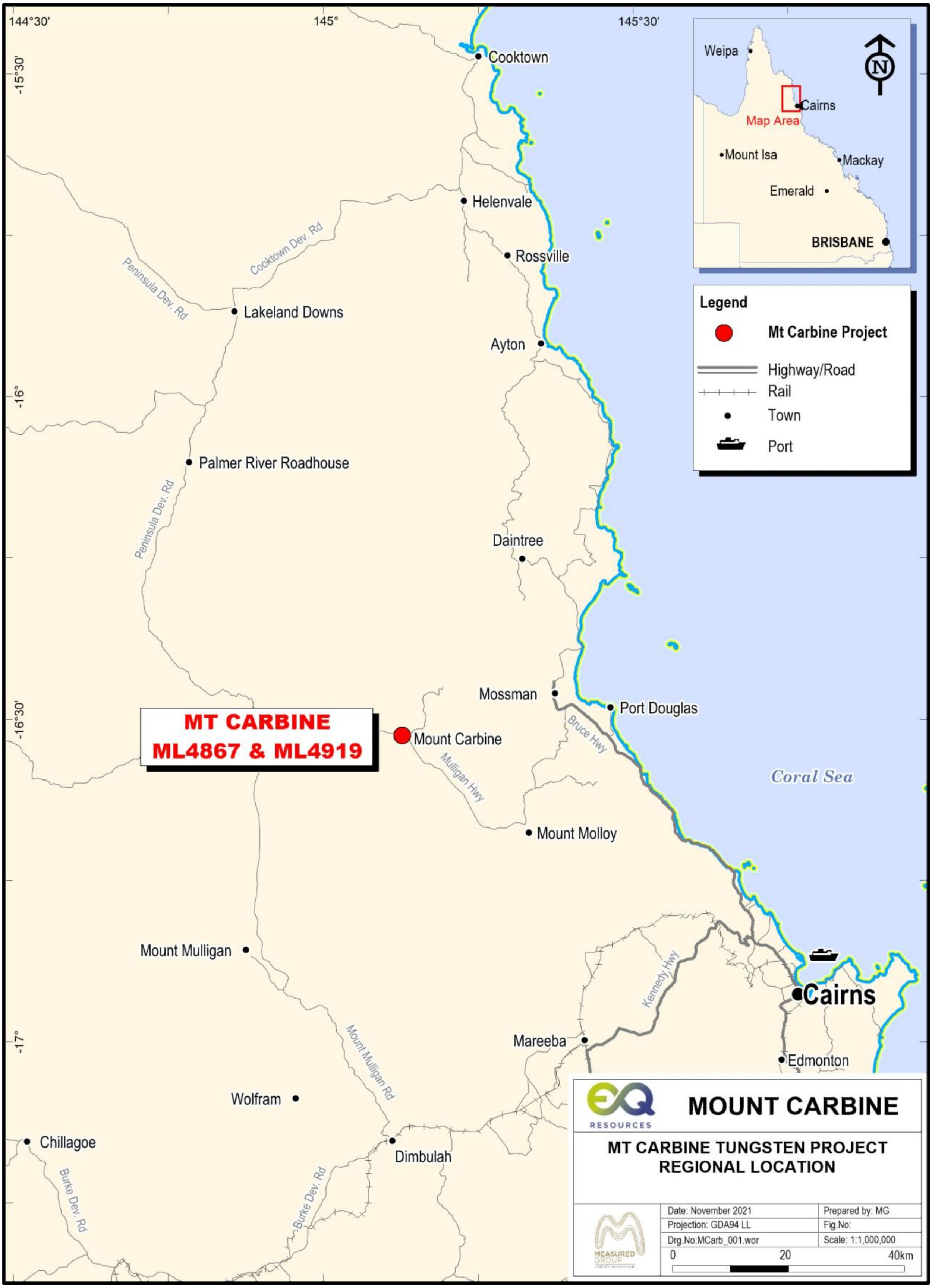
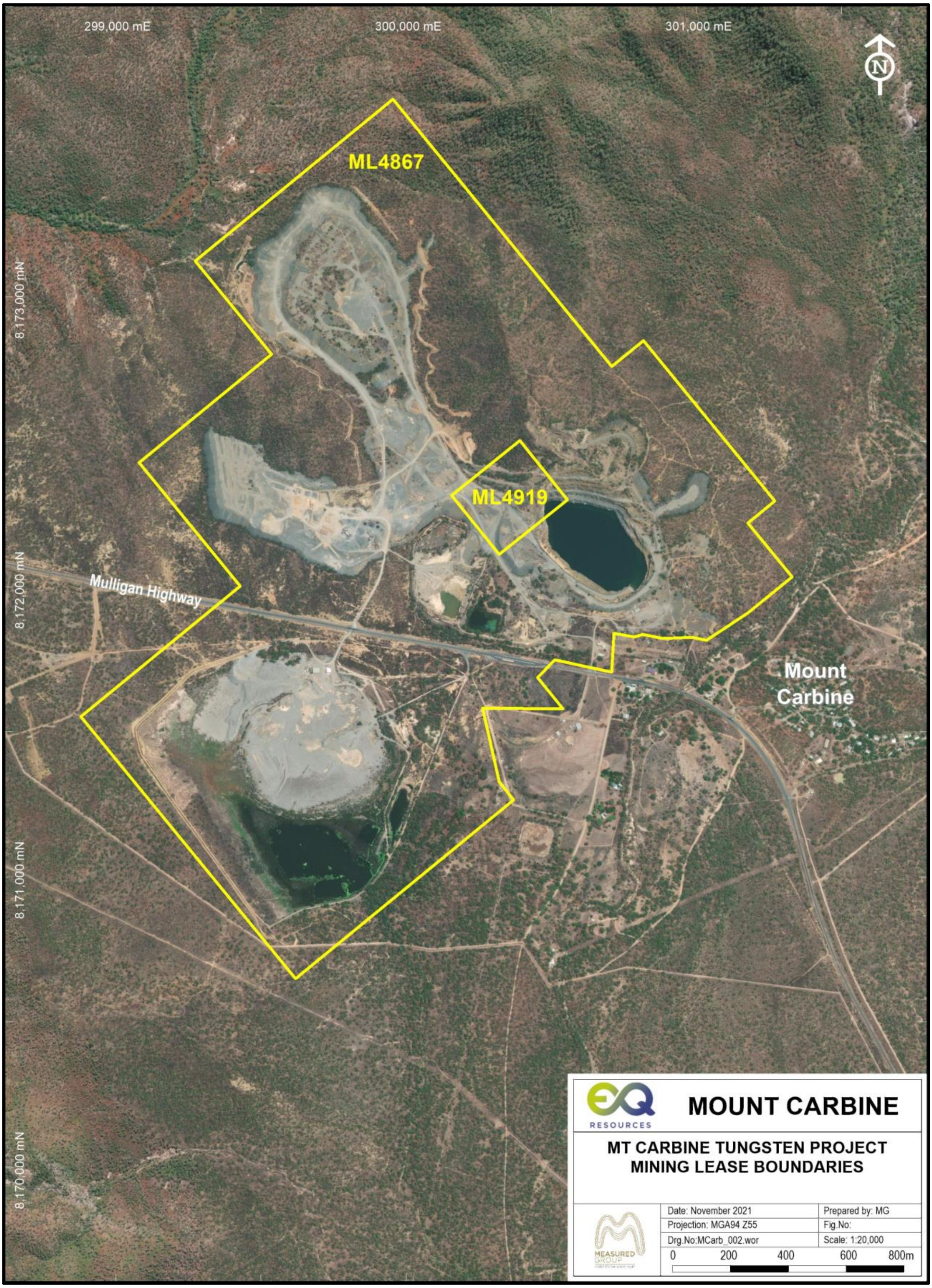


Figure 2-2: Mt Carbine Tenements



## 2.3 SITE INFRASTRUCTURE

Mt Carbine is currently operating as a quarry and mine and is well serviced with existing on-site infrastructure to support the operations. EQR will continue to utilise as much of the existing site infrastructure as possible, and only construct new infrastructure as required to support new or upgraded facilities. A plan of the site infrastructure is shown in Figure 2-3.

### 2.3.1 DAMS

No new dams are required for the project. A site water balance was developed for the project which has determined that the existing site dams are capable of servicing the operational requirements and are capable of containing rainfall and runoff under typical rainfall events.

The sites main dams that will be used for the storage of water are the tailings dam (TSF4, 417.3 ML capacity) and the process water dam near TSF4 (20 ML capacity) which can be seen in Figure 2-3.

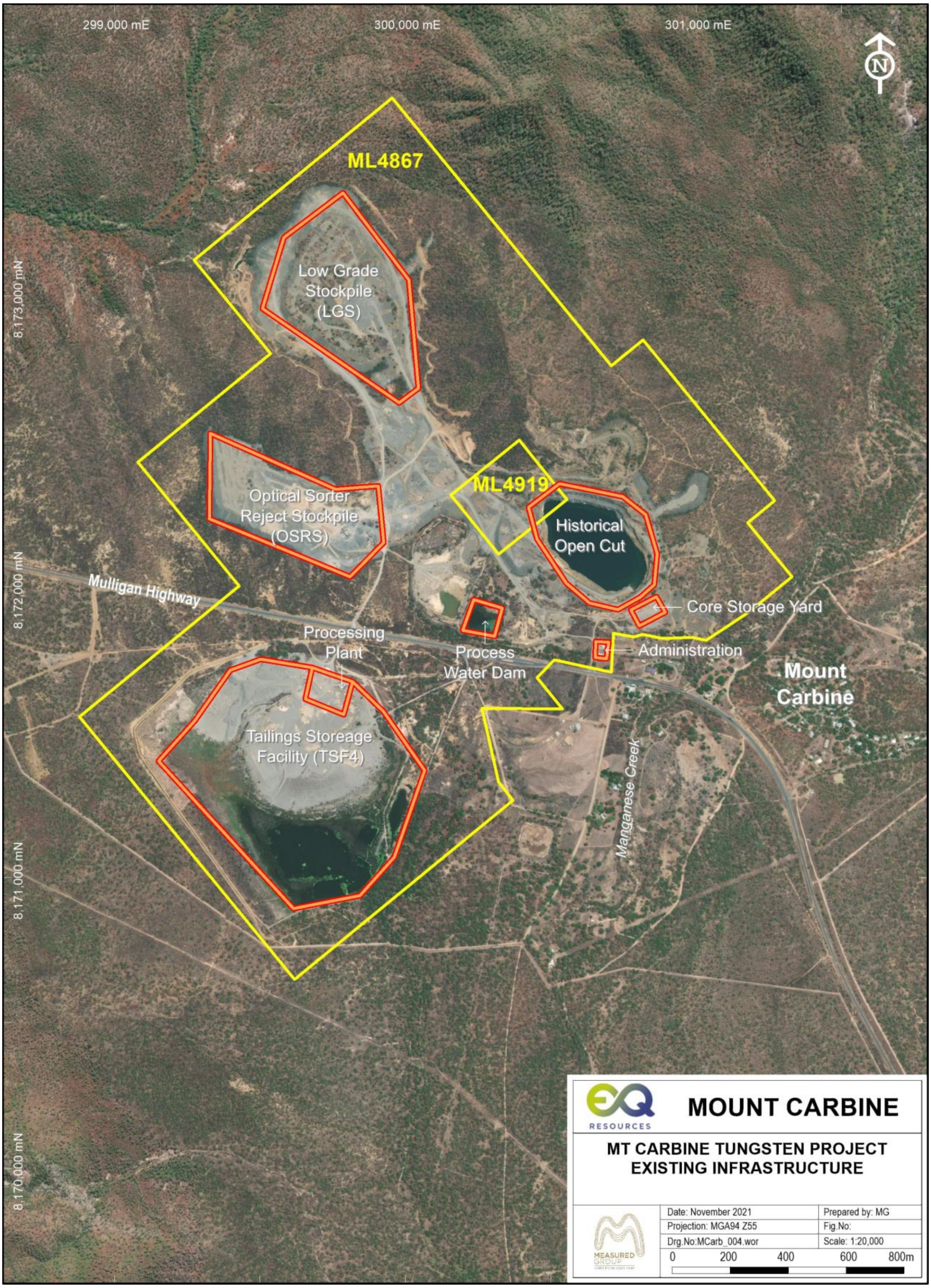
### 2.3.2 DRAINAGE

There are no proposed changes from the existing site drainage system that exists on the site. Water that flows into the open pit will be transported via pump and pipeline to the TSF4. The open-pit dewatering pump is diesel-powered due to the need to continually relocate it with the pit development and the risk of trailing cables around operating heavy vehicles. Supply and maintenance of the open pit dewatering pump are included in the mining contractor scope of services.

## 2.4 CLIMATE

The Far North Queensland climate is generally hot and humid. The region is characterised by two distinct seasons, with warm temperatures and low rainfall during the winter period while summer sees higher rainfall and warmer, balmy temperatures. The average temperature is approximately 27°C, with highs of ~30°C and lows of ~18°C. Winter is more commonly known as the 'dry' season and runs from May to October enjoying low humidity and generally clear conditions. Conversely, summer is therefore known as the 'wet' season and experiences tropical downpours later in the day with the occasional storm activity from November to April. Annual rainfall averages 300 mm/annum.

Figure 2-3: Mt Carbine Site Layout



# 3. HISTORICAL EXPLORATION AND MINING

The Mt Carbine tungsten deposit was discovered in 1883 by prospectors after the discovery of tungsten at Manganese Creek located to the south of Mt Carbine. Up to 150 miners occupied the site after its discovery and mined approximately 30 small open-cut and underground adits/shafts. Each group hand-mined ore on rich veins, some of which were reported to extended for over 300 m strike distance and 60 m vertical distance.

A major shaft was mined down into the Bluff zone, an area where the mineralised veins widened to over 10 m, and this became the central point for mining activity at Mt Carbine. A gravity plant with a 10 head stamper was built on a cooperative basis, where ore was treated, and concentrates returned to the miner.

North Broken Hill Ltd held the area and completed basic exploration work up until 1966. Queensland Wolfram Limited mined the deposit from 1972 to 1987 and extracted approximately 22 Mt via open-pit mining at a rate of 1.5 Mt per annum.

During this period, the mine produced an average of 1,100 tonnes per annum of high-grade wolframite (72% $WO_3$) and scheelite (68% $WO_3$) concentrates in the ratio of approximately 4 tonnes of wolframite to 1 tonne of scheelite. The impurities in the products were low, with a recovered grade of ore at approximately 0.10% $WO_3$.

Before the mine closed in 1987, Queensland Wolfram Limited entered a joint venture with Poseidon Ltd, whereby Poseidon Ltd funded the proposed underground development and was targeting an underground mine by sub-level cave retreat for extraction of 7.5 Mt @ >0.3% $WO_3$ (QWL, 1983). Four hundred metres of a 6 x 4.5-metre decline was developed with an underground conveyor system installed. The mine closed in 1988 and has remained closed until the present day. Figure 3-1 shows the current pit layout, with historical 20 m benches.

Since its closure, the mine has changed hands and additional exploration and study activities have been conducted to reopen the mine. Limited exploration drilling was completed in 2011 and 2012, with two Mineral Resource estimates in 2010 and 2013 respectively.

A summary of the recent holders of tenements at Mt Carbine is shown in Table 3-1 and a summary of the major work completed by previous holders is shown in

Table 3-2.

### 3.1.1 LOW-GRADE STOCKPILE

During mining operations undertaken by Queensland Wolfram Limited, 22 Mt was mined from the pit. 12 Mt of low grade material was sent directly to the Low-Grade Stockpile (LGS), 10 Mt was optically sorted to extract white quartz from the ore, which resulted in 6 Mt of reject material (now since disposed) and 4 Mt of higher-grade ore that was processed.

A nearly complete record of mine production, including the amounts of mined rock consigned to the LGS has been compiled by EQR using published and unpublished archives, including using reports for State Royalty returns. Head grades were not recorded, rather they were calculated from the recovered grade using a nominal 70% recovery. The calculated head grade for the mine using this method was 0.14% $WO_3$. Several authors (e.g. White. A, 2006) have subsequently postulated a higher feed grade based on a lower recovery at the processing plant with the head grade being as high as 0.16% $WO_3$.

During mining, grade control in the pit was difficult since the mining process focused on quartz vein content, with the percentage of quartz used to decide whether material was ore or waste. Since the completion of mining, geological interpretations have suggested that an early major barren quartz vein intrusion event occurred. This resulted in the processing of increased amounts of barren quartz, and the wasting of mineralised material to the LGS. The lack of an effective grade control system was instrumental in allowing higher-grade material to be dumped on to the LGS.

The LGS consists of material ranging from fines to large boulders. It is largely heterogeneous and consists of layers of similarly sized material, which reflects the position of the mine at the time of emplacement. Cross sections through the LGS confirm the cyclic nature of the emplacement of material, with layers of similar sized material observed.

Significant work has been completed to understand the size distribution of the LGS and Table 3-3 provides a summary of the Particle Size Distribution and grade for the LGS.

Figure 3-1: Current Pit Showing Historical 20m Benches

Table 3-1: Recent Holders of Mt Carbine Tenements

| Holder | Date Held From | Date Held To |
|---|---|---|
| Specialty Metals International Limited | 21/05/2014 | 12/0102021 |
| Tungsten Resources Pty Ltd | 13/12/2011 | 21/05/2014 |
| Kangaroo Minerals Pty Ltd | 24/09/2006 | 13/12/2011 |
| Stonebase Pty Ltd | 27/11/2006 | 24/09/2006 |
| Conquest Mining Limited | 27/06/2006 | 27/11/2006 |
| Lightstar Pty Ltd | 16/11/2004 | 27/06/2006 |

Table 3-2: Historical Mt Carbine Exploration/Study

| Type of Work Completed | Date | Author |
|---|---|---|
| Ore Reserve Assessment | 2011 | Icon Resources |
| Resource Estimate | 2010 | Geostat P/L |
| Resource Estimate | 2012 | Geostat P/L |
| Feasibility Study - Underground | 1983 | S.B. Management Pty. Ltd. |
| Scoping Study – Mt Carbine | 2009 | Icon Resources Pty Ltd |
| Preliminary Mine Design | 2012 | Mine One |
| Ore Sorter Mass Balances | 2012 | John McIntyre & Assoc |
| Environmental Impact Study – Stage 1 | 2010 | Landline |
| Test work: Comminution Testing | 2012 | JK Tech |

Figure 3-2: Aerial Photo of Low-Grade Stockpile

Table 3-3: Particle Size Distribution for Low-Grade Stockpile

| Particle Size Fraction (mm) | Grade (%WO3) | Particle size distribution (%) |
|---|---|---|
| +170 | 0.043 | 30 |
| -170 x 100 | 0.050 | 14 |
| -100 x 30 | 0.077 | 14 |
| -30 x 6 | 0.095 | 20 |
| -6 x 0 | 0.110 | 22 |

# 4. GEOLOGY

## 4.1 REGIONAL GEOLOGY

Mt Carbine is located within the Siluro-Devonian Hodgkinson sedimentary province. The thick sedimentary sequence was subjected to complex folding and regional metamorphism before, and during, extensive granitic intrusions in the Carboniferous and Permian. Figure 4-1 shows the regional geology of the area.

Within the permit, the north-northwest trending Hodgkinson Formation turbidite and siltstone sequence is intruded by the Mareeba Granite dated at 277 My, and the Mt Alto Granite dated at 271±5 My (Bultitude et al., 1999). Contact metamorphic aureoles marked by the formation of cordierite Hornfels that surround the granite intrusive, and numerous acid intermediate dykes intrude the metasediments. In the western portion of the tenement, a prominent metabasaltic-chert ridge is a significant stratigraphic component of the Hodgkinson Formation.

Fluids from the large granite batholith (>400 km$^2$) were the source of hydrothermal fluids for mineral deposition around the margins of the intrusive. The Mt Carbine deposit is a direct result of these fluids travelling out from the granite into surrounding structured ground.

There appears to be a preference for the higher grade tungsten mineralisation to be located on failed fold hinges, associated with the isoclinal folding of the Hodkinson Formation. These locations have the highest structural deformation and have allowed these fluids to penetrate into structures and deposit quartz and minerals. The granites associated with Mt Carbine are ‘S’ Type Granites, which can mobilise tin, tungsten, molybdenum and rare earth elements in fluids and deposit these as the main economic minerals. Figure 4-2 shows the local geology of the Mt Carbine area, with the relationships between intrusions and sediments of the Hodkinson Formation.

Figure 4-1: Regional Geological

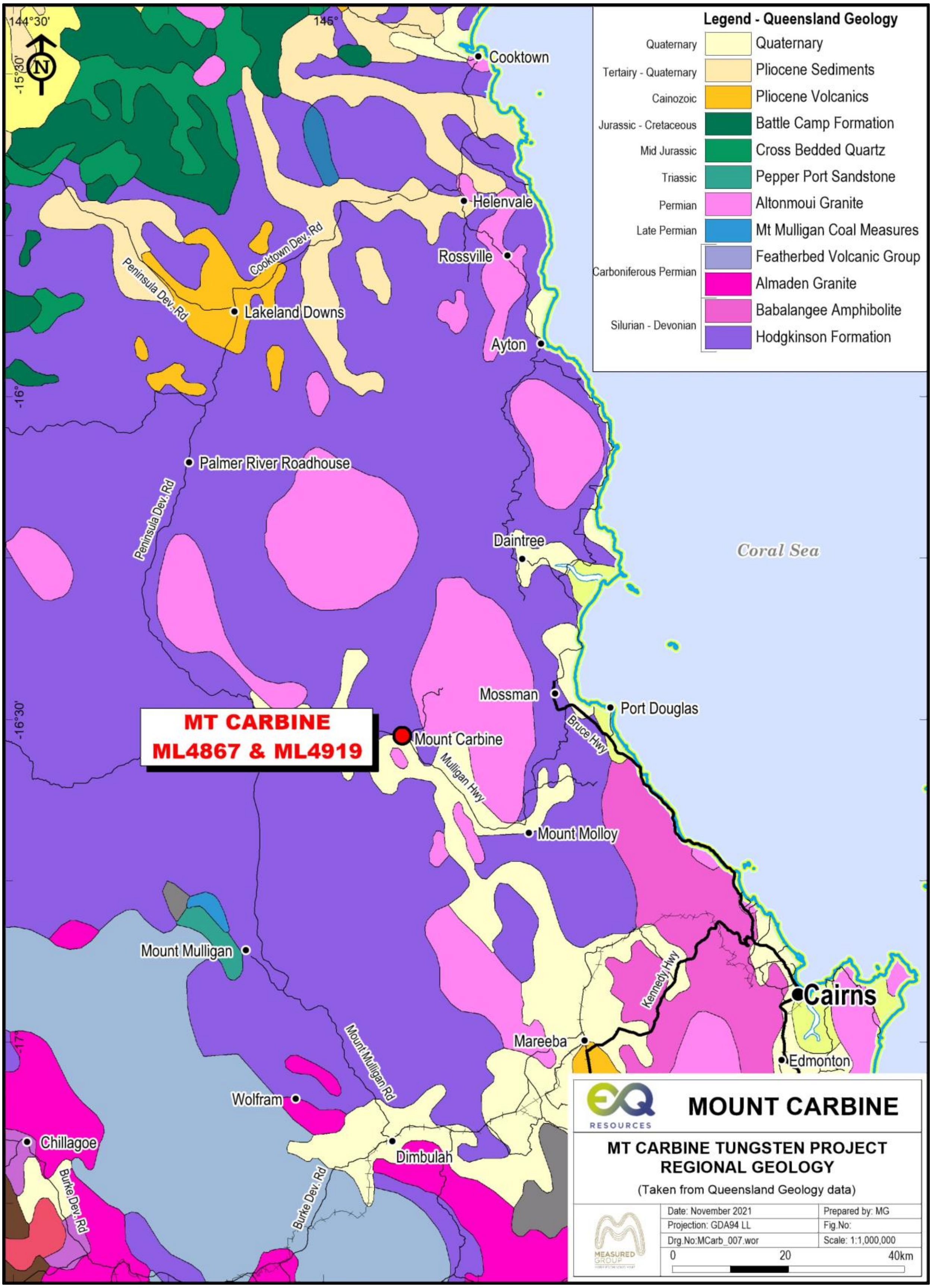
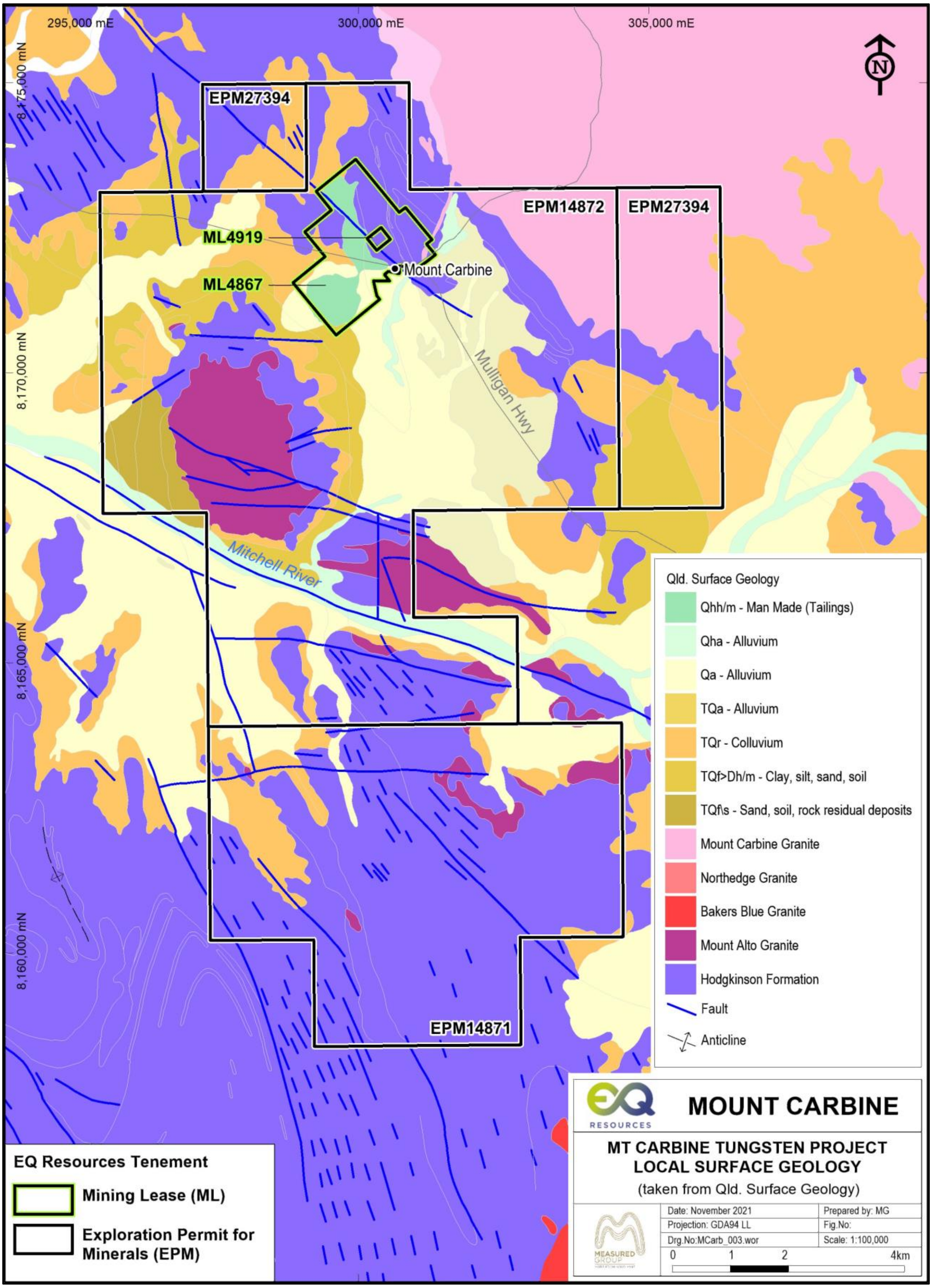


Figure 4-2: Local Geology



## 4.2 DEPOSIT GEOLOGY

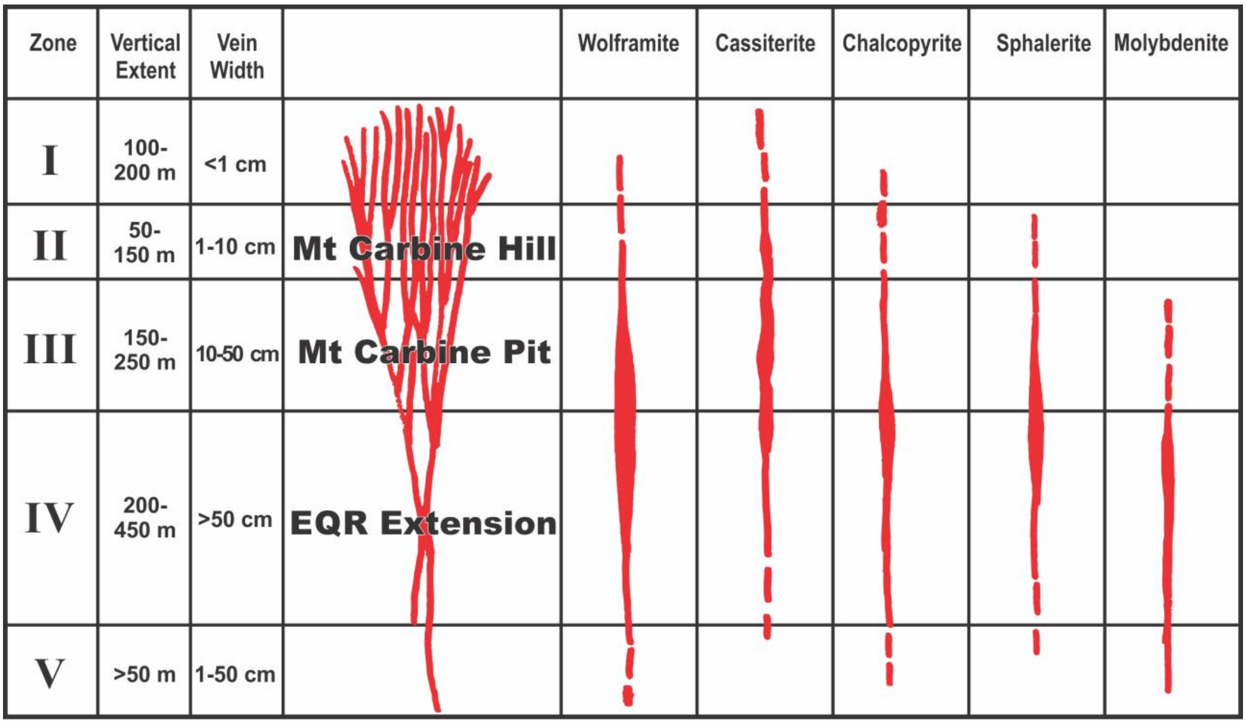
The Mt Carbine tungsten deposit is similar to sheeted vein-type tungsten deposits in South China and these are divided into endo-contact (granite hosted) and exo-contact (wall-rock hosted) types - Mt Carbine is interpreted to be an exo-contact type.

The vertical structural zoning model for vein-type exo-contact tungsten deposits observed in China (Yidou,1993) directly applies to the Mt Carbine vein system. The model is being incorporated in an evolving exploration model for the Mt Carbine and Mt Holmes vein systems, with Mt Holmes considered to be situated closer to the underlying mineralising granite than Mt Carbine (Figure 4-3).

The simplified conceptual geological model of the Mt Carbine area is based on that of Mt Holmes (Forsythe and Higgins, 1990):

- Deposition of the Siluro-Devonian Hodgkinson Formation sequence.
- Several stages of complex folding and faulting of the Hodgkinson Formation.
- The intrusion of minor andesite and dolerite dykes.
- The intrusion of mineralising granite plutons with associated hornfels in the country rock.
- Emplacement of major sheeted quartz-wolframite-tin veining and hydrothermal alteration of wall-rock.
- The intrusion of post mineralisation dykes.

Figure 4-3: Tungsten Conceptual Deposit Models (after Yidou,1993)



Essentially, in the open-cut pit, the following rock types are observed in the order of abundance:

**Metasediments** – a range of hornfelsed mudstones and interbedded rudites. The major rock unit in the pit can look similar to a slate with prominent cleavage. Various alterations from pervasive silicification are present, represented as a hornfelsed cordierite chloritic rock. Typically breakage planes are along cleavage and schistosity planes.

**Metavolcanics** – located on the eastern end of the pit and the south side of the Southwest Fault (SWF) this unit is pale green with greenschist facies alteration. It forms about 20% of waste material and is less likely to contain mineralisation as it is a peripheral unit. It contains locally hard siliceous chert bands that form some of the larger rocks on the waste dump

**Quartz Veins** – this rock type makes up to 10% by volume of the waste material and is found in all sizes but typically less than 20 cm. It presents as powder and shards throughout much of the dump material, which is interpreted to be a product of shattering during blasting. As previously discussed, quartz veins can be barren or can contain tungsten mineralisation.

**Dyke Material** – two types of dykes are observed:

1. Pale uniform fine-grained felsic dyke that is exposed as a 10-15 m wide dyke at the western end of the pit; and
2. Dark green/grey basic dyke that is present on most benches as a 0.5-1 m dyke cross-cutting the open pit.

## 4.3 STRUCTURE

Mt Carbine sits at a spur on a major arc parallel fault called the South Wall Fault (SWF), along with the Mossman Orogeny trend, which can be traced through the Hodkinson formation for over 100 km in strike length (Figure 4-4). The inflection point is likely due to a change in compressional regime due to oblique pressures present at an intersection of a major fault junction, the South West Fault (SWF). The SWF is a thrust fault formed at the time of compression and development of regional isoclinal folding of the basement rock, remaining active through to post tungsten mineralisation movement.

This terminology on the local scale with this thrust also called the 'South Wall Fault' (SWF) at Mt Carbine was kept. The SWF truncates the tungsten orebody at an angle of 70 degrees to the grid north. It forms a boundary fault on the southwest side of the mineralisation. Evidence suggests it is a reverse thrust fault (Oliver, 2021), and by studying stratigraphic marker beds (chert-metabasalt unit) it is postulated that the throw is of the order of 200-300 m. The truncated parts of the Mt Carbine Tungsten mineralisation should still be open at depth in the footwall region of this fault. Figure 4-5 shows the location of the SWF in the open pit.

Figure 4-4: Main Faults of Mt Carbine

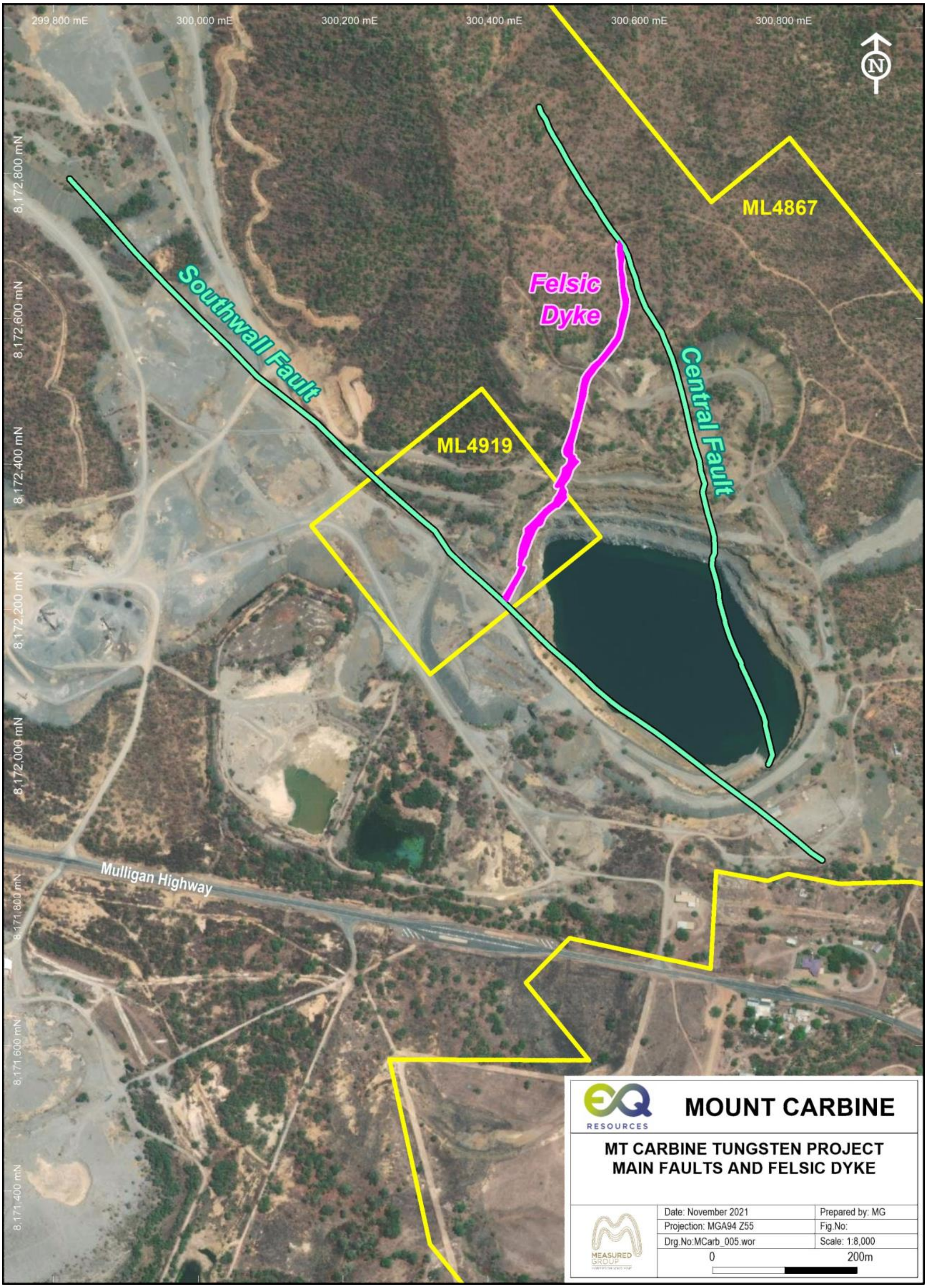
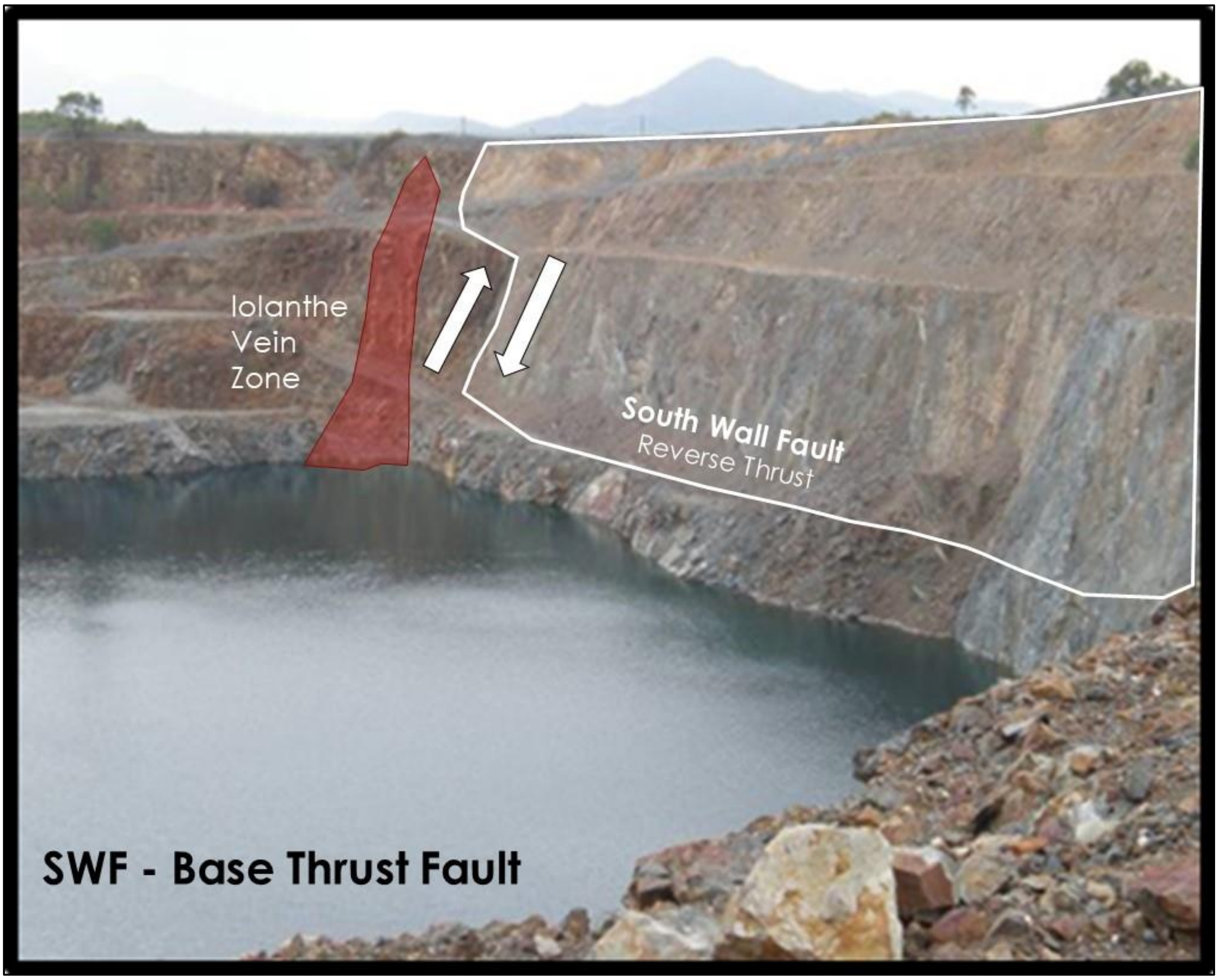


Figure 4-5: South Wall Fault in Open Pit




Other minor faults are typically orientated on a north-south strike direction and exhibit localised movement. The Central / Iron Duke and Christmas Faults both show strike-slip movement and in the case of the central fault, there is strike-slip movement across a dyke of 120 m in a left lateral direction. Whereas minimal throw is noted on the Christmas fault.

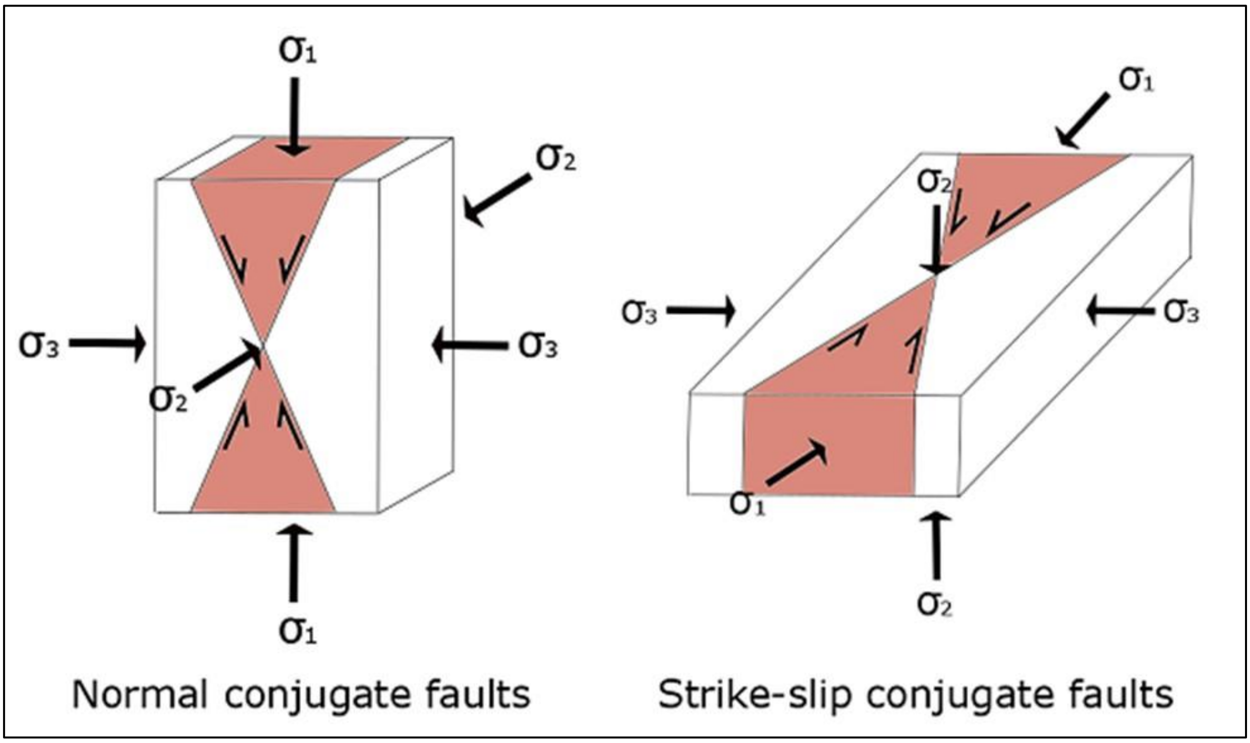
Within the confines of the pit, the rocks have been hornfelsed but several deformation lineations can still be seen i.e. S0 (bedding), S1 minor folding and S2 isoclinal folding planes. The mineralised veins postdate this basement deformation, and there is little or no movement on the pit scale.

Veins can be traced over vertical distances of 300-400 m and strike distances for over 1,200 m with very few offsets. Occasionally in the pit, a regular low angle fault occurs that locally shifts the veins up to 3-4 metres. This low angle fracture regime has a tendency to form blocks which will require geotechnical considerations for underground mining.

Figure 4-6 illustrates the formation of veins at Mt Carbine outlining the structural stress at the time (Oliver, 2021). The veins are tensile veins with two general environments:

1. Bulk N-S extension (and potentially related normal faults (left)); and
2. A N-S extension component within a transpressional or transtensional (strike-slip) environment (right).

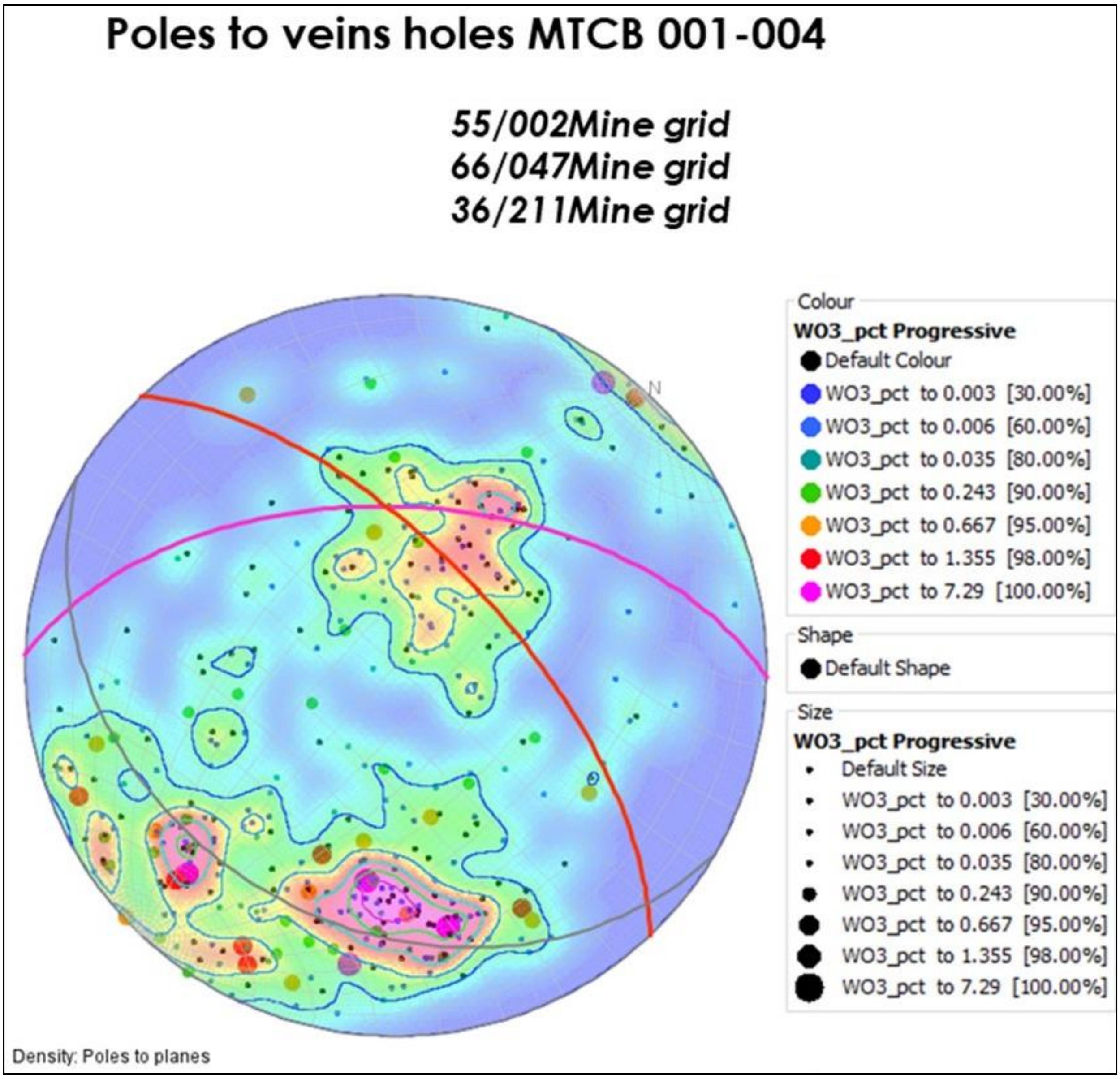
Figure 4-6: Vein Formation at Mt Carbine outlining the structural stress (after Oliver, 2021)




The Mt Carbine tungsten deposit is similar to sheeted vein-type tungsten deposits in South China and these are divided into endo-contact (granite hosted) and exo-contact (wall-rock hosted) types. Mt Carbine is an exo-contact type.

The vertical structural zoning model for vein-type exo-contact tungsten deposits observed in China (Yidou,1993) directly applies to the Mt Carbine vein system. Figure 4-7 shows a stereonet illustrating the orientation of veins at Mt Carbine outlining the structural stress at the time (Oliver, 2021).

Figure 4-7: Stereonet Illustrating the Orientation of Veins with Structural Stress (after Oliver, 2021)




## 4.4 MINERALISATION

The Mt Carbine tungsten deposit consists of numerous vertical to sub-vertical sheeted quartz veins ranging in width up to 7 metres but averaging around 50 cm. Approximately 20% of the quartz veins are mineralised due to an early barren quartz event and a later high-grade quartz event. Economic minerals are the tungsten minerals of wolframite and scheelite mineralisation.

A typical section through the centre of the deposit shows quartz veins ranging from 10 cm to 6 m in width with 5-8 zones of secondary narrow mineralised quartz veins of 10 cm to 150 cm in width.

These high-grade veins contain rich quartz-feldspar tungsten minerals and have been designated as “King Veins”.

The tungsten occurs as a coarse crystalline variety of wolframite with up to 10 cm crystals and varying degrees of intergrown scheelite that is volumetrically less significant. Tungsten minerals can form up to 50% of the quartz vein zone, and because of the coarse crystalline nature, has the potential to cause a nugget effect to the mineralisation.

In later retrograde stages of the mineral deposition, a secondary scheelite overprinting event occurred that is represented mostly as fine scheelite fractures and replacement over wolframite. The scheelite-wolframite ratio is seen to increase to the grid north and grid east of the deposit and this mostly appears to be a local effect due to the host rocks becoming more calcareous. In general, the veins are persistent, widespread and are a product of structural control.

The mineralisation interpretation is that there are two primary mineralising events with the first phase being a pervasive gaseous front that forms broader scale silicification/veining and deposits a lower grade background level of tungsten mineralisation. This was followed by a rich brine incursion and fracturing of the now silicified rock. These brine veins are recognized to have higher temperature and higher salinities in fluid inclusion work attesting to their direct magmatic origin. Conversely, the gaseous veins result in fluid inclusions with increased gas and a composition suggesting interaction with groundwater occurred. The King Veins can be as high as 50% $WO_3$ but typically are in the 1-2% $WO_3$ range.

Figure 4-8 shows King Veins with various coarse vein textures of the large wolframite crystals. The matrix has about 10% scheelite and the cream gangue mineral is feldspar. Figure 4-9 shows King Veins in Drill Core with late replacement of coarse wolframite by fine network retrograde scheelite.

Minor Molybdenum is found in the deeper parts of the system and the western parts of the vein zones. Molybdenum generally deposits before tungsten, and this gives a rough fluid outflow direction. Mineralisation at Mt Carbine (except Johnson's vein) demonstrates a localized level of control, with the bulk of the tungsten occurring in the 200-350 m RL zone. At these RL’s the veins are 10-50 cm thick but as the same veins go deeper below 200 m RL the vein width increases dramatically and a decrease in tungsten content is noted. Similarly, at higher elevations, the veining also changes dramatically, thinning down to 1-10 cm veins/ stringers with low and variable amounts of wolframite present.

Along the grid E-W strike to the mineralisation, the veins have been grouped into lenses, where one or more of the high-grade King Veins are close enough to define a composite value above a cut-off of 2 m at 0.25% $WO_3$ it has been recorded a lens. It should be noted that these King Veins often form on the margins to silicified zones or the margins of pre-existing barren quartz veins.

Typically, an “ore zone” or lens is 3-5 m in width and will contain one or more King Veins. Widths of high grade can occur up to 15 m wide where 5 or 6 King Veins are seen close together. Figure 4-10 illustrates sheeted veins at the base of the pit that narrow towards the top and widen as going deeper into the system and wolframite on the left side from drilling.

Figure 4-8: King Veins with Various Coarse Vein Textures of Wolframite Crystals

Figure 4-9: Late Replacement of Coarse wolframite by Fine Scheelite

Figure 4-10: Sheeted Veins at the Base of the Pit and wolframite on the Left Side.

A typical ore section through the middle of the open pit is presented in Figure 4-11. The sheeted vein nature of the deposit is clearly shown.

Figure 4-11: Cross Section at 22850E

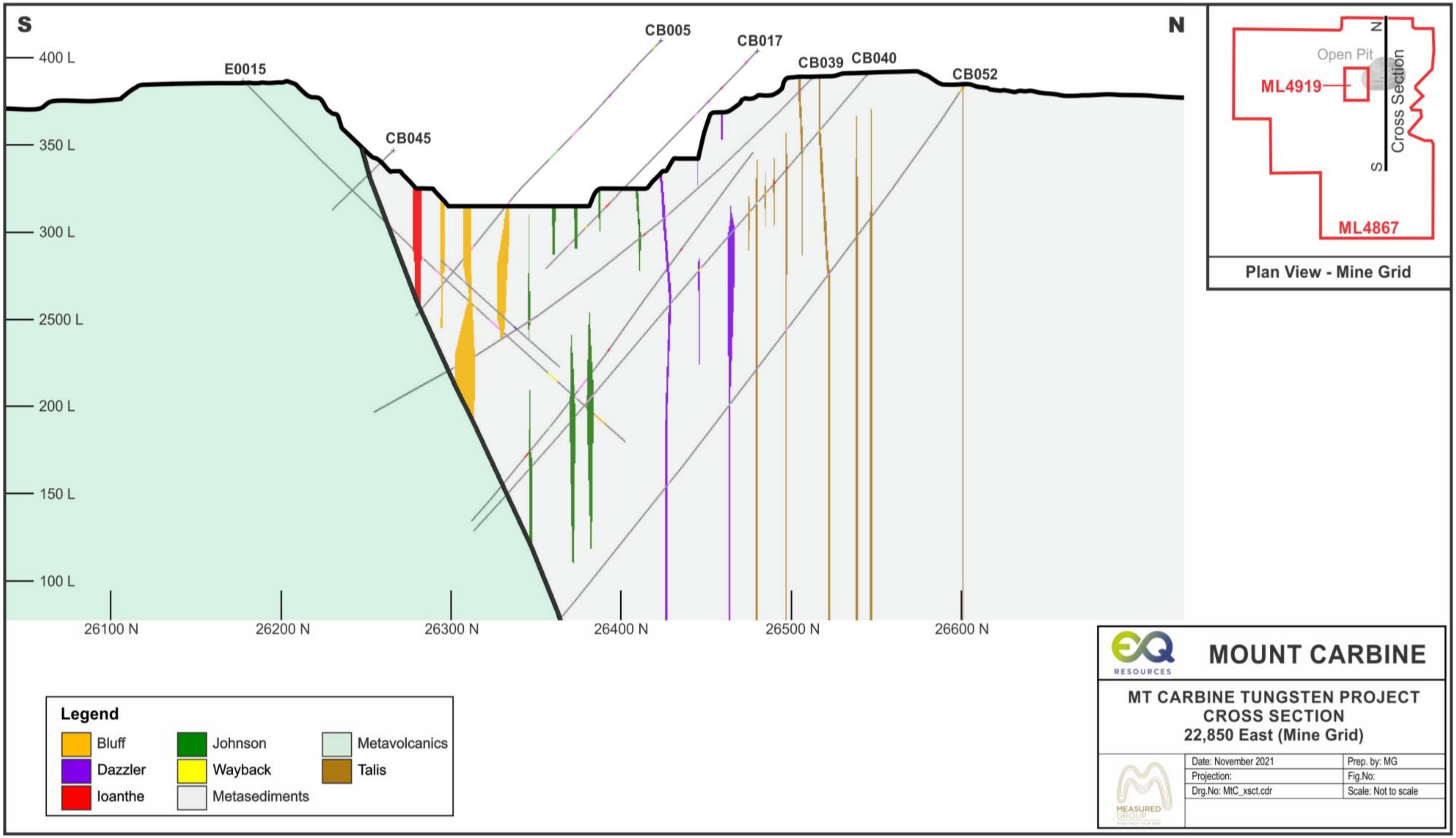


Figure 4-12: Core with Mineralisation Zones (Highlighted)

## 4.5 WEATHERING

Examination of the historical data concluded that in the initial 30 m of the surface the rock mass appears to be moderately weathered with an estimated intact rock strength of 10 to 30 MPa. Weathering surfaces were constructed from drill hole information.

## 4.6 ALTERATION

Alteration minerals associated with the wolframite mineralisation consist of brown tourmaline, biotite-muscovite, apatite, clinopyroxene and silicification. Very minor molybdenite and bismuthinite occur with the wolframite. Minor fluorite–chlorite–cassiterite–pyrite/arsenopyrite and calcite are randomly present.

There is only mild marginal vein alteration typically of sericite-clay-chlorite for only a few centimetres if at all. The mineralised veins appear to have had little effect on the host rocks with the fluids entering hot rocks at depth.

The observed fact that Mt Carbine is a Boron System (significant tourmaline) as compared to a Fluorine System (little fluorite) would suggest that the deposit occurred in hydrostatic equilibrium with the rising brine fluids with little or no pressure build-up occurring. Fluorine rich deposits are more volatile and typically form breccia pipes, stock working and large intensive alteration systems e.g., Wolfram Camp, Tommy Burns etc.

Alteration minerals are minor other than pervasive early-stage greenschist facies, which has replaced the pelitic mudstones with fine chlorite.

# 5. DATA ACQUISITION

## 5.1 RECENT EXPLORATION DRILLING

EQR completed 16 angled diamond drill holes (EQ001 - EQ016) in 2021, for a total of 4,074 m. The drill holes targeted high-grade ore shoots below the current pit, to improve confidence in the lithology, structural interpretations, and mineralisation limits and to improve the resolution of geological models.

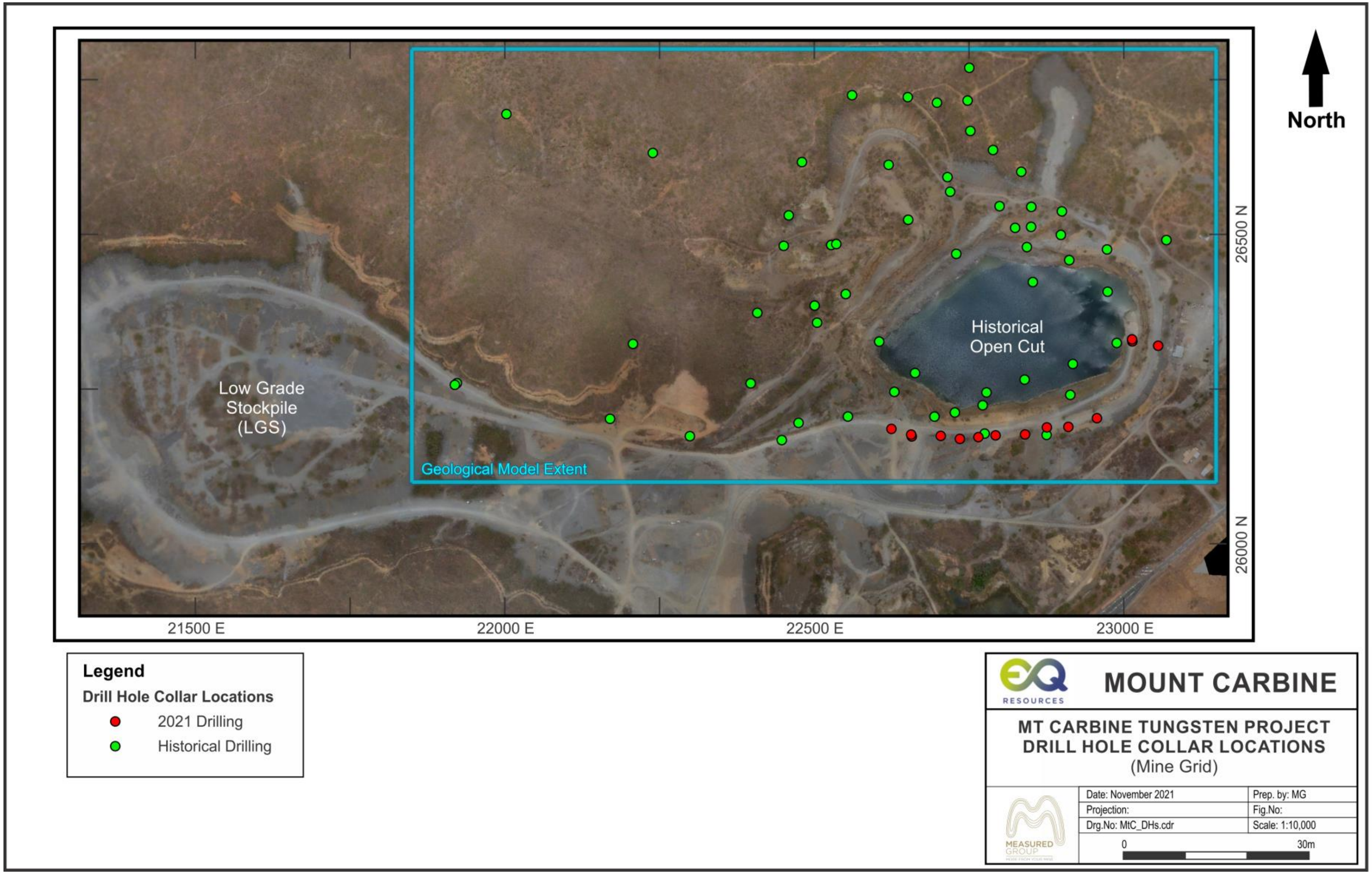
A summary of the drilling completed in 2021 is presented in Table 5-1 below and Figure 5-1 shows the drill hole location map relative to the historical pit. The red coloured locations are showing the 2021 Drilling program.

Table 5-1: EQR Drill Hole Details

| Hole | Local East | Local North | Collar RL | Hole Depth | MGA20E | MGA20 N |
|---|---|---|---|---|---|---|
| EQ001 | 22793.29492 | 26175.82106 | 389.439 | 309.1 | 300503.874 | 8172066.78 |
| EQ002 | 22793.41779 | 26175.39402 | 389.476 | 341.8 | 300503.622 | 8172066.414 |
| EQ003 | 22735.67684 | 26170.49057 | 387.446 | 299 | 300463.183 | 8172107.92 |
| EQ004 | 22704.38819 | 26174.92271 | 386.265 | 327.3 | 300446.748 | 8172134.911 |
| EQ005 | 22657.44611 | 26173.67852 | 386.836 | 312.3 | 300415.991 | 8172170.395 |
| EQ006 | 22876.19613 | 26188.5927 | 383.632 | 309.3 | 300566.363 | 8172010.826 |
| EQ007 | 23014.29447 | 26328.15149 | 364.188 | 48 | 300761.86 | 8171992.695 |
| EQ008 | 23014.27784 | 26329.30655 | 364.092 | 60.5 | 300762.742 | 8171993.441 |
| EQ009 | 23013.84874 | 26330.95831 | 364.151 | 171.5 | 300763.746 | 8171994.821 |
| EQ010 | 22656.84169 | 26177.01685 | 386.88 | 243.3 | 300418.187 | 8172172.981 |
| EQ011 | 22765.35824 | 26173.37812 | 388.697 | 285.3 | 300484.254 | 8172086.817 |
| EQ012 | 22624.09483 | 26185.78499 | 387.839 | 414.6 | 300404.177 | 8172203.851 |
| EQ013 | 22910.78033 | 26189.68667 | 382.757 | 294.2 | 300589.16 | 8171984.796 |
| EQ014 | 22956.99776 | 26203.604 | 382.717 | 300.4 | 300629.25 | 8171957.916 |
| EQ015 | 22841.07576 | 26177.61216 | 386.779 | 306.3 | 300535.586 | 8172030.995 |
| EQ016 | 23055.56556 | 26321.2707 | 380.383 | 48.4 | 300782.739 | 8171956.436 |

Drill holes were surveyed using the mine's local grid, which is laid out on a 51 degree rotation to the west from true north.

Figure 5-1: Drill Hole Locations



## 5.2 COLLAR AND TOPOGRAPHY SURVEYS

Brazzier Motti Surveying Consultancy was engaged to re-establish the local grid and survey the collars of previous drill holes and the drill holes completed in 2021. In addition, all key survey markers around the open cut were re-surveyed (see APPENDIX F: ).

Surveying of drill holes was completed using a Garmin GPS61 model GPS for locating the collar coordinates in the WGS84 Datum system. A LIDAR survey was flown over the mining license using a Drone with a 10 cm resolution accuracy on topography. This was important to establish the accuracy of historical contour maps for the pit and Low-grade Stockpiles (see APPENDIX F: ).

Due to the water contained in the current open-pit (approximately 44 m deep), it was necessary to complete a sonar survey to establish a reliable pit floor geometry. The sonar survey confirmed the current pit floor geometry is consistent with existing contours of the mined surface taken from 1987 and confirmed that no additional mining of the pit has occurred since then.

## 5.3 DOWNHOLE SURVEY

Downhole surveys were conducted every 30 m downhole except for the pre collar zones. Pre-collars were up to 120 m in depth with HW casing being installed before continuing drilling using NQ coring equipment. The core was oriented using a digital orientation method called the Reflex Act III tool system, which recorded hole orientation and downhole survey by wirelessly transmitting data back to surface for recording. All survey data were input into the database and then plotted using Leapfrog Mining Software to check deviation in drill holes.

## 5.4 DRILL HOLE DATA

Drill holes completed in 2021 were collared perpendicular to the strike of the tungsten mineralisation. Drilling utilised HQ and NQ sized diamond core equipment (with double and triple tube-drilling techniques). HQ diamond core was drilled down to the South Wall Fault (SWF), which was then cased off before continuing with NQ diamond drilling equipment.

The full core was collected and marked up for depth and orientation. Core was marked with core blocks typically at 1.5 m and 3.0 m intervals by the drilling company using stick up techniques that ensure measurement to 1 cm accuracy.

Core recovery was consistently high, with 99% of core recovered for the entire campaign. As a result of the hardness of the quartz zones, minimal loss from drilling was recorded in these zones. Generally, the core was found to be competent and hard, with all assay samples located below the base of oxidation.

Host rocks were logged as metasediments that have been silicified and crosscut by sheeted white quartz veins. Core logging was semi-quantitative in its description of alteration intensity, mineral types in percentages using geological percentage charts. Each mineralised interval was recorded by the Site Geologist and checked for accuracy by the company’s Chief Geologist before cutting and sampling. Post sampling, the core was selected for alteration mapping and petrographic studies.

Drill core was transported daily to a secure storage facility on-site. The core storage facility remains locked after work hours and contains a shed with core racks installed to house the drill core. For longer term storage, drill core is cling wrapped for preservation and archived at this facility.

Data was collected using a paper log sheet with the information then transferred to a digital database, which holds all drill hole, drilling, survey, sample, assay, recovery, geotechnical data and information. All data was validated prior to entered into EQR's final geoscience database.

## 5.5 CORE PHOTOGRAPHY

Core was re-joined into longer sticks and photographed in core boxes using a high-resolution camera for both dry and wet images. The core was marked up and measured for recovery and orientation line was marked down the full length of the core. Figure 5-2 shows an example of the core photographs taken of Mt Carbine core.

Figure 5-2: Example of Core Photography

# 6. SAMPLE PREPARATION, ANALYSES AND SECURITY

## 6.1 INSITU OREBODY

All zones of potential mineralisation were logged and sampled by cutting the selected core interval in half using a diamond saw along the centre core orientation line mark. Before cutting and sampling, the core was logged for zones of visual mineralisation, with wolframite and scheelite recorded by their visual contained percentage.

Scheelite glows under ultraviolet light, and although difficult to distinguish under ordinary light from quartz-carbonate, it is visual under the shortwave 254 nm UV light. A common technique to estimate grade in core is to trace out individual crystals to determine the overall percentage shown on the face of the core. The mineralisation was often observed as very coarse tungsten mineral crystals of up to 10 cm in size.

All quartz veins intersected in drill core were assayed as separate samples. Where the veins were more than 1 m in downhole length, the sample was broken into two or more samples - each with a maximum of 1 m interval. The minimum vein assayed was 5 cm in width, because the mineralisation often occurs in narrow widths of 5 cm to 500 cm and it is important to assay each narrow mineralised zone. On either side of the mineralised zone, samples were taken of the host rock at intervals of 1 m to ascertain whether the mineralisation had disseminated into the host rock.

X-ray fluorescence assay techniques were used to determine the tungsten grade (ME-XRF15b). Using this technique, a fusion disk is created for the representative sample of the core sample, it is created by grinding the sample to achieve a homogenous sample (<200 microns). The sample is then melted in an arc furnace to produce a clear fused disc, which is then x-rayed with the fluorescence recording spectral peaks.

The instrument used to determine the tungsten grade is a Bruker multi-shot XRF machine with an X-ray scan of 1 minute applied to each disk to ascertain the light and heavy elements. The XRF machine is calibrated by the laboratory to maintain reliable and repeatable results.

Approximately 10% of each batch that is sent to the laboratory includes check samples, which are submitted alternatively as being either a blank, a tungsten standard or a repeat sample with a known grade. This process was successfully used to resolve an issue with samples 100216 and 100217, which are samples vein and host rock (respectively). The results for these samples did not match the visual grade determination or the weights of the samples and it was established that the grade of 0.72% was in the vein, not the host rock. It was concluded that samples were mistakenly switched at the laboratory, and this was rectified prior to loading into the assay database.

ALS was used for assaying samples. ALS is a NATA accredited laboratory that conducts internal and external round-robin analysis to maintain its certification and to ensure their equipment is correctly calibrated and reliable.

Final samples were bagged and prepared for transport to Brisbane via road or rail. Reserves from the assayed samples have been archived for future re-sampling. Chain of custody between EQR and ALS requires both parties to record and check sample and/or batch numbers on dispatch/receipt of sample shipments and check for any signs of tampering or damage.

### 6.1.1 LOW-GRADE STOCKPILE

Bulk sampling was completed by excavating 8 costeans around the perimeter of the historical stockpile, costeans ranging up to 10 m deep and 50 m long were completed. The bulk sample was coned and quartered with the excavator to 2,000 tonnes. This sub-sample was crushed to minus 50 mm and screened into three size ranges: 20 mm to 50 mm, 10 mm to 20 mm and minus 10 mm. Each size fraction was sampled by channel sampling. The bulk samples were analysed by fused disk methods and check analyses were carried out on-site with a Niton portable XRF analyser (after calibration of this instrument).

Grab sampling was completed on 80 locations (samples approximately 20 kg each of minus 100 mm material) for mineralogical and chemical characterisation of mineralised rock for environmental permitting purposes. The grab samples were crushed to a minus 3 mm split and sub-samples were pulverised and assayed for a range of elements including tungsten.

The bulk sample crushed, and screened size splits are stored on-site, and the crushed grab samples and pulverized splits are stored in the mine's core storage facility.

## 6.2 PETROLOGY

Petrology tests were carried out during the study by Pterosaur Petrology. Appendix E provides a description for the petrology of the major rock types at Mt Carbine. The rocks hosting the ore are predominantly Pelitic Schists, Metavolcanics and minor cherts. Quartz content can reach as high as 20% of the total rock content and mineralisation is less than 1% by volume.

Alteration minerals are minor, other than pervasive early-stage green schist facies, which has replaced the pelitic mudstones with fine chlorite.

Gangue or host rock of the mineralised lenses includes quartz, feldspar, tourmaline, muscovite (Biotite) with minor amounts of apatite, calcite, pyrite-arsenopyrite, magnetite and zircon. In places in the host rock, cordierite is developed. Only arsenopyrite and apatite concentrate alongside wolframite-scheelite with Arsenic reaching up to 1-2% in concentrate samples from a low base of 300 ppm.

Economic tungsten minerals are wolframite and scheelite with a typical ratio of 4:1 in the deposit. Each of these minerals contains different tungsten percentages and have different properties. The overriding property that assists in the processing of these minerals is their specific density being high in the 6-7 gm/cm$^3$ range compared to the host quartz-mudstones at 2-3 gm/cm$^3$.

Properties for wolframite are shown in Figure 6-1 and for scheelite in Figure 6-2.

Figure 6-1: Wolframite Minerals (after Pterosaur Petrology, 2021)

| | |
|---|---|
| **Chemical Formula:** | (Fe,Mn)WO4 |
| **Composition:** | Molecular Weight = 303.24 gm |
| | Manganese 9.06 % Mn 11.70 % MnO |
| | Iron 9.21 % Fe 11.85 % FeO |
| | Tungsten 60.63 % W 76.46 % $WO_3$ |
| | Oxygen 21.10 % O |
| | 100.00 % 100.00 % = TOTAL OXIDE |
| **Empirical Formula:** | $Fe^{2+}_{0.5}Mn^{2+}_{0.5}(WO_4)$ |
| **Environment:** | Group name for the hübnerite - ferberite series. |
| **IMA Status:** | Not Approved IMA 1863 |
| **Locality:** | Link to MinDat.org Location Data. |
| **Name Origin:** | From the German, Wolfram, name for tungsten. |

Figure 6-2: Scheelite Mineral (after Pterosaur Petrology, 2021)

| | |
|---|---|
| **Chemical Formula:** | CaWO4 |
| **Composition:** | Molecular Weight = 287.93 gm |
| | Calcium 13.92 % Ca 19.48 % CaO |
| | Tungsten 63.85 % W 80.52 % $WO_3$ |
| | Oxygen 22.23 % O |
| | 100.00 % 100.00 % = TOTAL OXIDE |
| **Empirical Formula:** | $Ca(WO_4)$ |
| **Environment:** | A primary tunsten ore mineral commonly found in contact-metamorphic deposit |
| **IMA Status:** | Valid Species (Pre-IMA) 1821 |
| **Locality:** | Bispberg iron mine, Säter, Dalarna, Sweden Link to MinDat.org Location Data. |
| **Name Origin:** | Named after the Swedish chemist, Karl Wilhelm Scheele (1742-1786). |

By the process of rock sorting, insitu ore and material from the LGS is upgraded approximately 10x and significantly reduces the tonnage required to be processed (i.e. < 25% of this material will be processed after the final ore is ground down to <1 mm for gravity processing).

There are no significant sulphides found in the deposit, with an average sulphur level of 0.147% relating to less than 0.3% sulphides in the insitu orebody. No ARD acid-metal issues have been identified in the dumps and it should be noted that the pit has been full of water for 34 years and it has remained clear and is slightly alkaline. Water tests have recorded elevated fluorine levels.

Figure 6-3 shows examples of coarse wolframite (black) with scheelite in quartz - scheelite glows on blue in the right hand picture. Note that some scheelite is a secondary replacement of wolframite.

A complete analysis for 26 elements has been performed on all core samples submitted to ALS (APPENDIX H: ). As the ore occurs in a quartz vein rather than a silicified host, several key multi-element differences can be noted (Table 6-1).

Figure 6-3: Examples of Coarse Wolframite with Scheelite Quartz

Table 6-1: Key Differences Between Host Rock and Ore

| Element | Host Rock | Ore | Comment |
|---|---|---|---|
| $Al_2O_3$ | 16.30% | 4.16% | Low Silicate minerals in Ore |
| $SiO_2$ | 64.90% | 88.40% | Ore is in qtz, the Host rock is highly silicified |
| $K_2O$ | 3.12% | 1.02% | A lot of biotite surrounding alteration |
| S | 0.09% | 0.06% | Ore & Host have low sulphide contents |
| Fe | 3.79% | 1.61% | Less ferromagnesium minerals in the ore |
| $TiO_2$ | 0.62% | 0.08% | The host has a lot of rutile alteration |
| MgO | 1.78% | 0.25% | The host has tourmaline alteration |

## 6.3 SAMPLE DATA LOCATION, SPACING AND DISTRIBUTION

Drilling is currently designed to complete the testing of the zone beneath the open-cut pit at a spacing of 50 x 50 m. In several locations, drill spacing was reduced down to 25 m to provide additional data and confirm the grade and widths of mineralised zones.

## 6.4 SAMPLE DATA ORIENTATION IN RELATION TO GEOLOGICAL STRUCTURE

The drilling was completed at right angles to the trend of mineralisation, on a localised grid that has been used since the 1960s – the local grid was used to orientate all drill holes to allow for regular spacing and interpretation of the mineralised vein system.

Depending on the hole angle and attitude of the mineralised veins, the actual downhole intervals will report as a longer interval than the true width of the vein. No bias has been observed for the mineralisation. The mineralised veins show consistent parallel zones, and the drilling was completed at the optimum angle to give a true indication of the zones.

## 6.5 SAMPLING AUDIT

An internal audit of sampling techniques was completed to check for sample bias and did not identify any bias. The sampling procedures were reviewed by the Competent Person and deemed to be appropriate for the purposes of estimating a Mineral Resource.

# 7. QA/QC

The results of the QA/QC work confirmed that no systematic bias is present in the assay results used in the Mineral Resource estimate.

## 7.1 REVIEW OF VISUAL RESULTS

A total of 58 samples, which are contained in the database as visual results, were resampled and laboratory analysis completed. These intervals were resampled using ½ core as per normal sample procedures outlined in Section Figure 7-1.

Comparison results of Laboratory Assays vs Visual Estimates are shown in Figure 7-1, with the low-grade results (below 0.25% $WO_3$) showing an increase of 105% in grade for the same intervals but the high-grade ore samples dropped 24% in grade from the visual results.

In the database, only results assayed by the laboratory under QA/QC conditions were used in estimating the Mineral Resource. The relationships between the visual results vs the actual assay results are shown in Figure 7-2.

Figure 7-1: Comparison of Visual vs. Assay Results

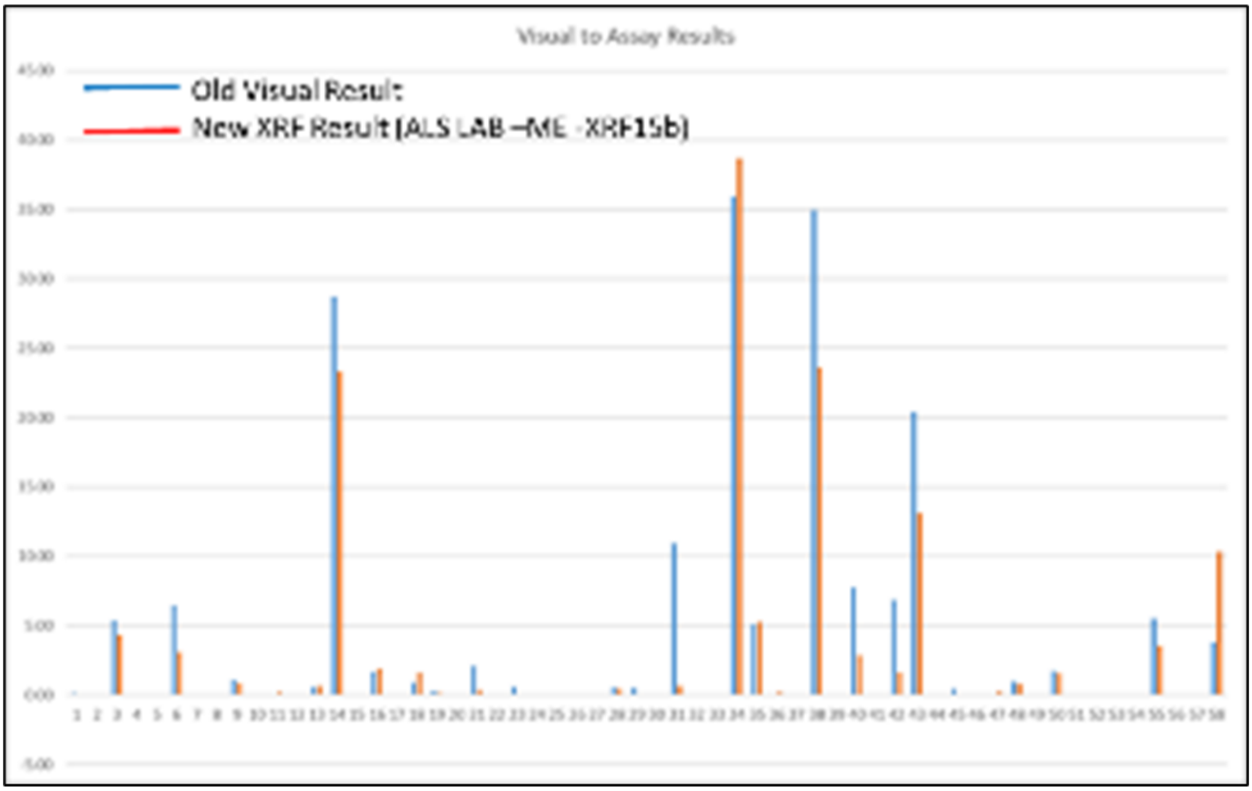
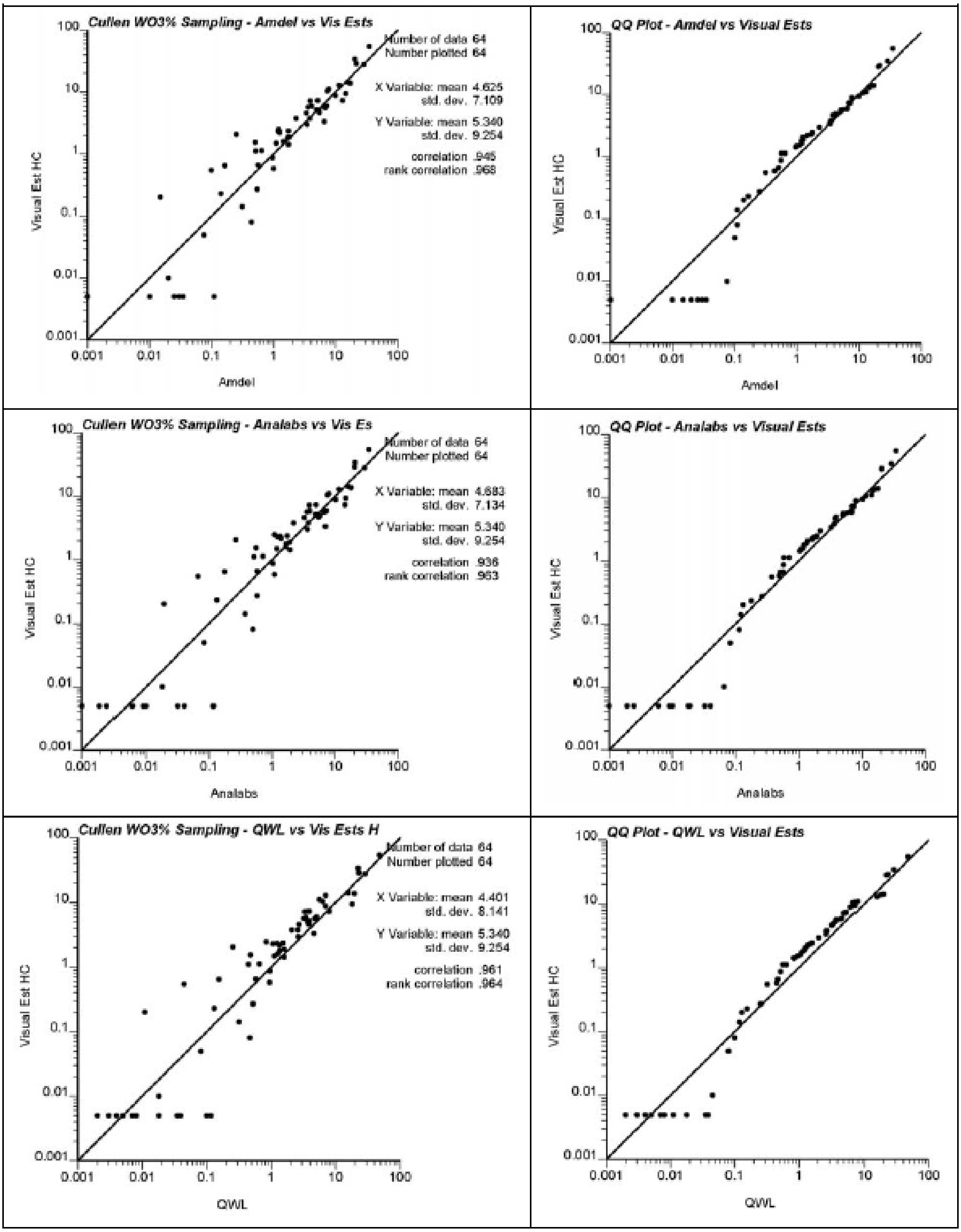


Figure 7-2: Scatterplots (left) and Q-Q Plots (right) of Laboratory Assays vs Visual Estimates (after Bainbridge, 2021)



## 7.2 QA/QC SAMPLES

From the total 4,068 m of drilling completed in 2021, 1,404 samples were sent to ALS laboratory in Brisbane. Standards and blanks were included in all batches sent for assay. The total number of standards and blanks inserted into this assaying programme was 146 samples comprising just over 10.2% of the samples submitted, comprising the following:

- 79 tungsten sample standards were analysed on a 1 in 20 basis; and
- 67 blank samples were tested inserted on a 1 in 20 basis.

### 7.2.1 STANDARDS

During the 2021 drilling campaign, a total of 13 standards were assayed to assess the reliability of the laboratory. Standards were inserted at random into sample batches using one standard (MC-3), which represented a bulk sample taken from the LGS, with an average grade of 0.225% $WO_3$.

The errors were within a 3% margin for all QA/QC standard results with the likely variation being that stated variation within the standard itself. The checks showed there was little drift or error in the results determined by the laboratory. The standards assay results were well within the allowed ±10% range of the expected values. Table 7-1 shows the Certified Reference Material (CRM) used in the current exploration program.

Table 7-1: CRM Used in the 2021 Exploration Programme

| CRM | Value of CRM | +2SD | -2SD |
|---|---|---|---|
| 1003 | 4.32 | 4.30 | 4.30 |
| 1016 | 0.047 | 0.05 | 0.05 |
| 1023 | 1.595 | 1.60 | 1.60 |
| 1024 | 0.128 | 0.13 | 0.13 |
| 1026 | 0.366 | 0.36 | 0.36 |
| 1038 | 0.031 | 0.03 | 0.03 |
| 1043 | 0.206 | 0.21 | 0.21 |
| 1052 | 0.046 | 0.04 | 0.04 |
| 1099 | 0.11 | 0.11 | 0.11 |
| 1122 | 0.108 | 0.10 | 0.10 |
| 100138 | 0.453 | 0.47 | 0.47 |
| 100186 | 1.419 | 1.42 | 1.42 |

Appendix H contains the figures for standards against the normalized known value for the 2021 exploration programme.

### 7.2.2 BLANKS

The majority of blank samples were less than 0.0055% $WO_3$. Slightly higher results were observed only when using blank core samples which, although perceived to be barren by the geologists, had background Tungsten values of up to 0.025% $WO_3$. This slight variance in blank sample values was noted in 6 blank samples out of the 67 blank samples used where ½ core showed very low background values were encountered. Figure 7-3 illustrates the results of the inserted blank samples with variations shown in Figure 7-4.

Figure 7-3: Plot of Results of Inserted Blank Samples

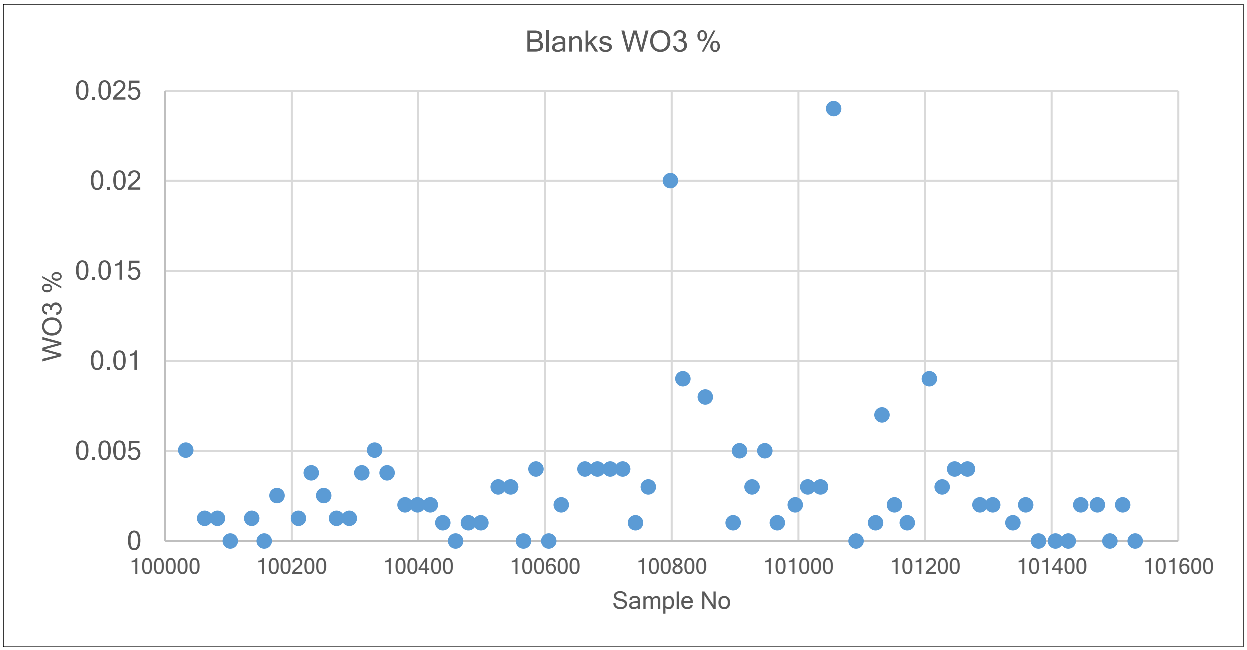
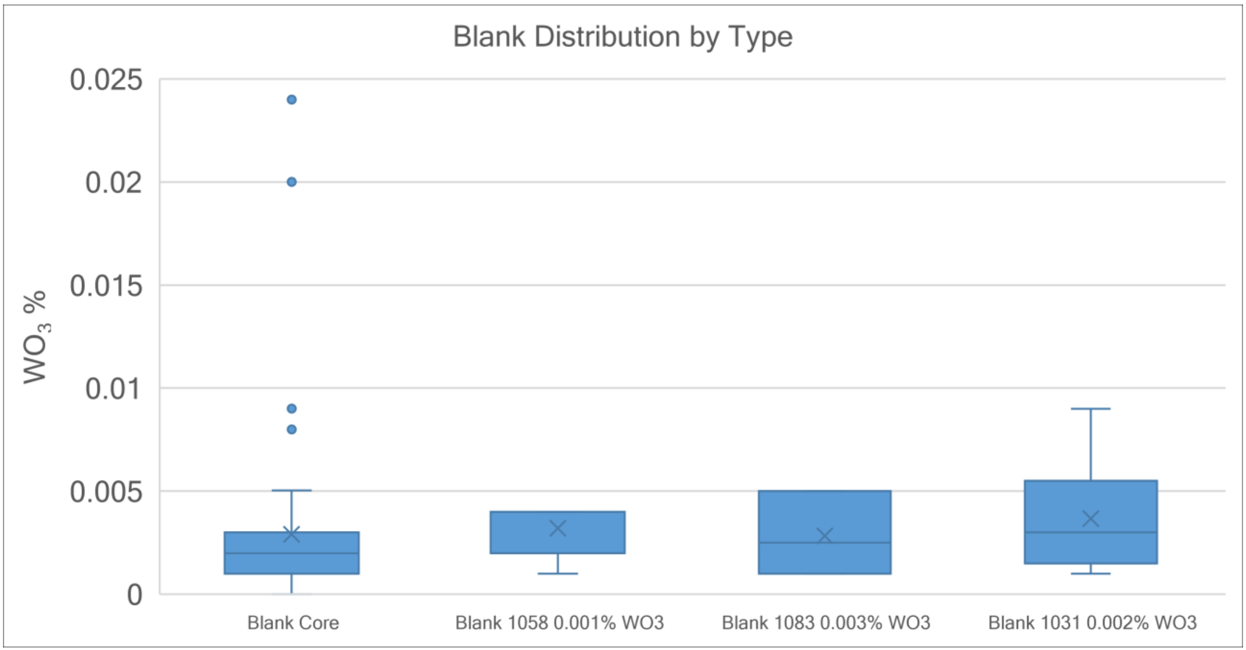



Figure 7-4: Blank Samples Distribution



### 7.2.3 UMPIRE LABORATORY PULP ASSAY VERIFICATION

A total of 116 pulps (5% of the total sample) were submitted to Burnie Labs in Tasmania for re-assay via fused-disk XRF analysis, to test the accuracy of the results from the primary laboratory (ALS in Brisbane). Comparison of these pulp assays with the original pulp assays from ALS Brisbane shows a relative bias of 16% (Table 7-2 and Table 7-3) and an absolute bias of 0.01.

With a very low absolute bias present, the Competent Person's opinion is that the pulp assays from ALS are acceptable and were endorsed for use in the resource model.

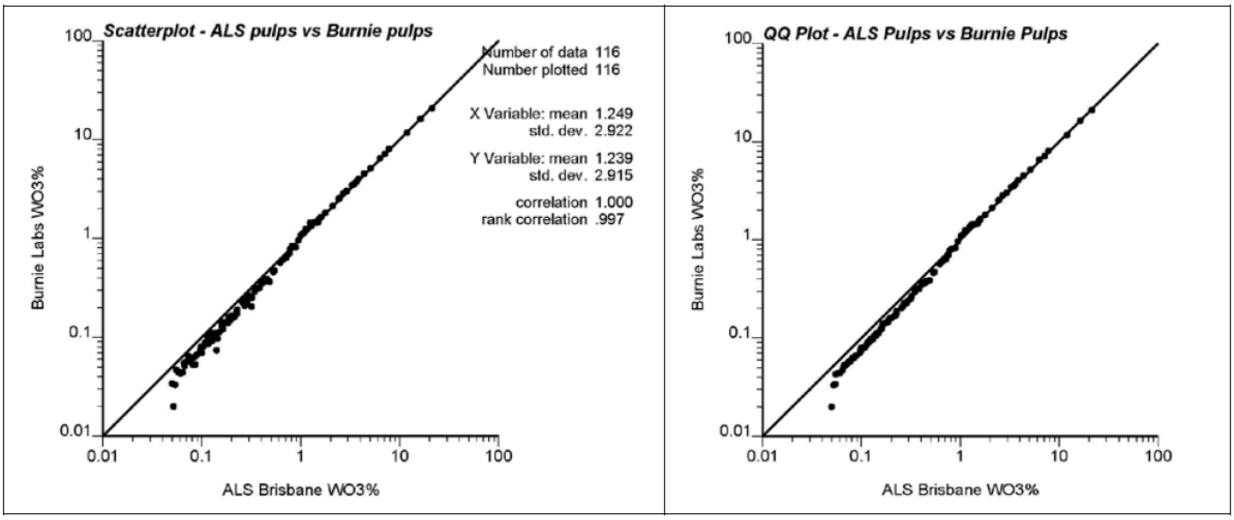
Table 7-2: Univariate Statistics of ALS and Burnie Labs WO3%

| Parameter | ALS | BURNIE |
|---|---|---|
| Number | 116 | 116 |
| Minimum | 0.05 | 0.02 |
| Maximum | 21.313 | 20.792 |
| Mean | 1.249 | 1.239 |
| Median | 0.255 | 0.204 |
| Std Dev | 2.94 | 2.93 |
| Variance | 8.61 | 8.57 |
| Coeff Var | 2.35 | 2.36 |

Table 7-3: Bivariate Statistics of ALS and Burnie Labs WO3%

| Parameter | ALS vs BURNIE |
|---|---|
| Covariance | 8.52 |
| Correlation Coefficient | 1.00 |
| Relative Bias | 16% |
| Absolute Bias | 0.01 |

Figure 7-5: Scatterplot (left) and Q-Q Plot (right) of ALS pulps vs Burnie pulps (EQR, 2021)



# 8. LOW-GRADE STOCKPILE ASSESSMENT

## 8.1 HISTORICAL 'ORE' EXTRACTION AND WASTE DUMP FORMATION

The LGS is material that has come directly from the open cut during previous mining of the open-pit. Material distribution is random and unsorted direct from where the mining was occurring. The dumps were deposited in two layers, with mining from years 1978 to 1983 resulting in 8 Mt and mining from 1983 to 1987 resulting in 4 Mt.

## 8.2 GRADE DISTRIBUTION IN LOW-GRADE STOCKPILE

To determine the grade distribution of the LGS, a comprehensive sampling programme was developed to achieve representative sampling of the stockpile material. The sampling that was undertaken to achieve this is summarised below, while Figure 8-1 shows the location of the samples:

**Sites Selection** – The dump was divided into quadrants with a major and minor sample location being marked. In two of the quadrants, two sample sites were selected to see repeatability.

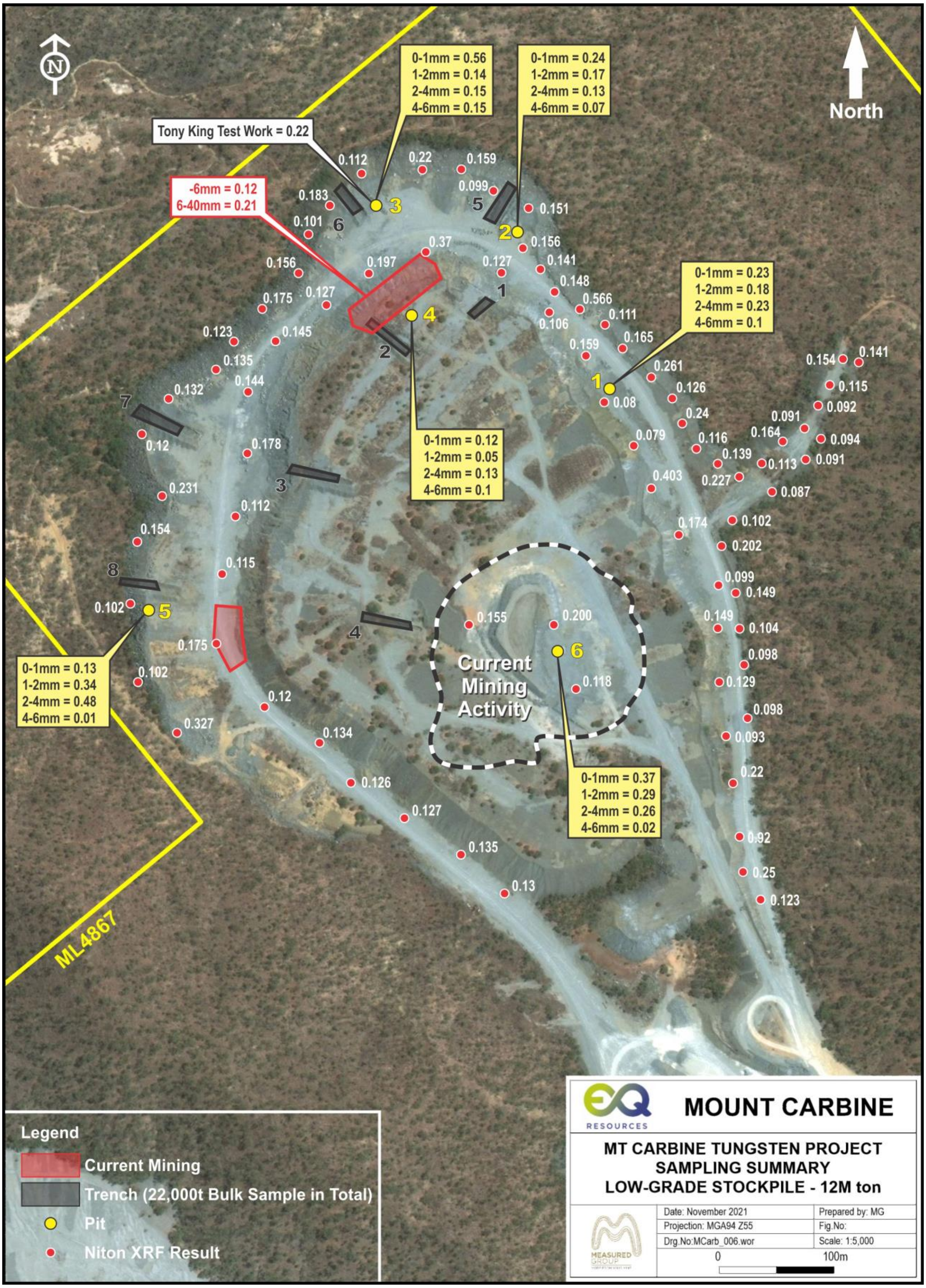
**Sample Size** - 6 trench samples (each trench taken at approximately 10 m wide x 5 m deep x 40 m length was deemed to be representative of that part of the dump each comprising a 3,500-t sample.

**Method** – The sample was collected using 25 t trucks and a 30 t excavator being careful to load all the material from the sample trench and the run over the weighbridge to determine weight before being added to a large stockpile. A total of 22,000 t was collected from the 6 separate locations. This was then cone and quartered down to a subset sample of 2,000 t which was fully crushed to a nominal 40 mm and sampled.

The bulk sample average was determined to be 0.075% $WO_3$.

Further sampling of the LGS for environmental permitting purposes involved taking 80 grab samples from the surface of the stockpile. Each sample was approximately 20 kg of minus 100 mm material. The average grade of these samples was 0.088% $WO_3$.

Figure 8-1: Low-Grade Stockpile Sampling Locations



## 8.3 PROCESSING OF LOW-GRADE STOCKPILE MATERIAL

Trials indicated that at optimum settings, the X-ray Sorter could produce a pre-concentrate of approximately 12% of the original feed and has a grade of approximately 0.65% $WO_3$ at 90% $WO_3$ recovery. Approximately 88% of the material sent to the sorter was rejected as waste. The local variation in grade distribution within the stockpile is expected to be variable and this has not yet been quantified.

Two pits have been mined, the NE pit and the Central pit, which have had 30,000 t and 86,000 t respectively mined from these locations. The processing methodology involves screening out the minus 6 mm for processing and crushing all the material between 6 mm and 170 mm down to less than 40 mm for XRT sorting.

This test work was designed to mimic the planned flow sheet and to determine the LGS grades based on the fines and XRT sorter product. Both these categories were crushed to various sizes before sampling (Table 8-1). This generated further 0-6 mm fines and although the quantity varies considerably, total fines that are natural and crushed is approximately 30-35%. +170 mm oversize is returned to the stockpile and is also about 30% of the dump, leaving approximately 40% of the dump that is sorted through the XRT Tomra Sorter.

Table 8-2 shows a summary of the regular sampling in size fractions taken from the 0-6 mm natural fraction at 6 pit sites locations separate from the initial 6 trench locations. An example of pit sampling is shown in Figure 8-2.

Table 8-1: X-Ray Sorter fines Samples

**Sorter Fines -8mm**

| Size (µm) | Head Feed (kg) | % Total HF | Head Grade % | Weight x grade | Con (g) | Con Grade | Mids (g) | % Total Mids | Mids Grade | Weight x grade mids | Tails (kg) | % Total Tails | Tails Grade | Weight x grade tails | Recovered Grade % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -300 | 116.20 | 32.15 | 0.24 | 27.89 | 530 | 26.4 | - | - | - | - | 115.67 | 32.11 | 0.14 | 16.19 | 0.12 |
| 300-850 | 245.25 | 67.85 | 0.21 | 51.50 | 440 | 49 | 290 | 100 | 16.6 | 4814 | 244.52 | 67.89 | 0.06 | 14.67 | 0.09 |
| Total | 361.45 | 100 | | 79.39 | 970 | | 290 | 100 | | 4814 | 360.19 | 100 | | 30.87 | 0.10 |
| ighted average | | | | 0.22 | | | | | | 16.6 | | | | 0.09 | |

**Sorter Product**

| Size (µm) | Head Feed (kg) | % Total HF | Head Grade % | Weight x grade | Con (g) | Con Grade | Mids (g) | % Total Mids | Mids Grade | Weight x grade | Tails (kg) | % Total Tails | Tails Grade | Weight x grade | Recovered Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -300 | 72.00 | 25.00 | 1.43 | 102.96 | 801 | 64.4 | 438 | 19.51 | 21.8 | 9548.4 | 70.76 | 25.05 | 0.18 | 12.74 | 0.72 |
| 300-850 | 135.65 | 47.10 | 2 | 271.30 | 1873 | 57.9 | 1497 | 66.68 | 25.3 | 37874.1 | 132.28 | 46.82 | 0.15 | 19.84 | 0.80 |
| 850+ | 80.35 | 27.90 | 0.72 | 57.85 | 582 | 48.2 | 310 | 13.81 | 12.75 | 3952.5 | 79.46 | 28.13 | 0.17 | 13.51 | 0.35 |
| Total | 288 | 100 | | 432.11 | 3256 | | 2245 | 100 | | 51375 | 282.50 | 100 | | 46.09 | 0.65 |
| ighted average | | | | 1.50 | | | | | | 22.88 | | | | 0.16 | |

Table 8-2: Summary of the size fractions from the 6 locations (after METS, 2021)

| Trench 1 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1494 | 1194 | 2038 | 760 | 5486.74 |
| Grade | 0.23 | 0.18 | 0.23 | 0.1 | |
| Weight % | 27.23 | 21.76 | 37.14 | 13.85 | 100 |
| Weight x grade | 343.62 | 214.92 | 468.74 | 76.00 | 1103.28 |
| Weight x grade % | 31.15 | 19.48 | 42.49 | 6.89 | 100.00 |
| Weighted Average | 0.20 | | | | |

| Trench 2 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1399 | 858 | 1878 | 1207 | 5342.61 |
| Grade | 0.24 | 0.17 | 0.13 | 0.07 | |
| Weight % | 26.19 | 16.06 | 35.15 | 22.59 | 100 |
| Weight x grade | 335.76 | 145.86 | 244.14 | 84.49 | 810.25 |
| Weight x grade % | 41.44 | 18.00 | 30.13 | 10.43 | 100.00 |
| Weighted Average | 0.15 | | | | |

| Trench 3 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1415 | 728 | 1424 | 262 | 3830 |
| Grade | 0.56 | 0.14 | 0.15 | 0.15 | |
| Weight % | 36.95 | 19.01 | 37.18 | 6.84 | 100 |
| Weight x grade | 792.40 | 101.92 | 213.60 | 39.30 | 1147.22 |
| Weight x grade % | 69.07 | 8.88 | 18.62 | 3.43 | 100.00 |
| Weighted Average | 0.30 | | | | |

| Trench 4 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1642 | 1349 | 1605 | 304 | 4900.4 |
| Grade | 0.12 | 0.05 | 0.13 | 0.1 | |
| Weight % | 33.51 | 27.53 | 32.75 | 6.20 | 100 |
| Weight x grade | 197.04 | 67.45 | 208.65 | 30.40 | 503.54 |
| Weight x grade % | 39.13 | 13.40 | 41.44 | 6.04 | 100.00 |
| Weighted Average | 0.10 | | | | |

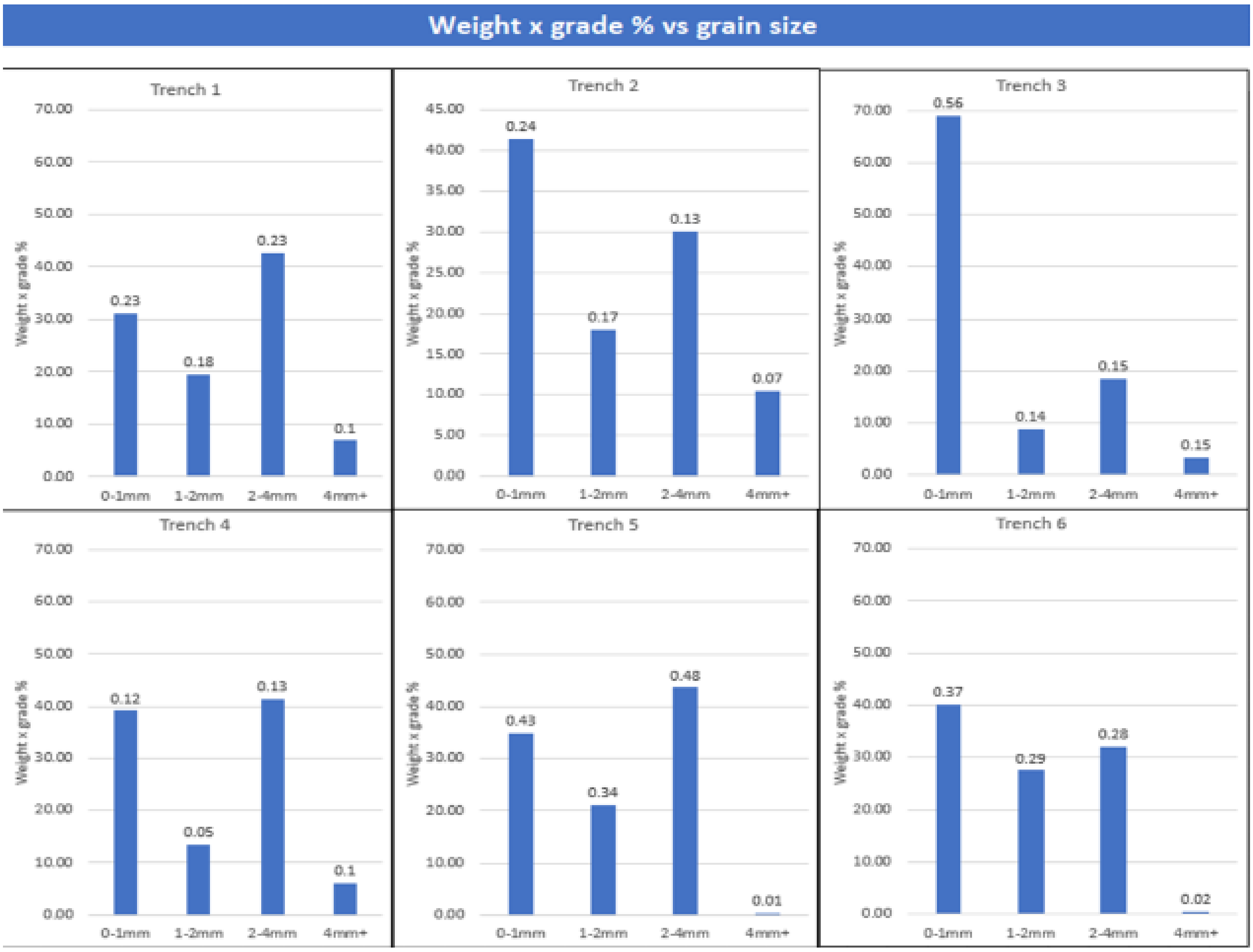
| Trench 5 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 1086 | 825 | 1215 | 600 | 3727.26 |
| Grade | 0.43 | 0.34 | 0.48 | 0.01 | |
| Weight % | 29.14 | 22.13 | 32.60 | 16.10 | 100 |
| Weight x grade | 466.98 | 280.50 | 583.20 | 6.00 | 1336.68 |
| Weight x grade % | 34.94 | 20.98 | 43.63 | 0.45 | 100.00 |
| Weighted Average | 0.36 | | | | |

| Trench 6 | 0-1mm | 1-2mm | 2-4mm | 4mm+ | Total |
|---|---|---|---|---|---|
| Weight (g) | 895 | 782 | 945 | 139 | 2761.96 |
| Grade | 0.37 | 0.29 | 0.28 | 0.02 | |
| Weight % | 32.40 | 28.31 | 34.21 | 5.03 | 100 |
| Weight x grade | 331.15 | 226.78 | 264.60 | 2.78 | 825.31 |
| Weight x grade % | 40.12 | 27.48 | 32.06 | 0.34 | 100.00 |
| Weighted Average | 0.30 | | | | |

Figure 8-2: Example of Pit Sampling

Table 8-3 shows the variation in different size fractions in the 0-6mm material with generally the finer fractures showing slightly higher results.

Table 8-3: Variation in Different Size Fractions for 6 Trenches




## 8.4 RESULTS FROM CURRENT MINING ACTIVITIES

Table 8-4 shows samples of the head feed of 0-8 mm taken during mining of the approximately 100,000 t of LGS material.

This material is elevated from the overall dump grade of 0.075% $WO_3$ because the tungsten minerals are soft and preferentially break down and end up naturally in the finer fractures. Conversely, the larger rocks have less tungsten. Table 8-4 shows the scalping of the different size fractions.

Table 8-4: Samples of the head feed of 0-8 mm

| Date | Head Feed |
|---|---|
| 2020-11-27 | 0.22 |
| 2020-11-24 | 0.18 |
| 2020-12-11 | 0.38 |
| 2020-12-22 | 0.16 |
| 2021-01-06 | 0.27 |
| 2020-11-26 | 0.15 |
| 2020-11-28 | 0.13 |
| 2021-01-12 | 0.11 |
| 2021-01-27 | 0.16 |
| **Average** | **0.20** |

Figure 8-3: Scalping Out Size Fractions for LGS Test Work

# 9. MINERAL RESOURCE ESTIMATE

## 9.1 SITE VISIT

The Competent Person (Mr Chris Grove) completed a site visit to the Mt Carbine Tungsten Project in April 2021. During the site visit, Mr Grove verified the existence and location of a subset of the historic drill hole collars in the field, inspected the drill core, reviewed the metallurgical and mineralogical test work that was previously completed, reviewed the extensive geological database.

During the site visit, Mr Grove verified the existence and location of the production history and inspected the LGS to form an opinion of the data retrieved from the historical production data. Mr Grove verified the current drilling practices and procedures and sampling and pre-processing of samples before sending them to the laboratory. Mr Grove considers that the work has been completed to an acceptable industry standard and fit for use in estimating the Mineral Resource.

## 9.2 KEY ASSUMPTIONS

The October 2021 Mineral Resource estimate (MRE) for the insitu orebody is based on a detailed review of the Project completed by the Competent Person. It has incorporated EQR’s current view of near and long-term Tungsten prices, cost assumptions, mining and metallurgy performance to select cut-off grades and physical mining parameters.

The Mineral Resource estimate for the Low-Grade Stockpile is based on sampling of the LGS and the results of trial mining and processing. No cut-off criteria has been applied to the October 2021 Mineral Resource estimate.

## 9.3 RESOURCE LIMITS

The limits for the insitu orebody and LGS orebody were created to encompass all drill hole, sampling locations and stockpile limits. The extents of the insitu geological model is shown in Figure 9-1 and the extents of the LGS model is the physical extents of the LGS.

Figure 9-1: Insitu Resource Model Limits

## 9.4 POINTS OF OBSERVATION

Points of observation (POB's) for the Insitu Mineral Resource were identified as drill hole intervals where assays contained Tungsten and had been validated and verified as part of the data management process. Reviewing the Tungsten assay data in Vulcan and using the ranges from variography, the POBs were used to create first pass resource classification boundaries (Measured, Indicated, and Inferred) for the Mineral Resource estimate.

The resource classification boundaries were set using the numerical model feature and the distance function to set the ranges for each category and apply the trend of the orebody used in the geological model process.

## 9.5 GEOLOGICAL MODELLING

Geological setting and mineralisation controls of the Mt Carbine Project mineralisation were established from drill hole logging and geological mapping and included in an updated model of the major rock units for the Mt Carbine deposit.

The geological domains are based on a minimum 2 m downhole interval of mineralisation. The composited grades are based on assayed results and barren zones to create a zone of mineralisation for geological modelling and resource estimation based on these composited grades. Due to the confidence in the understanding of mineralisation controls and the robustness of the geological model, investigation of alternative interpretations was deemed unnecessary.

## 9.6 COMPOSITING

Prior to the undertaking of a geostatistical analysis, samples were composited into equal lengths to provide a constant sample volume, honouring sample support theories.

The $WO_3$ grade data at Mt Carbine shows that there are higher and lower grade zones within the deposit, with the preferentially mineralised zones related to coarser-grained hornfels or fracturing localised in areas of rheological contrast at the contacts.

The gradation between zones of higher and lower grade is observed as a lateral zonation rather than a predictable grade trend from top to bottom contact within the stratigraphy. Recognising the absence of grade trends and to overcome the variable number of samples per intersection, the Competent Person elected to create a single composite for each of the drillholes per intersected horizon ('zone-composites'). This was done to ensure variography and block grade estimation focused on variability along stratigraphy.

## 9.7 GEOSTATISTICS

For the Mt Carbine estimation, the following geostatistical workflow was undertaken:

- Exploratory Data Analysis;
- Spatial Analysis;
- Variography;

- Kriging Neighbourhood Analysis; and
- Estimation;

Exploratory data and spatial analysis were used to analyse the overall deposits data distribution and to investigate the spatial distribution of the $WO_3$. Included in this analysis was the assessment outliers and if any potential domains existed within the deposit.

### 9.7.1 SPATIAL LOCATION OF SAMPLES SELECTION

Swath plots of the variables generally show consistent ranges of values across the deposit. In the easterly section, there are broader ranges at the boundaries of the orebody, but this is due to drilling/sampling seeking to define the extent of mineralisation. Overall, there were no observed increasing or decreasing trends.

### 9.7.2 SAMPLE LENGTH

The average sample length of the two project areas is 2 m. The sample length and stabilization of the block covariance at around 2 m were the main factors in deciding the discretization distance of 2 m in the ordinary kriging parameters.

### 9.7.3 SAMPLE VS. BLOCK HISTOGRAM

The following figures show a comparable relationship between the sample data and the estimated block model. The sample histogram of $WO_3$ (Figure 9-2) and the block model histogram of $WO_3$ (Figure 9-3) show comparable distributions of grade with the blocks adhering to the local sample intervals. The individual zones reflect the smoothing of the grades during grade estimation.

Figure 9-2: Histogram of Sample Grades

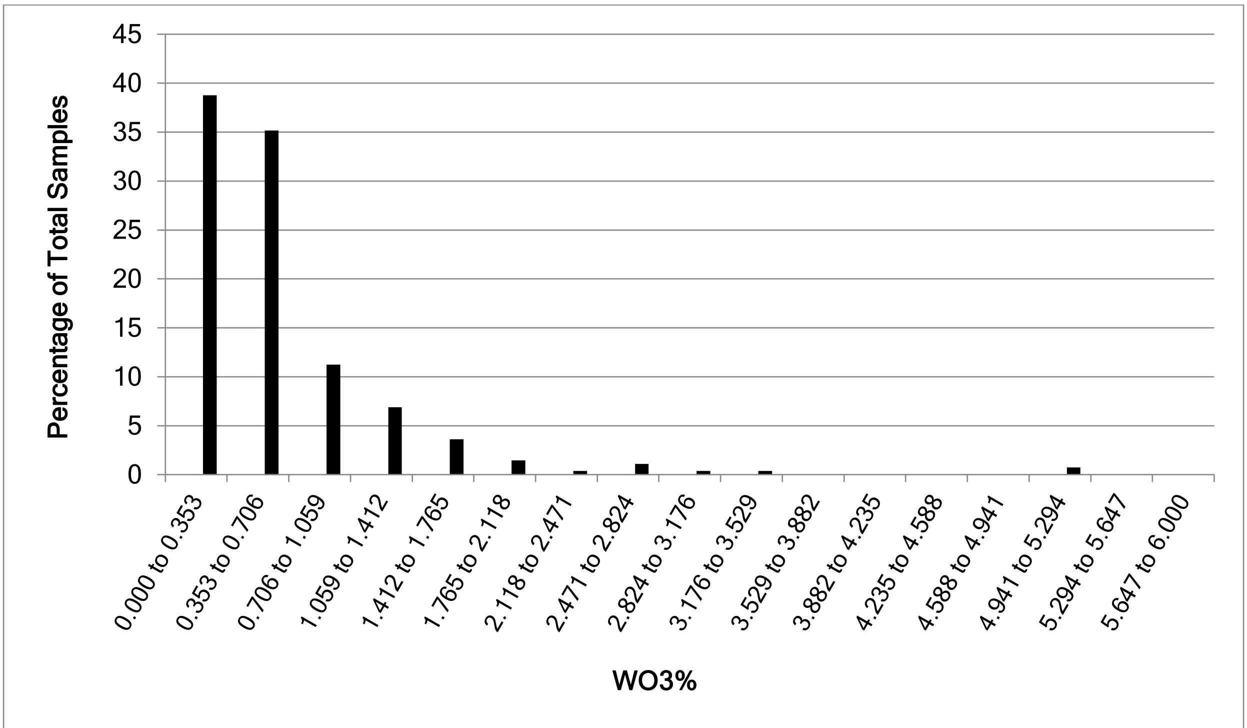
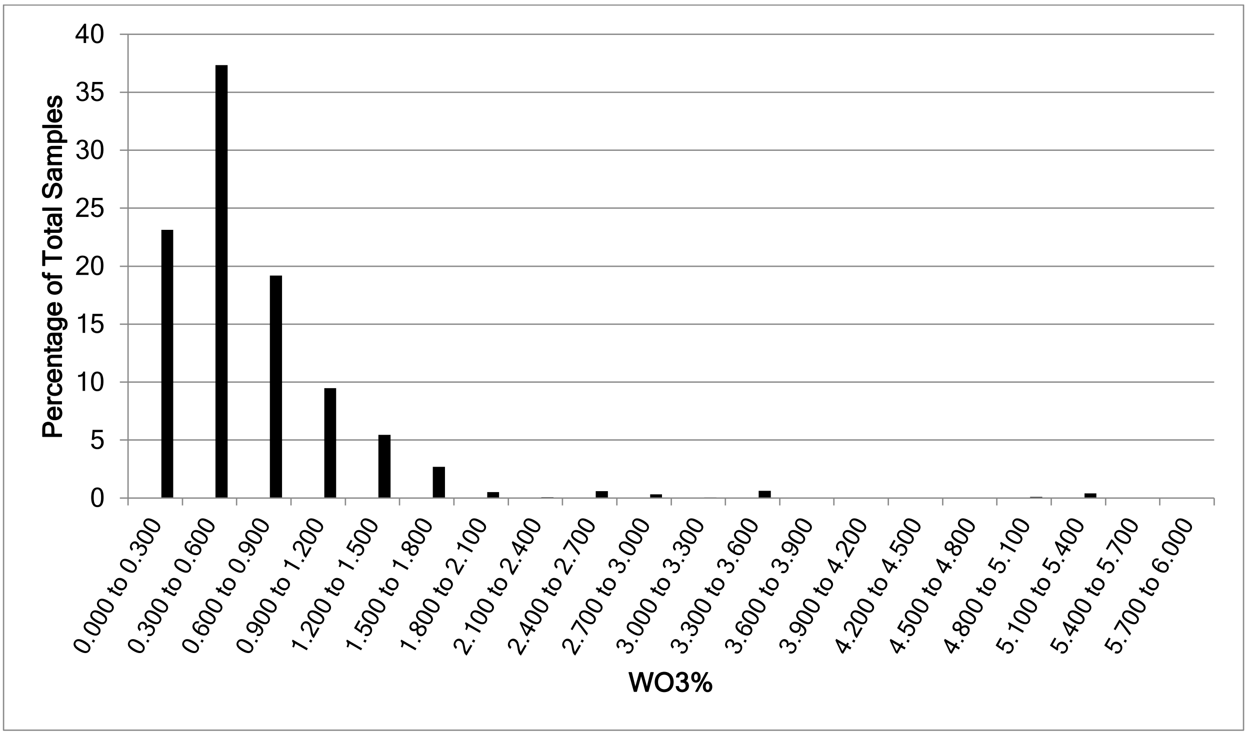


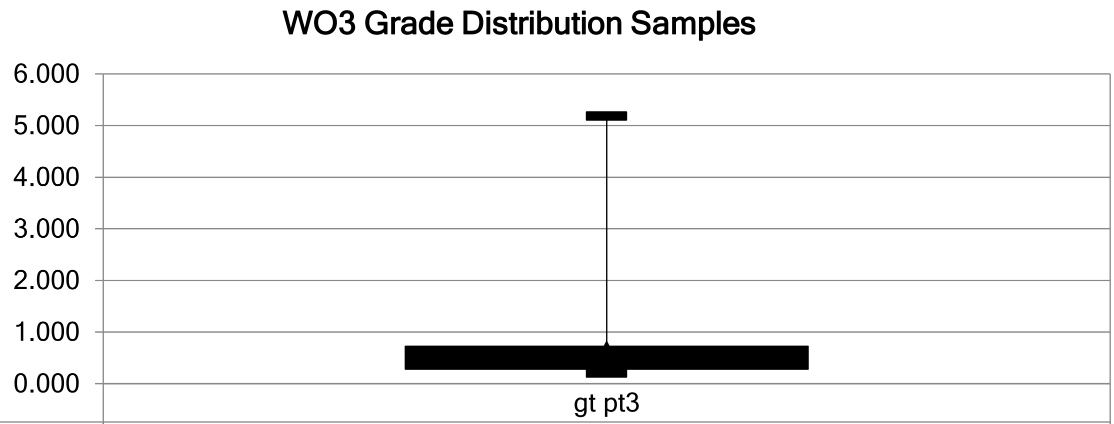
Figure 9-3: Histogram of Block Model Grades




The Grade distribution for the samples and the block model are presented as Box Plots in Figure 9-4 and

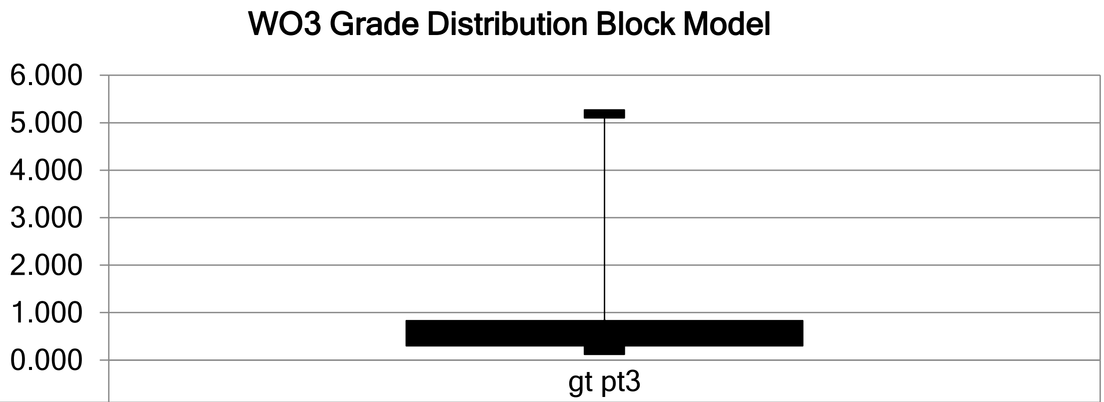
Figure 9-5. The minimum and maximum grades have been reproduced and the mean and median grades are comparable. The grade estimation has smoothed the samples to estimate within the individual zones and the model grades reflect the nature of the deposit.

Figure 9-4: Sample Box Plot




| | gt pt3 |
|---|---|
| Q1 | 0.280 |
| Min | 0.200 |
| Median | 0.440 |
| Mean | 0.636 |
| Max | 5.179 |
| Q3 | 0.725 |
| NSamples | 276 |

Figure 9-5: Block Model Box Plot




| | gt pt3 |
|---|---|
| Q1 | 0.300 |
| Min | 0.200 |
| Median | 0.492 |
| Mean | 0.658 |
| Max | 5.179 |
| Q3 | 0.831 |
| NSamples | 229523 |

### 9.7.4 VARIOGRAPHY

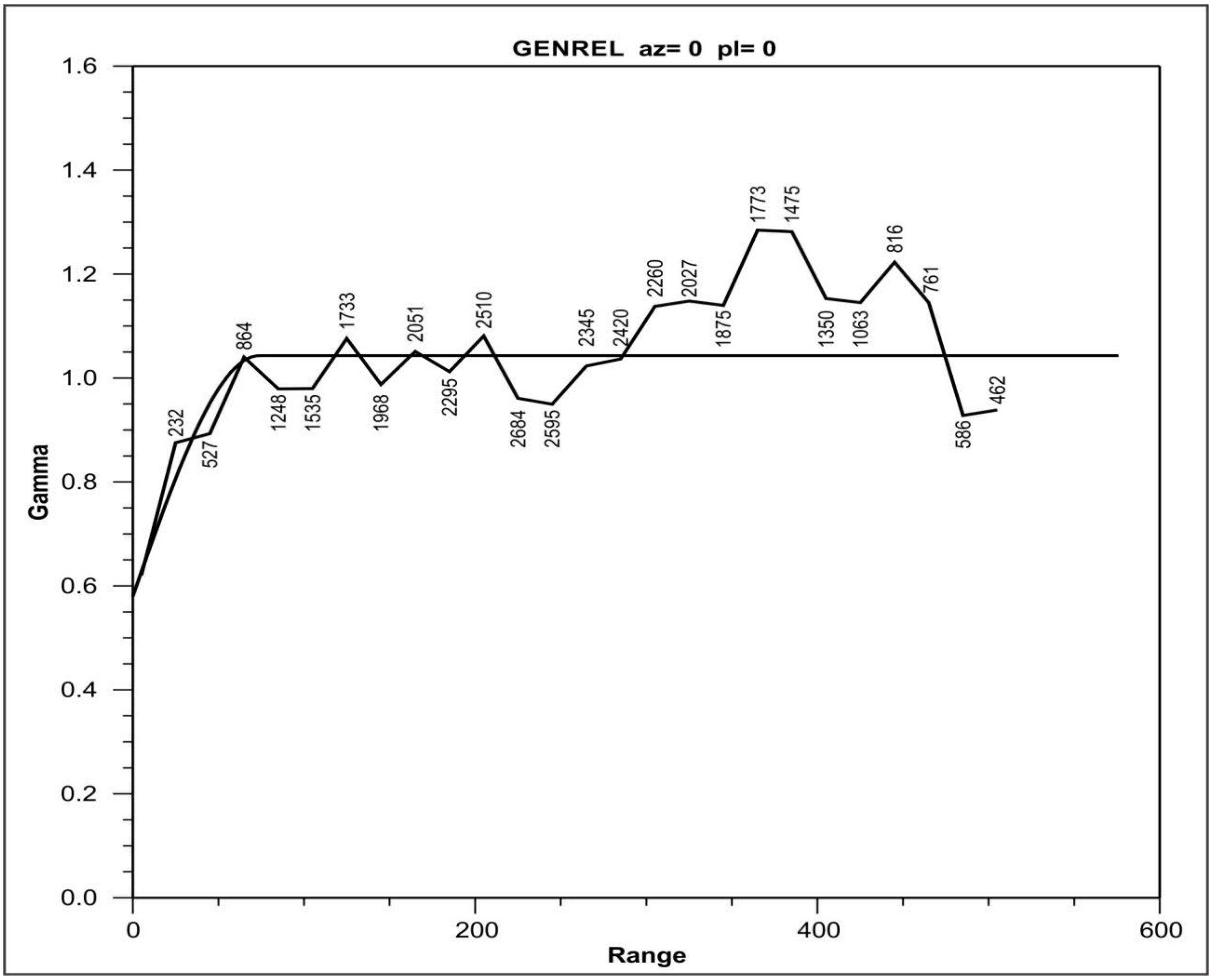
Variography analysis was performed to determine the major directions of grade continuity for $WO_3$ and an example variogram is presented in Figure 9-6.

To construct semi-variograms and their resultant models, the following steps were undertaken:

1. Generate Variogram Maps for each variable – check for anisotropy; and
2. Generate experimental variograms and fit semi-variogram models.

Variogram maps for horizontal and vertical directions were interrogated to determine directions of greatest continuity. When viewing the variograms of greatest vs. least directions of continuity, it was found that the resultant variograms were very similar (virtually the same). Therefore, the deposit has been treated as isotropic with no direction of greatest continuity.

Figure 9-6: Example Variogram



## 9.8 ESTIMATION AND MODELLING TECHNIQUES

### 9.8.1 INSITU OREBODY

Creation of the block models were constructed using Maptek's Vulcan v21.0.1 3D modelling software. The block model for the Insitu Zone was created for the deposit with the extents and block size shown in Table 9-1 and Figure 9-7.

Inputs into the Insitu Zone block model includes topography, orebody grade shells, weathering wireframes, estimation data, density, and resource classification. Block sizes were determined from sample length within the assay data set. A list of variables for the Insitu Zone block model is listed in Table 9-2.

Table 9-1: Model Extents and Block Size

| Parameter | Origin | Range (m) |
|---|---|---|
| X | 21850 | 1300 |
| Y | 26100 | 700 |
| Z | -250 | 800 |
| Parent block size | 10 x 10 x 10 | |
| Subblock size | 0.5 x 0.5 x 0.5 | |

Table 9-2: List of variables for the Insitu Zone block model

| Variable Name in Block Model | Description |
|---|---|
| Rock | Insitu Rock vs Air |
| Wo3 | Tungsten estimation data |
| Density | Global Density data |
| Zone | Mineralised domains |
| Rescat | Resource classification |
| Mined | Mined out region |
| Estimflag_wo3 | Flag when estimated with WO3 |
| Num_holes | Number of holes used to estimate the block |
| Num_samples | Number of samples used to estimate the block |

Statistical analysis was undertaken on the composited drill hole file to assess the appropriateness of the domaining process and as such, no additional domaining was undertaken. All domains were interpolated using ordinary kriging ("OK"). To maintain the strong correlation between actual drill hole values in the estimated block model, estimated using ordinary kriging, using 3 separate input parameters increasing the search ellipsoid during subsequent passes.

Mineralisation was modelled as three-dimensional blocks of parent size 10 m with sub-celling allowed to 0.5 m. No assumptions were made regarding the modelling of selective mining units.

Figure 9-7: Block Model Extents

### 9.8.2 LOW-GRADE STOCKPILE

The detailed distribution of grade through the LGS is not known, as no record was kept of placement of rock consigned to the stockpile, nor was any sampling carried out. The average of assays of the three size range subsamples of the bulk sample is 0.075% $WO_3$. This reconciles well with a calculation from historic mine records of production and mill recovery and based on the recent resource estimate which took account of the resource mined during the previous open pit operation, of a global average grade of 0.075% $WO_3$ for the Low-Grade Stockpile.

The samples taken for the LGS average 0.088% $WO_3$ (fused disk XRF analysis), which suggests that the tungsten grade of the finer fraction (<200 mm) of the stockpile is higher than the global average grade of the bulk sample that included fragments up to 500 mm.

## 9.9 MOISTURE

Tonnages were estimated on a dry basis for the insitu orebody, while tonnages for the LGS are estimated on an air-dried basis.

## 9.10 CUT-OFF PARAMETERS

No cut-off grades were applied to the Mt Carbine Resource Estimate. The mineralised material is interpreted to have ‘reasonable prospects of eventual economic extraction’ by open-pit methods and by underground mining methods.

No top cuts were applied to the drill hole results or the compositing. The contiguous nature of the veins observed, both in the open pit and the underground development, shows that the grade and geometry are consistent and follows the grades intercepted in the drill hole assay results. The lenses are able to be correlated in the open-pit areas and drilling and are correlated to form modelled veins to provide discreet zones for resource estimation.

No cut off for the LGS has been applied to the stockpile grade estimation, however, it is planned to screen the stockpiled material at 500 mm and only crush and ore sort the minus 500 mm fraction, since a growing body of data from ongoing tests indicates that this fraction contains the bulk of the tungsten minerals that it is planned to recover.

## 9.11 OREBODY EXTENTS

Drilling indicates that the mineralisation continues up to 1300 m along strike and is up to 600 m wide. The limits of mineralisation have not been completely defined and are open at depth and along strike.

The 12 Mt estimated to be contained in the LGS has been derived from a nearly complete set of historical mining records as well as estimating the physical extents of the LGS. An independent reconciliation was completed to estimate the total tonnes mined from the open pit (22 Mt) less 10 Mt of material that was processed through the mill.

## 9.12 MINING FACTORS AND ASSUMPTIONS

The insitu Mineral Resource estimate has been completed with the assumption that it will be mined using open cut and underground mining methods. No other detailed assumptions have been made to date. The LGS Mineral Resource estimate has been completed with the assumption that it will be mined using quarrying methods. No other detailed assumptions have been made to date.

EQR is completing feasibility studies, which will provide additional detailed assumptions for future Mineral Resource and Reserve estimates.

## 9.13 METALLURGICAL FACTORS AND ASSUMPTIONS

Historical production records show that the Mt Carbine Project was in the lowest quartile cost of production of western producers and produced high-grade wolframite (>70% $WO_3$) and scheelite (68-72% $WO_3$) concentrates with minimal or very low impurity penalties.

The mineralogy of the material contained in the stockpile is identical to that of the hard rock ore body. The Mt Carbine ore body is low grade in comparison with many other tungsten deposits. However, the successful application of ore sorting to pre-concentrate the ore to a high-grade mill feed has been demonstrated using optical ore sorters, and by extensive trials of X-ray sorting of bulk samples of the stockpile and run of mine ore.

Process design and anticipated recoveries have been derived from historical mill flow sheets, reports and trials that have been confirmed by repeated metallurgical testing of bulk samples.

The work completed by EQR to date indicate that the Mineral Resource has ‘reasonable prospects for eventual economic extraction’.

## 9.14 ENVIRONMENTAL FACTORS AND ASSUMPTIONS

EQR has been granted an Environmental Authority by the Queensland Department of Environment and Science (“DES”) for the Low-Grade Stockpile. Based on a sampling of existing stockpiles, tailings storage facilities and analytical characterisation of the mineralisation, the only elements present at hazardous values are fluorine (as fluorite) and arsenic (as arsenopyrite).

Previous mine practice and the present Environmental Management Plan approved by the DES include measures to manage the environmental hazards these elements present. Sampling of the existing stockpiles and tailings storage facility indicates that acid mine drainage will not be a hazard created by future mining and waste storage.

## 9.15 BULK DENSITY

A total of 1,048 density measurements from the drill core were completed. Density measurements were analysed for any spatial trends by easting, northing and depth, with no obvious trends detected. An average density of 2.74 g/$m^3$ was applied to the insitu orebody. The tonnes estimated to be contained in the LGS were derived independently by a third party engaged by EQR and this has been adopted for use by the Competent Person.

## 9.16 RESOURCE CLASSIFICATION

Classification of the Mineral Resource estimate was interpreted on several criteria, including confidence in the geological interpretation, the integrity of the data, the spatial continuity of the mineralisation and the quality of the estimation.

An assessment of the historical mining showed increased confidence in the surrounding areas of the open pit and confirmed by drilling results.

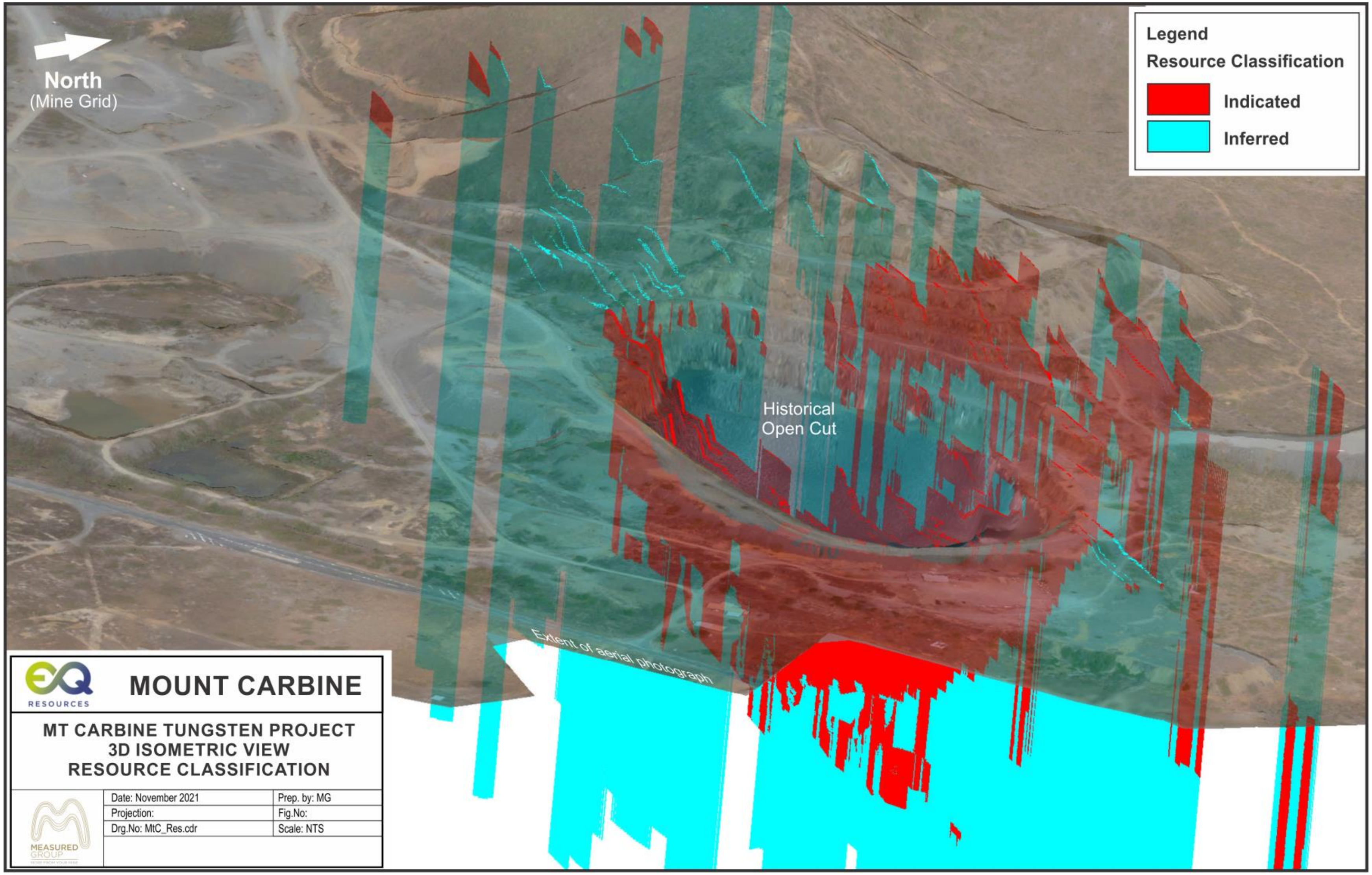
The classification reflected the author's confidence in the location, quantity, grade, geological characteristics, and continuity of the Mineral Resources (Figure 9-8).

The data spacing and distribution is sufficient to establish geological and grade continuity appropriate for Mineral Resource estimation and classification and the results appropriately reflect the Competent Person's view of the deposit.

Based on the criteria outlined above, the 818,453 blocks that were interpolated in the Insitu Mt Carbine model, were classified as follows: 19% is classified as Indicated and 81% is Inferred Mineral Resources. The remaining blocks are flagged as Target (non-ore lithologies).

Following extensive metallurgical testing of bulk samples from the stockpile that provide robust anticipated recovery and quality of product, the LGS has been classified as an Indicated Resource.

Figure 9-8: Resource Classification



## 9.17 REASONABLE PROSPECTS FOR EVENTUAL ECONOMIC EXTRACTION

EQR has completed and is completing various studies on the Mt Carbine orebodies to assess the viability and economics of maintaining the current operations and developing future mining domains in the deeper orebodies.

The results of work completed for Mt Carbine is assisting EQR in refining the current plan for the ongoing studies for the Mt Carbine Open cut and Underground project. EQR has multiple paths to continue to mine and develop future mining domains in the various orebodies at Mt Carbine.

Measured Group is satisfied that there has been sufficient study, economic analysis, and the opportunity to apply technological developments in mining methods to meet the reasonable prospects for the eventual economic extraction (“RPEEE”) test.

Currently, there is a reasonable basis to assume the Mineral Resource estimated for Mt Carbine orebodies will be mined in future.

## 9.18 MODEL VALIDATION

Validation of the block model was made by:

- Checking that drill holes used for the estimation plotted in expected positions;
- checking that flagged domains intersections lay within, and corresponded with, domain wireframes;
- ensuring whether statistical analyses indicated that grade cutting was required;
- checking that the volumes of the wireframes of domains matched the volumes of blocks of domains in the block model; and
- checking plots of the grades in the block model against plots of drill holes.

Historical estimates were examined and the comparisons were similar yet inconclusive due to the ‘discreet’ style of geological interpretation in this estimate compared to the larger, all-encompassing lower grade style previously.

# 10. STATEMENT OF MINERAL RESOURCES

The terms and definitions outlined in the JORC Code have been adopted for the reporting of Mineral Resources. The JORC Code is published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia, and has been developed with the input of the Committee for Mineral Reserves International Reporting Standards.

The Competent Person responsible for the estimation and reporting of Mineral Resources for the Mt Carbine Tungsten Project, is Mr Christopher Grove, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy.

Mr Grove is a Principal Resource Geologist and a full-time employee of Measured Group Pty Ltd and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Grove consents to the inclusion in this report on the matters based on his information in the form and context in which it appears.

As per the requirement of the JORC Code, Table 1, Sections 1-3, has been completed for both the insitu and LGS orebodies and are provided in APPENDIX B: and APPENDIX C: respectively.

The Mineral Resource estimate was finalised on 21 September 2021, which utilised geological data from 20,426 metres of diamond core drilling from 79 drill holes for the insitu orebody and bulk sampling from the Low-Grade Stockpile (Table 10-1). Grade vs tonnage classification is shown in Figure 10-1 and Table 10-2.

Table 10-1: Mt Carbine Resource Estimate, as at September 2021

| Orebody | Resource Classification | Tonnes (Mt) | Grade ($WO_3$ %) | $WO_3$ (mtu) |
|---|---|---|---|---|
| Low-Grade Stockpile | Indicated | 12 | 0.075 | 900,000 |
| In Situ | Indicated | 2.40 | 0.74 | 1,776,000 |
| | Inferred | 6.81 | 0.59 | 4,017,900 |
| | *Total* | *9.21* | *0.63* | *5,793,900* |
| **All** | **Total** | **21.21** | | **6,693,900** |

1. Total estimates are rounded to reflect confidence and resource categorisation.
2. Classification of Mineral Resources incorporates the terms and definitions from the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012) published by the Joint Ore Reserve Committee (JORC)
3. No uppercut was applied to individual assays for this resource, a lower cut of 0.15% WO3 was applied, which is the grade where the mineralisation forms distinct veins.
4. Drilling used in this methodology was all diamond drilling with ½ core sent according to geological intervals to ALS for XRF15b analysis.
5. Resource estimation was completed using Kriging Methodology.
6. Indicated spacing is approximately 30 m x 30 m; Inferred is approximately 60 m x 60 m.
7. The deposit is a sheeted vein system with subparallel zones of quartz tungsten mineralisation that extend for >1.2 km in length and remain open. At depth, the South Wall Fault cuts the Iolanthe to Johnson veins but the Iron Duke zones remain open to depth.

Figure 10-1: Mt Carbine Insitu Mineral Resource Estimate Grade - Tonnage Curve

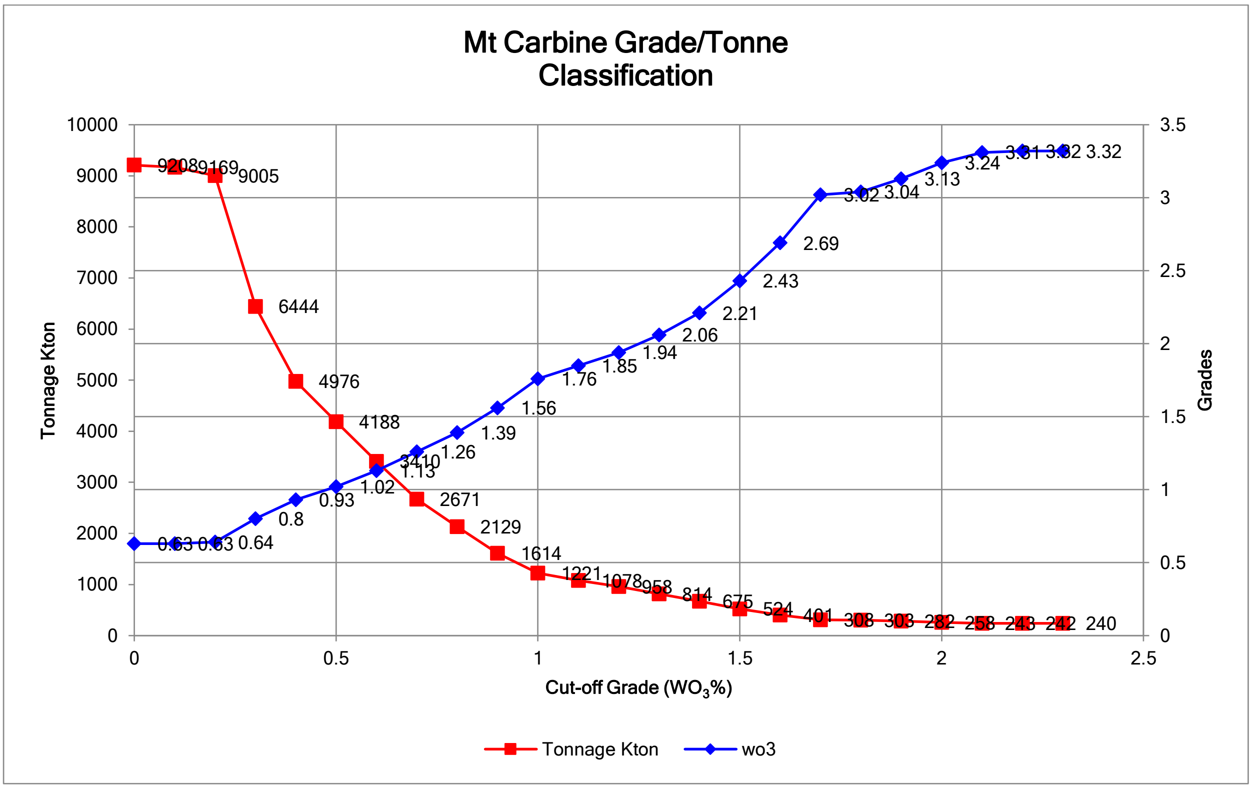



Table 10-2: Mt Carbine Insitu Mineral Resource Estimate Grade - Tonnage (by Cut-off Grade)

| Cut-off (%) | WO3% | Tonnage Kton |
|---|---|---|
| 0 | 0.63 | 9208 |
| 0.1 | 0.63 | 9169 |
| 0.2 | 0.64 | 9005 |
| 0.3 | 0.8 | 6444 |
| 0.4 | 0.93 | 4976 |
| 0.5 | 1.02 | 4188 |
| 0.6 | 1.13 | 3410 |
| 0.7 | 1.26 | 2671 |
| 0.8 | 1.39 | 2129 |
| 0.9 | 1.56 | 1614 |
| 1 | 1.76 | 1221 |
| 1.1 | 1.85 | 1078 |
| 1.2 | 1.94 | 958 |
| 1.3 | 2.06 | 814 |
| 1.4 | 2.21 | 675 |
| 1.5 | 2.43 | 524 |
| 1.6 | 2.69 | 401 |
| 1.7 | 3.02 | 308 |
| 1.8 | 3.04 | 303 |
| 1.9 | 3.13 | 282 |
| 2 | 3.24 | 258 |
| 2.1 | 3.31 | 243 |
| 2.2 | 3.32 | 242 |
| 2.3 | 3.32 | 240 |

## 10.1 RECONCILIATION TO PRIOR ESTIMATES

The current estimate (September 2021) covers approximately 60% of the previously modelled area, which accounts for the large tonnage difference between the current and previous estimates. The difference in grade between the current estimate (higher) and the previous estimate (lower) is due to the different modelling methodology – the current estimate is more selective in modelling the orebody, when compared to the previous estimate that modelled a bulk mining scenario.

The following table (Table 10-3) shows a summary of differences between the current and previous Mineral Resource estimates.

Table 10-3: Comparison with Previous Resource Estimates

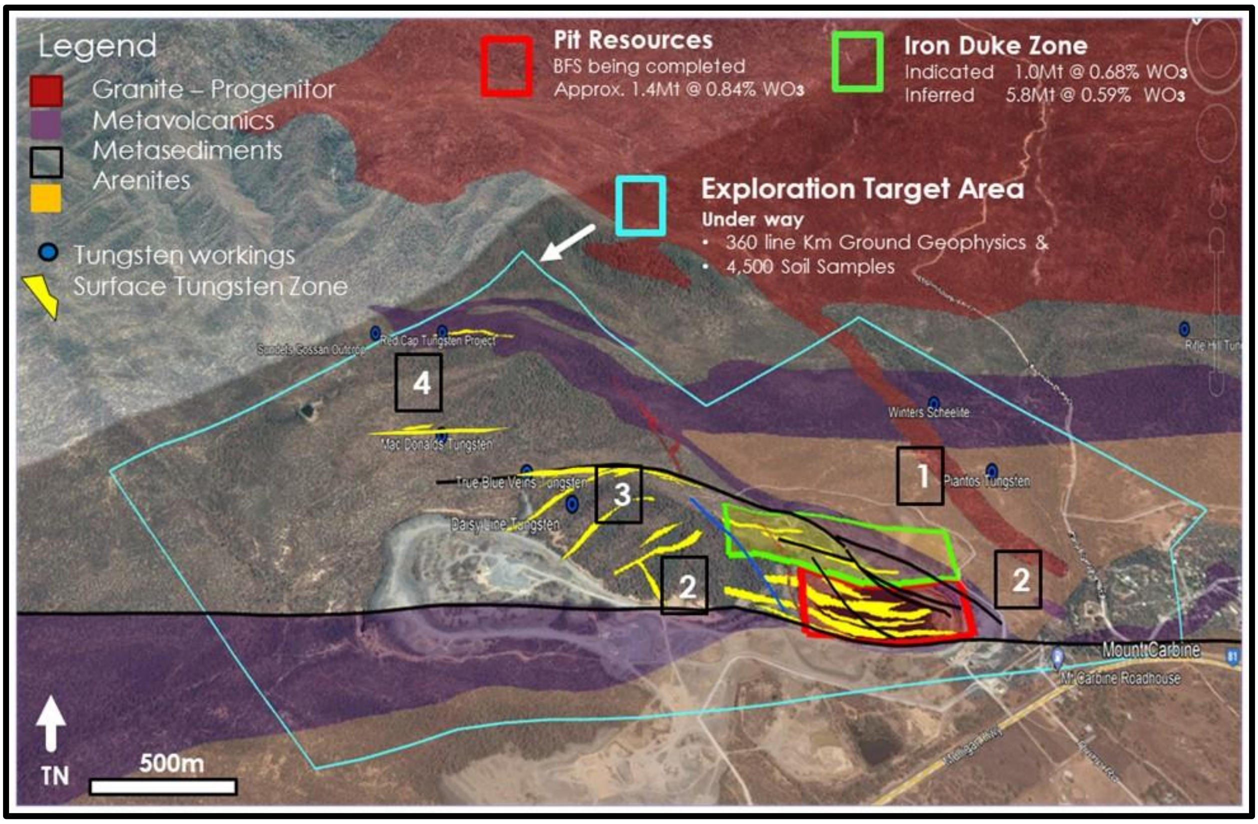
| Deposit | Estimator | Year | Class | In Pit Hard Rock | | | LGS | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Tonnes (Mt) | WO3 (%) | WO3 (mtu) | Tonnes (Mt) | WO3 (%) | WO3 (mtu) | Tonnes (Mt) | WO3 (%) | WO3 (mtu) |
| Mt Carbine Insitu | GeoStat | 2010 | Measured | - | - | - | - | - | - | | | |
| | | | Indicated | | | | | | | 127.6 | 0.064 | |
| | | | Inferred | 127.6 | 0.064 | | | | | | | |
| Mt Carbine Insitu | White | 2014 | Measured | - | - | - | - | - | - | | | |
| | | | Indicated | 18 | 0.14 | 2,252,000 | 12 | 0.07 | 840,000 | 59.3 | | 6,876,000 |
| | | | Inferred | 29.3 | 0.12 | 3,516,000 | | | | | | |
| Mt Carbine Insitu | Measured Group | 2021 | Measured | - | - | - | - | - | - | | | |
| | | | Indicated | 2.4 | 0.74 | 1,776,000 | 12 | 0.075 | 900,000 | 21.21 | | 6,693,900 |
| | | | Inferred | 6.81 | 0.59 | 4,017,900 | | | | | | |

# 11. EXPLORATION POTENTIAL

The recent geological works have been confined to the red and green squares in Figure 11-1 below. The Blue zone shows the area identified as having potential to extend the Mt Carbine orebody, which includes 4 major targets:

1. Upgrade the Iron Duke Inferred Mineral Resources into Indicated Resources (Figure 11-1) - Iron Duke contains 5.8 Mt @ 0.59% $WO_3$.
2. Extend the known veins along strike extents both Grid West and East.
3. Drill to the depth where tungsten continues in Iron Duke – Talis Zone.
4. Evaluate and test the True Blue, Daisy, MacDonald's and Red Cap Zones.

Figure 11-1: Potential Mineral Resource and Orebody Extension Areas




Given the extent of surface vein traces, the open depth consideration and the 5 immediate tungsten working areas it is conceivable that the resource could significantly increase from its current size. EQR should consider targeting future drilling to continue to replace mined ore.

On a regional scale, there are over 50 locations with historical workings within EQR's exploration tenements, which have reported tungsten or tin mineralisation and it is recommended that geological mapping, sampling and follow up drilling be completed. The location of drill targets within EQR's exploration tenements is shown Figure 11-2 and Figure 11-3 below.

Figure 11-2: Regional Targets Within EQR's Exploration Tenements

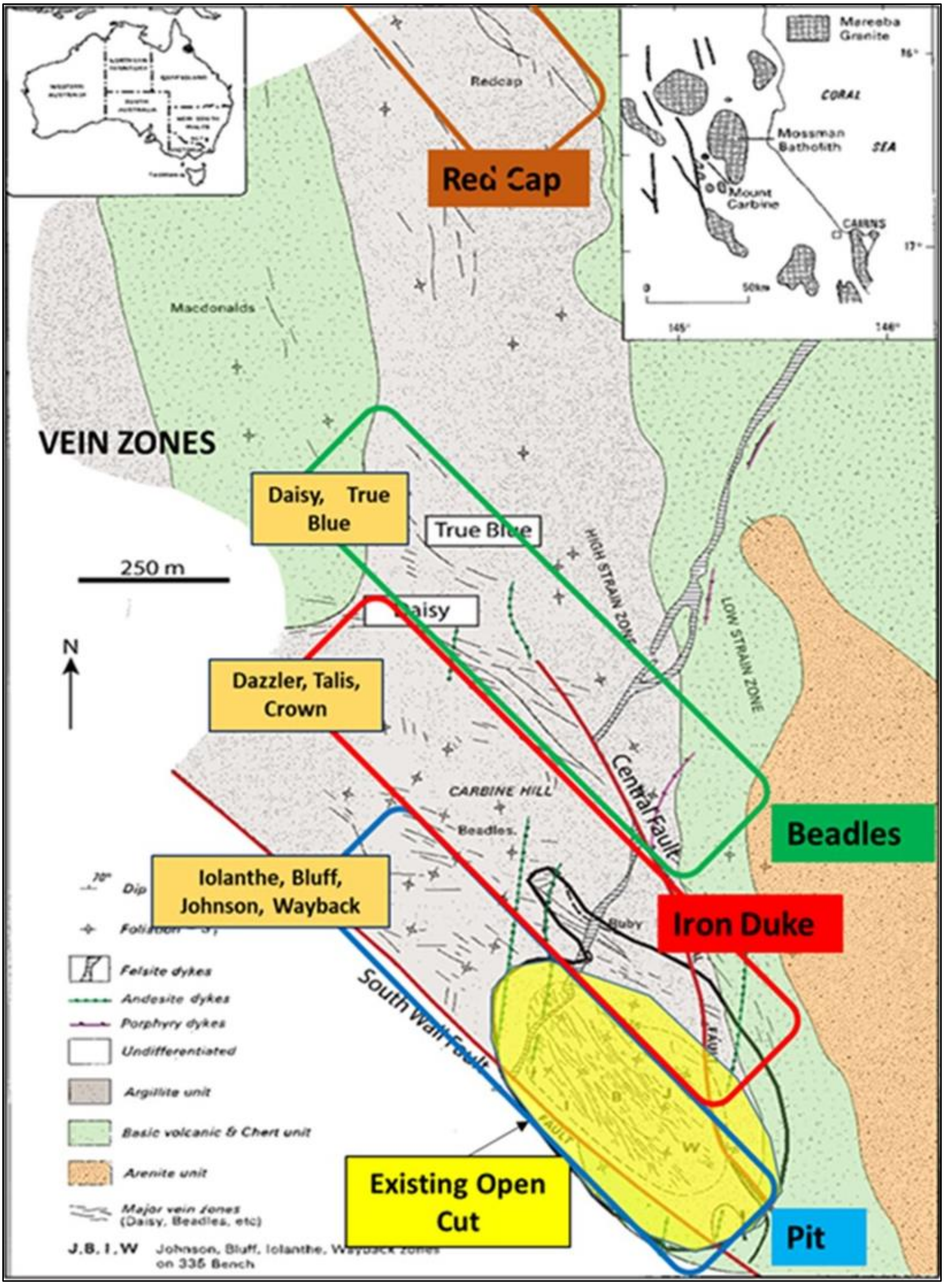
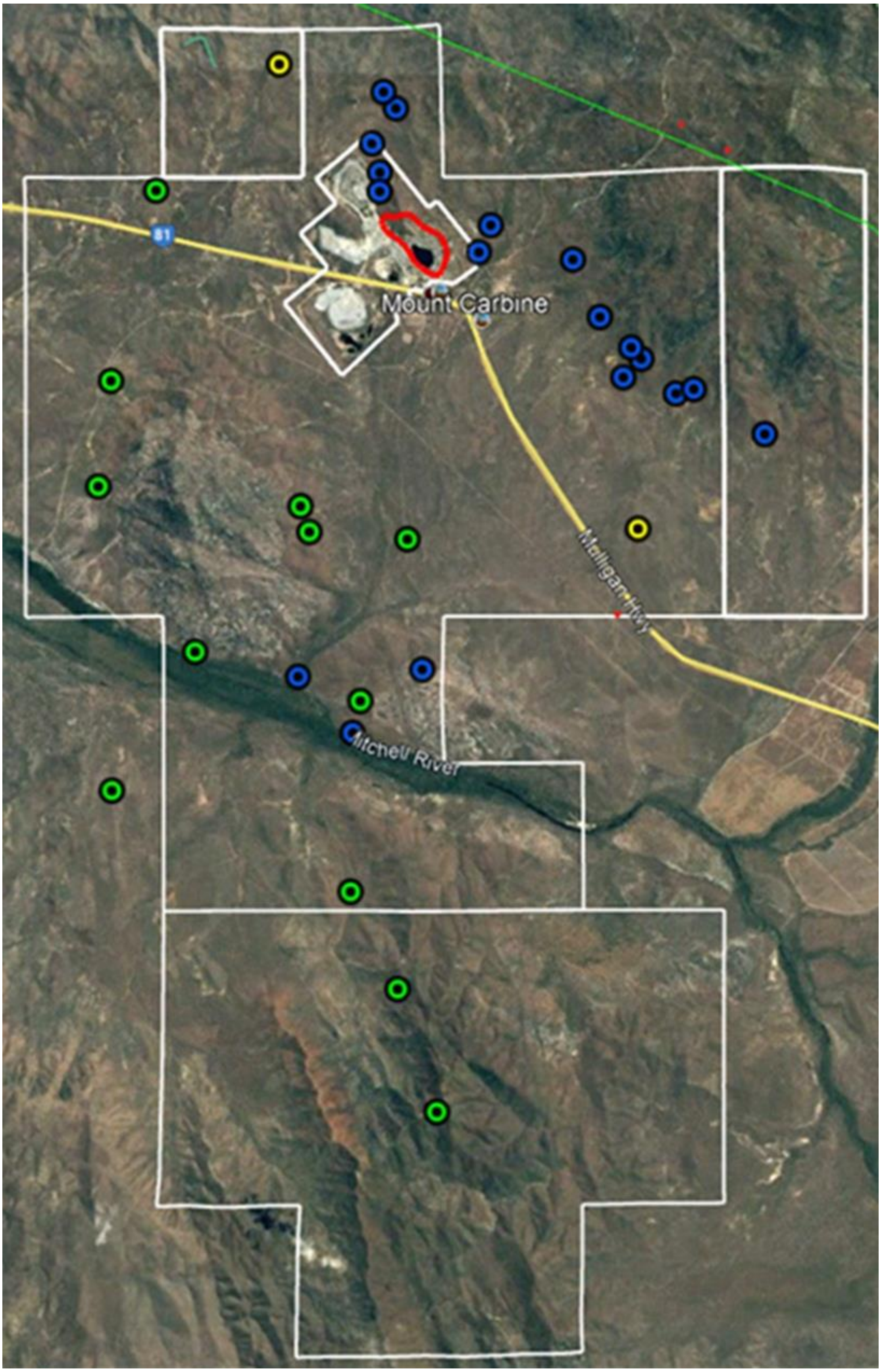


Figure 11-3: Targets within EQR's Exploration Tenements



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# APPENDIX A: JORC TABLE 1 – INSITU OREBODY

## Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections)

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *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.- 'reverse circulation 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.* | - All zones of potential mineralisation were logged and sampled by cutting the core interval selected in half and the complete half core being sent to ALS Laboratories in Brisbane Australia for analysis.<br>- Before cutting and sampling the core is logged with zones of visual minerals of wolframite and scheelite recorded by their percentages. scheelite glows under ultraviolet light and although difficult to distinguish under ordinary light from quartz-carbonate it is visual under the shortwave 254nm UV light with a common technique to estimate grade being to trace out individual crystals and determine the overall percentage shown on the face of the core. Often the mineralisation is manifested as very coarse tungsten mineral crystals of up to 10cm in size.<br>- The method used for the analysis of Tungsten was ME-XRF15b where the sample was fused into a disk in a furnace and then analysed by a Bruker X-ray Fluorescent machine. ALS is a registered laboratory that conducts internal and external round-robin analysis to maintain its certification and to ensure that the machine being used for analysis is correctly calibrated. The Assaying is completed at 10ppm accuracy, It is important in this process that the sample is homogenous, and as such the sample is prepared by crushing and grinding to less than 200 microns to ensure homogeneity.<br>- All quartz veins intersected in the drilling have been assayed as separate samples. Where the veins are more than 1m in downhole length then the sample is broken into two or more samples each with a maximum of 1m intervals. The minimum vein assayed is 5cm in width. Since the mineralisation at Mt Carbine often occurs in narrow widths of 5-500cm then it is important to assay each such narrow zones. On either side of the mineralised zone, samples are also taken of the host rock at intervals of 1m to ascertain if the mineralisation has extended into the host rocks.<br>- Drilling at Mt Carbine was completed by HQ and NQ sized diamond drilling rig that used both double and triple tube-drilling techniques, HQ was drilled down until the South Wall Fault was intersected and then cased off before continuing in NQ drill size. The footwall of this fault has no mineralisation as noted under the geology section and this fault truncates all observed mineralisation. The full core being collected and marked for its depth and orientation. The core was drilled using a digital orientation method and the Reflex Act III tool system. Recording hole orientation and hole survey that is wirelessly transmitted to back-end computer for recording. |
| Drilling techniques | • *Drill type (e.g.- core, reverse circulation, 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).* | - Drilling at Mt Carbine was completed by HQ and NQ sized diamond drilling rig that used both double and triple tube-drilling techniques, HQ was drilled down until the South Wall Fault was intersected and then cased off before continuing in NQ drill size. The footwall of this fault has no mineralisation as noted under the geology section and this fault truncates all observed mineralisation. The full core being collected and marked for its depth and orientation. The core was drilled using a digital orientation method and the Reflex Act III tool system. Recording hole orientation and hole survey that is wirelessly transmitted to back-end computer for recording.<br>- |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| Drill sample recovery | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | - Core was marked with core blocks typically at 1.5 & 3.0m intervals by the drilling company using stick up techniques that ensure measurement to 1cm accuracy.<br>- The core showed very high recoveries with 99% recovered on the entire campaign to date. With the extreme hardness of the quartz zones, no loss from drilling has been recorded to date, nevertheless, each interval is measured to ensure this is the case. The core is hard and competent and all sampling in this programme is below the base of oxidation. Host rocks are metasediments that have been silicified and then crosscut by sheeted white quartz veins. |
| 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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | - The core has been re-joined into long sticks and photographed using a high-resolution camera for both dry and wet images. The core has a geotechnical log completed and core marked up and measured for recovery etc. Using the marks provided during the drilling an orientation line is marked down the full length of the core. Post sampling, the core has been selected for alteration mapping and petrographic studies but have yet to be sent to the relevant consultancy's.<br>- Logging is quantitative in its description of alteration intensity, mineral types in percentages using geological percentage charts. |
| Sub-sampling techniques and sample preparation | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | - The core is cut in half using a diamond saw along the centre line marked referred above being the mark for the orientation of the core. Half core was used in all sampling collections.<br>- Each sample was weighed and marked correctly in consecutive order with a space left for the insertion of standards and this was done every 10th sample for 10% checks and balances. No samples were combined for assay with each sample assayed separately and are either a vein or host rock.<br>- EQR completed a comprehensive assessment of past core including duplicates and repeats to establish that the ALS assaying shows consistency and accuracy and historical results were accurate. EQR inputs 10% of the samples sent to the laboratory as either a blank or predetermined assay standard. With each batch of results sent there is a minimum of 5 check samples inserted. |
| 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.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the* | - Tungsten best corresponds to X-ray Fluorescence assay techniques and the best of these techniques uses a fusion disk where a representative sample of the core is taken after fine grinding until a homogenous sample is obtained (<200 microns) and then melted in an arc furnace to produce a clear fused disc. This disk is then x rayed with the fluorescence recorded by way of spectral peaks. The machine needs to be calibrated to record quantitative results. The instrument is a Bruker multi-shot XRF machine with an X-ray scan of 1 minute applied to each disk to get the light and heavy elements. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| | *analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *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.* | - All checks are also assayed in each batch in their order with 10% check samples submitted alternatively being either a blank, a tungsten standard or a repeat sample with a known grade. Precision is 10ppm for this technique with our samples noted as being significant above 1000ppm. Only in one instance, the results do not match visual in sample no. 100216 and 100217, which are vein and host rock. By the weights of each of these samples, it was determined that the grade of 0.72% was in the vein, not the host rock i.e. samples at the lab have been switched. |
| Verification of sampling | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | - Each mineralised interval is recorded by the Site Resource geologist and then checked for accuracy by the company's chief geologist before cutting and sampling occurs.<br>- No twinned holes have been completed in this programme<br>- Data is completed using a paper log sheet with the information then transferred to a digital database holding all the information on drilling, surveying, assays, recovery, Geotech info etc.<br>- No uppercuts were applied in reporting exploration results and only results where an individual assay was taken are used. No partial intervals or subsets were used.<br>- Drill intervals quoted are down-hole intervals as the true widths will only be determined once the accurate orientation of the veins occurs. |
| Location of data points | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | - Surveying of the drill holes was completed using a Garmin GPS61 model GPS for locating the collar coordinates in the WGS84 Datum system. Downhole surveys were conducted every 30m down the hole except for the pre collar zones. These zones reached up to 120m in depth with HW casing being installed before continuing drilling in NQ sized core. All survey data were input into the database and then plotted using Leapfrog Mining Software to determine any swings in the hole.<br>- Topography has in 2020 been upgraded to10cm accuracy using a LIDAR Drone survey technology with the topography having high-resolution photography overlaid.<br>- Holes were in July surveyed by Differential GPS against known trig stations and converted to local grids by professional surveyor Neil Murphy who was Project Manager from Brazier Motti Pty Ltd based in Cairns, North Queensland. |
| Data spacing and distribution | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | - Drilling Is currently designed to complete the testing of the zone beneath the historical pit at a spacing of 50 x 50m.<br>- In several locations, drilling spacing's were completed down to 25m to provide additional data and confirm the grade and widths of zones etc.<br>- Sampling compositing has occurred in the reporting of results of this press release using weighted averages for the assay result and a total distance for the length of the geological interval. |

| Criteria | JORC Code Explanation | Details |
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| 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.*<br>• *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 drilling was done at right angles to trend of the mineralisation on a localized grid that has been used since the 1960s and this local grid has been used to orientate all 90+ drill holes completed on the property. This allows for regular spacing and interpretations of the deposit veins.<br>- Depending on the hole angle and attitude of the vein the released results which are down-hole intervals will report a longer interval than the true width of the vein. No bias has been determined for the mineralisation as the mineralised veins show remarkable parallel zones and it is deemed that the drilling has been completed at the best angle to give a true indication of the zones. |
| Sample security | • *The measures taken to ensure sample security.* | - The core is transported daily to a fenced core shed yard. This yard remains locked after work hours and contains a roofed shed within which core racks are installed the house the core. On a more permanent basis, each hole is cling wrapped and put on a separate pallet and put in its number place at the core farm.<br>- All samples are taken and bagged and placed in this locked enclosure in larger 1-tonne bags. Rejects from the sampling are also stored should a check be required or further element analysis is needed. The larger bags are inspected on arrival at ALS to ensure no tampering has occurred to the samples. |
| Audits or reviews | • *The results of any audits or reviews of sampling techniques and data.* | - An internal audit of techniques was completed to check for any sample bias or variances being introduced to the samples. No biases were encountered. |

## Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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.*<br>• *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.* | - All 16 holes completed to date have been located within ML4919 and ML4867 owned by Mt Carbine Quarries Pty Ltd which is a 100% wholly-owned subsidiary of EQR. All licenses are in good standing.<br>- ML4867 (358.5Ha) is up for renewal on 31/7/2022 and ML4919 (7.891Ha) is up for renewal on 31/8/2023. No impediments exist at the current point for operations on these licenses. |
| Exploration done by other parties | • *Acknowledgment and appraisal of exploration by other parties.* | - Historical drilling is extensive with the history of previous mining and drilling outlined in the Company's Annual reports available on the Company's website.<br>- In reference to this drilling all historical holes with their intersections compiled using the same criteria as current drilling have been reported previously (High-grade structural zones extend for 1.2 km: Mt Carbine historical drilling reinterpretation - 16th October 2020) has been recorded on all sections and plans and this has been completed by various companies over the past 25 years. |
| Geology | • *Deposit type, geological setting and style of mineralisation.* | - The deposit falls into the sheeted hydrothermal tungsten vein style that is associated with the Mareeba Granodiorite. The veins are narrow from 5 to 500cm in width and extend for up to 1.2 km along strike as currently understood. They have been drilled over a 400m vertical extent and occur in groups designated as zones and referred to as Iolanthe, Bluff, Wayback, Johnson, Dazzler and Iron Duke. The veins with higher grade mineralisation occur as late veins and overprints on an extensive early vein system that has weaker tungsten mineralisation or no mineralisation. This late overprint is what EQR is chasing in the current drill programme. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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:*<br>○ *easting and northing of the drill hole collar*<br>○ *elevation or RL (Reduced Level - elevation above sea level in metres) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.*<br>• *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.* | - Included in the sections and plans are all the relevant information required to show the hole location and the mineralised sample location.<br>- Any zones from historical drilling are also shown on the sections and included in any interpretation presented. To be complete, the table here shows the hole status to date. This release refers to Holes EQ019,011,012,013,014,015 & EQ016. No other drill results are pending and this release concludes the full core assaying of the drill programme conducted at Mt Carbine in May-July 2021.<br>- Final Surveyed Collar Coordinates are as follows: |

| Hole | Local East | Local North | Collar RL | Hole Depth | MGA20E | MGA20 N |
|---|---|---|---|---|---|---|
| EQ001 | 22793.29492 | 26175.82106 | 389.439 | 309.1 | 300503.874 | 8172066.78 |
| EQ002 | 22793.41779 | 26175.39402 | 389.476 | 341.8 | 300503.622 | 8172066.414 |
| EQ003 | 22735.67684 | 26170.49057 | 387.446 | 299 | 300463.183 | 8172107.92 |
| EQ004 | 22704.38819 | 26174.92271 | 386.265 | 327.3 | 300446.748 | 8172134.911 |
| EQ005 | 22657.44611 | 26173.67852 | 386.836 | 312.3 | 300415.991 | 8172170.395 |
| EQ006 | 22876.19613 | 26188.5927 | 383.632 | 309.3 | 300566.363 | 8172010.826 |
| EQ007 | 23014.29447 | 26328.15149 | 364.188 | 48 | 300761.86 | 8171992.695 |
| EQ008 | 23014.27784 | 26329.30655 | 364.092 | 60.5 | 300762.742 | 8171993.441 |
| EQ009 | 23013.84874 | 26330.95831 | 364.151 | 171.5 | 300763.746 | 8171994.821 |
| EQ010 | 22656.84169 | 26177.01685 | 386.88 | 243.3 | 300418.187 | 8172172.981 |
| EQ011 | 22765.35824 | 26173.37812 | 388.697 | 285.3 | 300484.254 | 8172086.817 |
| EQ012 | 22624.09483 | 26185.78499 | 387.839 | 414.6 | 300404.177 | 8172203.851 |
| EQ013 | 22910.78033 | 26189.68667 | 382.757 | 294.2 | 300589.16 | 8171984.796 |
| EQ014 | 22956.99776 | 26203.604 | 382.717 | 300.4 | 300629.25 | 8171957.916 |
| EQ015 | 22841.07576 | 26177.61216 | 386.779 | 306.3 | 300535.586 | 8172030.995 |
| EQ016 | 23055.56556 | 26321.2707 | 380.383 | 48.4 | 300782.739 | 8171956.436 |

***These Coordinates are final survey points collected by Motti Survey using Differential GPS.***

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | - Weighted averages are used for any results combined with no uppercuts applied. A zone reported may contain results with no grade provided it is the same zone used on other sections, to maintain geological uniformity between the sections.<br>- Only those zones where the combined metal factor being the 'grade x interval' is above 2m@0.25% * i.e. a metal factor of 0.5) Tungsten Trioxide (WO3) are reported as being significant in this release. e.g. 0.3 @ 8.0% WO3 has a metal factor of 2.4 and qualifies but 4m @ 0.1% with metal factor of 0.4 does not qualify. |
| Relationship between mineralisation widths and intercept length | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.*<br>• *If it is not known and only the downhole lengths are reported, there should be a clear statement to this effect (e.g.- 'down hole length, true width not known').* | - The results reported are downhole intercepts' and not true widths. Although all drilling has been completed at right angles to the strike of the veins, the holes may intercept the vein at an angle given that the veins generally are from 60-90 degrees in dip. To determine true width requires the individual veins to be orientated in space and the surveyed hole to also be known at that point.<br>- For orientation, all veins are being measured for both Alpha and Beta angels to enable the absolute dip and direction of each vein to be determined in the orientated core. The veins do vary in their strike and dip and until the orientations have been entered into the database along with the surveyed hole angles, and run through the leapfrog mining software true widths are not known. Interception true widths may vary from being 0.3 of the downhole interval to no change to the downhole intervals. The point of interception of the vein and the attitude of the hole at this point determines the true width and this calculation has not been done. It should also be noted that in quite a few instances the angles of the same vein varies significantly on either margin. In these instances, true width will be calculated on the average dip and strike When any resources will be calculated in the future only true width intervals will be used. |
| 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 drill hole collar locations and appropriate sectional views.* | - A local grid is used in the drilling to ensure the drilling has been completed at right angles to the strike of the mineralisation. The local grid is at a 51-degree rotation westwards to true north; i.e.<br>- Local Grid North-South is aligned at 51 degrees against true north with a yearly deviation occurring as the continents drift.<br>- The six sections included in this press release show both of the sections where results have been received and also shows the current interpretation of the geology for these section including faults, surveyed hole traces including any historical old holes traces and their results. As the spacing of the current holes is nominally 50m, each section represents a slice that is 25m on either side of the reported drill hole for completeness. The sections are shown looking grid west with a true north arrow indicating the lock grid offset. North and South are shown on the sections to orientate the reader as well as the Easting of the section clearly shown at the top of each section. To show how the sections relate to each other and other holes completed in this programme a plan is provided with grid sale and each section has been marked by its Local Grid Easting on which it occurs. Scale is |

| Criteria | JORC Code Explanation | Details |
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| | | shown in metres by a 50 x 50m grid pattern over both plans and sections. On both plans and sections, the present geological interpretation is indicative to give the reader guidance on the zones being drilled. Holes with no assay information are shown in blue. |
| 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.* | - All zones that meet the criteria of significance as defined above have been recorded and shown on the associated cross-sections. Where there is a blank it means no results met with the criteria used as significant results. At this point, only the data is represented with the most recent geological interpretation, but no resource association is implied with the release of these results.<br>- The zones on each section refer only to the results being released for the current hole and the results of adjacent old holes are not included as this is not new information. |
| 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.* | - The mineralisation occurs as narrow late quartz veins overprinting an earlier phase of quartz veining that reaches up to 30% of the zones marked on the sections. Although all quartz veins are sampled to be complete, most are from the earlier event that has no mineralisation associated with it. The interpretation is cantered on those veins that do carry tungsten and what is perceived as the controls to these zones.<br>- More than 100 bulk densities have been completed at the project and the host rock and mineralised zones record bulk densities of 2.6 and 2.8 respectively with 2.74 as the average bulk density<br>- The South Wall Fault marked on the maps has truncated much of the veining as shown on the sections. The current interpretation of this fault is that is a reverse thrust fault with the footwall dropping an unknown distance. |
| 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).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | - The company continues to drill to outline the limits of the mineralisation in both strike and depth constraints. The target is limited to what might be considered in an open cut extension of the pit but several holes were extended to look at the potential of additional veins such as Iron Duke for a future underground operation. |

## Section 3 - Estimation and Reporting of Mineral Resources

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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.*<br>• *Data validation procedures used.* | - The specific measures taken by previous parties to ensure database integrity are not known but the creation of a digital database has allowed for ongoing review of the integrity of the data.<br>- EQR maintains a database that contains all drill hole surveys, drilling details, lithological data and assay results. Where possible, all original geological logs, hole collar survey files, digital laboratory data and reports and other similar source data are maintained by EQR. The database is the primary source for all such information and was used by the Competent Person to estimate resources.<br>- The Competent Person undertook consistency checks between the database and original data sources as well as routine internal checks of database validity including spot checks and the use of validation tools. No material inconsistencies were identified. |
| Site visits | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | - The Competent Person (Mr C. Grove) carried out a site visit to the Mt Carbine Tungsten Project in North Queensland, Australia in April 2021. During the site visit, Mr Grove verified the existence and location of a subset of the historic drill hole collars in the field, inspected the drill core, reviewed the metallurgical and mineralogical test work that was previously completed, reviewed the extensive geological database.<br>- Mr Grove verified the current drilling practices and procedures and sampling and pre-processing of samples before sending them to the laboratory.<br>- Mr Grove considers the work completed to be of industry standard and acceptable for use in the estimation of mineral resources. |
| Geological interpretation | • *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*<br>• *Nature of the data used and of any assumptions made.*<br>• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*<br>• *The use of geology in guiding and controlling Mineral Resource estimation.*<br>• *The factors affecting continuity both of grade and geology.* | - Geological setting and mineralisation controls of the Mt Carbine Project mineralisation have been confidently established from drill hole logging and geological mapping, including the development of a robust three-dimensional model of the major rock units.<br>- The geological domains are based on a minimum 2m downhole depth of mineralisation. The composited grades are based on sampled, assayed results and barren zones to create a zone of mineralisation for geological modelling and resource estimation based on these composited grades.<br>- Due to the confidence in the understanding of mineralisation controls and the robustness of the geological model, investigation of alternative interpretations is unnecessary. |
| Dimensions | • *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width,* | - Drilling indicates that the mineralisation continues up to 1300m along strike and up to 600m wide. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| | *and depth below surface to the upper and lower limits of the Mineral Resource.* | - The limits of mineralisation have not been completely defined and are open at depth and along strike. |
| 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.*<br>• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*<br>• *The assumptions made regarding recovery of by-products.*<br>• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g.- sulphur for acid mine drainage characterisation).*<br>• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*<br>• *Any assumptions behind modelling of selective mining units.*<br>• *Any assumptions about correlation between variables.*<br>• *Description of how the geological interpretation was used to control the resource estimates.*<br>• *Discussion of basis for using or not using grade cutting or capping.*<br>• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.* | - A statistical analysis was undertaken on the composited drillhole file to assess the appropriateness of the domaining process and as such, no additional domaining was undertaken. All domains were interpolated using ordinary kriging (“OK”).<br>- Mineralisation was modelled as three-dimensional blocks of parent size 10m X 10m X 10m with sub-celling allowed to 0.5m X 0.5m X 0.5m.<br>- No assumptions were made regarding the modelling of selective mining units.<br>- Validation of the block model was made by:<br>- checking that drill holes used for the estimation plotted in expected positions;<br>- checking that flagged domains intersections lay within, and corresponded with, domain wireframes;<br>- ensuring whether statistical analyses indicated that grade cutting was required;<br>- checking that the volumes of the wireframes of domains matched the volumes of blocks of domains in the block model;<br>- checking plots of the grades in the block model against plots of drill holes;<br>- Historical estimates were examined and the comparisons were similar yet inconclusive due to the ‘discreet’ style of geological interpretation in this estimate compared to the larger, all-encompassing lower grade style previously. |
| Moisture | • *Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.* | - Tonnages were estimated on a dry basis. |
| Cut-off parameters | • *The basis of the adopted cut-off grade(s) or quality parameters applied.* | - No cut-off grades were applied to the Mt Carbine Resource Estimate.<br>- The mineralised material is interpreted to have ‘reasonable prospects of eventual economic extraction’ by open-pit methods and by underground mining methods. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| 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.* | - The resource estimate has been completed with the assumption that it will be mined using open cut and underground mining methods. No other detailed assumptions have been made to date. However, EQR will be completing a Feasibility Study on this resource estimate model, and when completed, more detailed assumptions will be able to be applied. |
| 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.* | - Historical production shows the Mt Carbine Project was in the lowest quartile cost of production of western producers and produce very high-grade wolframite (>70% WO3) and scheelite (68-72%WO3) concentrates with no or very low impurity penalties.<br>- The main processes involve crushing to several different product sizes and then screening to create the product.<br>- These processes are in current production and lead to the ‘reasonable prospects for eventual economic extraction’ considered by the Competent Person. |
| 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.* | - There has been recorded mining activity at the Mt Carbine Project between 1974-1987.<br>- There is currently re-processing of low-grade ore from the stockpile constructed from the discarded material and existing tailings dam.<br>- Near the project site, the land is mainly used for forestry, livestock farming and recreational activities.<br>- As the potential mine area contained an active open-pit mine up until 1987; and is still by law considered an active Mining Licence Area, development near the deposit has been limited.<br>- A surface water sampling programme (now in place for two years) for environmental monitoring.<br>- Completion of 5 twinned water monitoring bores to aid monitoring of groundwater regimes for environmental management.<br>- Development of an application for a higher level of Environmental Approval to cover the mining activities and processing. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| Bulk density | • *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*<br>• *The bulk density for bulk material must have been measured by methods that adequately account for void spaces (i.e. vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | - A total of 1,048 density measurements from drill core were completed.<br>- The methodology of density measurements was as follows:<br>- A length of solid and intact/unbroken core with essentially zero porosity was selected and the ends were carefully cut with a diamond saw to make a near-perfect cylinder.<br>- The core was then sun-dried and the length and diameter of the cylinder (average of three readings with callipers) and an accurate weight were recorded to permit a simple volume/dry weight density estimate.<br>- Density measurements were analysed for any spatial trends by easting, northing and depth, with no obvious trends detected.<br>- Hence, an average density of 2.74 was applied to the whole deposit. |
| Classification | • *The basis for the classification of the Mineral Resources into varying confidence categories.*<br>• *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).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | - Classification of the Mineral Resource estimate was interpreted on several criteria, including confidence in the geological interpretation, the integrity of the data, the spatial continuity of the mineralisation and the quality of the estimation.<br>- An assessment of the historical mining showed increased confidence in the surrounding areas of the open-pit and confirmed by drilling results.<br>- The classification reflected the author's confidence in the location, quantity, grade, geological characteristics and continuity of the Mineral Resources.<br>- The data spacing and distribution is sufficient to establish geological and grade continuity appropriate for Mineral Resource estimation and classification and the results appropriately reflect the Competent Person's view of the deposit. |
| Audits or reviews | • *The results of any audits or reviews of Mineral Resource estimates.* | - An internal audit of techniques was completed to check for any bias or variances being introduced to the resource estimate. No biases were encountered. |
| 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, a qualitative* | - The estimates made for this report are global estimates. Predicted tonnages and grades made from such block estimates are useful for feasibility studies, and long-, medium- and short-term mine planning. Individual, as distinct from aggregated, block estimates should not be relied upon for block selection for mining. |

| Criteria | JORC Code Explanation | Details |
|---|---|---|
| | *discussion of the factors that could affect the relative accuracy and confidence of the estimate.*<br>• *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.*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | - Local block model estimates, or grade control estimates, whose block grades are to be relied upon for selection of ore from waste at the time of mining will require additional drilling and sampling of blast holes.<br>- Confidence in the relative accuracy of the estimates is reflected in the classification of estimates as Indicated and Inferred.<br>- Variography was completed for Tungsten. The variogram models were interpreted as being isotropic in the plane with shorter ranges perpendicular to the plane of maximum continuity.<br>- Validation checks have been completed on raw data, composited data, model data and Resource estimates.<br>- The model is checked to ensure it honours the validated data and no obvious anomalies exist which are not geologically sound.<br>- The mineralised zones are based on actual intersections. These intersections are checked against the drill hole data. The Competent Person has independently checked laboratory sample data. The picks are sound and suitable to be used in the modelling and estimation process.<br>- Further drilling also needs to be completed to improve the Resource classification of the Inferred Resource. |

# APPENDIX B:  JORC TABLE 1 – LOW-GRADE STOCKPILE

## Section 1 - Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

| Criteria | 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.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *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. 'reverse circulation 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.* | - Bulk sampling utilizing 8 costeans dug with an excavator around the perimeter of the stockpile, costeans ranging up to 10m deep and 50m long.<br>- Grab sampling at 80 locations (samples approximately 20kg each of minus 100mm material) for mineralogical and chemical characterisation of mineralised rock for environmental permitting purposes. |
| Drilling techniques | • *Drill type (e.g. core, reverse circulation, 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.).* | - N/A |
| Drill sample recovery | • *Method of recording and assessing core and chip sample recoveries and results assessed.* | - N/A |

| Criteria | Explanation | Commentary |
|---|---|---|
| | • *Measures taken to maximise sample recovery and ensure representative nature of the samples.*<br>• *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.* | |
| 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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | - N/A |
| Sub-sampling techniques and sample preparation | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | - The bulk sample was coned and quartered with the excavator to 2,000 tonnes. This subsample was crushed to minus 50mm and screened into three size ranges: 20-50mm, 10-20mm and minus 10mm. Each size fraction was sampled by channel sampling.<br>- The grab samples were crushed to minus 3mm, split, and sub-samples pulverised and assayed for a range of elements including tungsten (the latter by fused disk XRF). |
| Quality of assay data and | • *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* | - The channel samples were analysed by fused disk and check analyses were carried out on-site with a Niton portable XRF analyser after careful calibration of this instrument. |

| Criteria | Explanation | Commentary |
|---|---|---|
| laboratory tests | • *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.*<br>• *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.* | |
| Verification of sampling and assaying | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data* | - See Above |
| Location of data points | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*<br>• *Specification of the grid system used.*<br>• *Quality and adequacy of topographic control.* | - Costean locations are shown in the body of the report. |
| Data spacing and distribution | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | - Costean locations are shown in the body of the report. |

| Criteria | Explanation | Commentary |
| --- | --- | --- |
| 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.*<br>• *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.* | - N/A |
| Sample security | • *The measures taken to ensure sample security.* | - The bulk sample crushed and screened size splits are stored on-site, and the crushed grab samples and pulverized splits are stored in the mine core shed. |
| Audits or reviews | • *The results of any audits or reviews of sampling techniques and data.* | - The bulk sampling procedures were subject to review by the Competent Person retained to supervise the X-ray ore sorter trials. |

## Section 2 - Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

| Criteria | 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.*<br>• *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.* | - The resource estimates reported herein are all within Mining Leases 4867 (358.5ha, expiry 31-07-22) and 4919 (7.891ha, expiry 31-08-2023), held by Mt Carbine Quarries Pty Ltd. The Mining Leases lie within Brooklyn Grazing Homestead Perpetual Lease. Native Title has been extinguished in the Mining Leases by Deed of Grant. |

| Criteria | Explanation | Commentary |
|---|---|---|
| Exploration done by other parties | • *Acknowledgment and appraisal of exploration by other parties.* | - No previous examination of the LGS was carried out.<br>- A nearly complete record of mine production, including amounts of mined rock consigned to the LGS has been compiled using published and unpublished archives, including reporting for State Royalty returns. |
| Geology | • *Deposit type, geological setting and style of mineralisation.* | - **The Deposit**<br>- The Mt Carbine tungsten deposit is a sheeted quartz vein deposit. Many sub-parallel, sub-vertical quartz veins have been deposited in fractures developed in the host rocks metasediments in a zone that drilling and mapping of historical surface workings have shown to be approximately 300m wide and at least 1.4 km long, trending at about 315 degrees.<br>- **Grade Variation**<br>- Sampling, drill core logging, geostatistical analysis of drill core assay data and mapping of the open pit have determined that all the material mined during the previous operation was mineralised to some extent and that the mineralogy of the deposit was uniform. There is little doubt that the mineralogy of the stockpile material is identical to that mined and processed. The material in the stockpile comprises a single formation, the result of the alteration of Siluro-Devonian meta-sedimentary host rocks (Forsythe and Higgins, 1990).<br>- The amount of quartz veining varies within the mineralised zone and previous mining and exploration have been concentrated at the south-eastern end of the mineralised zone. It is well understood that there are high-grade zones within the mineralisation in this part of the deposit and that the higher-grade zones are surrounded by lower grade mineralisation. Interpretation of recent drilling suggests that the main high-grade zone may plunge to the north of the present open pit. The previous mine assumption that quartz vein abundance is directly correlated with grade is not supported by an independent review of quartz vein abundance and grade.<br>-<br>- |
| 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:*<br>• *easting and northing of the drill hole collar* | - N/A |

| Criteria | Explanation | Commentary |
| --- | --- | --- |
| | • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>• *dip and azimuth of the hole*<br>• *down hole length and interception depth*<br>• *hole length.*<br>• *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* | |
| 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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated* | - N/A |
| Relationship between mineralisation widths and intercept length | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* *• If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').* | - N/A |
| Diagrams | • *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should* | - A plan view of sampling is shown in the body of the report. |

| Criteria | Explanation | Commentary |
|---|---|---|
| | *include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.* | |
| 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.* | - N/A |
| 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.* | - N/A |
| 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).*<br>• *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.* | - The bulk sample was subjected to a series of trials through a pilot-scale X-ray ore sorter over 2 months. This work demonstrated that an optimum 6 times upgrade of the tungsten content in the ore sorter accepts and ensuing feasibility studies indicate that the LGS is economic to process utilizing X-ray ore sorting and concentration of mineral in the ore sorter accepts in a conventional gravity mill. |

## Section 3 - Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

| Criteria | 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.*<br>• *Data validation procedures used.* | - N/A |
| Site visits | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | - The Competent Person (Mr C. Grove) carried out a site visit to the Mt Carbine Tungsten Project in North Queensland, Australia in April 2021. During the site visit, Mr Grove verified the existence and location of the production history and inspected the LGS to form an opinion of the data retrieved from the historical production data.<br>- Mr Grove verified the current production practices and procedures, sampling and processing of ore through crushing and screening before the final product is sent to market.<br>- Mr Grove considers the work completed to be of industry standard and acceptable for use in the estimation of mineral resources. |
| Geological interpretation | • *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.*<br>• *Nature of the data used and of any assumptions made.*<br>• *The effect, if any, of alternative interpretations on Mineral Resource estimation.*<br>• *The use of geology in guiding and controlling Mineral Resource estimation.*<br>• *The factors affecting continuity both of grade and geology.* | - Senior geological staff including the Competent Person have developed a sound understanding of the geology and importantly, geometallurgy of the deposit. |
| 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 12Mt tonnes estimated to be contained in the LGS has been derived from nearly complete historical mine records, confirmed by the reconciliation of an independent estimate of total tonnes mined from the open pit (22Mt) less 10Mt material processed through the mill. |

| Criteria | Explanation | - Commentary |
|---|---|---|
| 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.*<br>• *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.*<br>• *The assumptions made regarding recovery of by-products.*<br>• *Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).*<br>• *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*<br>• *Any assumptions behind modelling of selective mining units.*<br>• *Any assumptions about correlation between variables.*<br>• *Description of how the geological interpretation was used to control the resource estimates.*<br>• *Discussion of basis for using or not using grade cutting or capping.*<br>• *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.* | - The detailed distribution of grade through the LGS is not known, as no record was kept of placement of rock consigned to the stockpile, nor was any sampling carried out. The average of assays of the three size range subsamples of the bulk sample is 0.075% $WO_3$. This reconciles very favourably with a back-calculation from historic mine records of production and mill recovery and based on the recent resource estimate which took account of the resource mined during the previous open pit operation, of a global average grade of 0.075% $WO_3$ for the Low-Grade Stockpile.<br>- It should be noted that the historical mine records state that 3.5Mt of rock described as ore was consigned to the stockpile in 1982.<br>- The grab samples average 0.088% $WO_3$ (fused disk XRF analysis), which is taken to indicate that the tungsten grade of the finer fraction (<200mm) of the stockpile is higher than the global average grade of the bulk sample that included fragments up to 500mm. |

| Criteria | Explanation | - Commentary |
|---|---|---|
| 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 an air-dried basis. |
| Cut-off parameters | • *The basis of the adopted cut-off grade(s) or quality parameters applied.* | - No cut off has been applied to the stockpile grade estimation, however, it is planned to screen the stockpiled material at 500mm and only crush and ore sort the minus 500mm fraction, since a growing body of data from ongoing tests indicates that this fraction contains the bulk of the tungsten minerals that it is planned to recover. |
| 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.* | - The stockpile fills a valley and will readily be recovered by excavator and truck. |
| 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.* | - The mineralogy of the material contained in the stockpile is identical to that of the hard rock ore body. The Mt Carbine ore body is low grade in comparison with many other tungsten deposits, however, the highly successful application of ore sorting to preconcentrate this ore to a high-grade mill feed has been demonstrated firstly in the previous mining operation which used optical ore sorters, and secondly by extensive recent trials of X-ray ore sorting of bulk samples of the stockpile and Run of Mine ore by EQR.<br>- Process design and anticipated recoveries have been derived from historical mill flow sheets, reports and trials that have been confirmed by repeat metallurgical testing of bulk samples of stockpile material including Run of Mine ore. |

| Criteria | Explanation | - Commentary |
|---|---|---|
| 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.* | - EQR has been granted an Environmental Authority by the Queensland Department of Environment and Science ("DES") for the Low-Grade Stockpile. Based on the sampling of existing stockpiles, tailings storage facilities and analytical characterisation of the mineralisation, the only elements present at hazardous values are fluorine (as fluorite) and arsenic (as arsenopyrite). Previous mine practice and the present Environmental Management Plan approved by the DES include measures to manage the environmental hazards these elements present. The sampling of the existing stockpiles and tailings storage facility indicates that acid mine drainage will not be a hazard created by future mining and waste storage. |
| Bulk density | • *Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.*<br>• *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.*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | - N/A. The tonnes estimated to be contained in the stockpile have been derived independently of calculation by multiplying volume by density. |
| Classification | • *The basis for the classification of the Mineral Resources into varying confidence categories.*<br>• *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* | - Following extensive metallurgical testing of bulk samples from the stockpile that provide robust anticipated recovery and quality of product, the LGS has been classified as an Indicated Resource. |

| Criteria | Explanation | - Commentary |
|---|---|---|
| | *metal values, quality, quantity and distribution of the data).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | |
| Audits or reviews. | • *The results of any audits or reviews of Mineral Resource estimates.* | - The estimates for the LGS have been subject to internal Company and Independent Competent Persons Company review. |
| 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, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.*<br>• *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.*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | - The success of the proposed stockpile treatment is underpinned by the fact that the same orebody was profitably mined for 13 years by the previous operators. The mine only closed in 1987 because of the price collapse caused by oversupply from Chinese producers dumping products on the market, resulting in the closure of most western tungsten producing mines. Before the price collapse, the Mt Carbine mine operators and their joint venture partners had carried out detailed plans to extend the mine life and maintain production for a further ten years.<br>- The Mt Carbine mine had not run out of ore (there was an estimated 3.5Mt of ore to be extracted from the existing pit before any mine expansion had to be considered). The ore treatment process was well documented, and studies spurred by the collapsing price showed that mill recovery could be significantly increased. This has since been confirmed by test work carried out by EQR. |

# APPENDIX C: DRILL HOLE DATA

Table D 1: Drillhole Collar Locations (Local Grid)

| HOLE ID | EAST | NORTH | ELEVATION | TOTAL DEPTH |
|---|---|---|---|---|
| CB001 | 22772.4 | 26224.6 | 396 | 303.28 |
| CB002 | 22914 | 26241.4 | 396 | 236.4 |
| CB003 | 22775.4 | 26178.4 | 387 | 320.18 |
| CB004 | 22912.4 | 26459 | 386 | 146.46 |
| CB005 | 22853.2 | 26423.3 | 410 | 215.04 |
| CB006 | 22729.5 | 26469 | 443 | 146.08 |
| CB007 | 22974.5 | 26408.4 | 394 | 145.66 |
| CB008 | 22630 | 26246.1 | 391 | 166.27 |
| CB009 | 22694.5 | 26205.7 | 383 | 215.04 |
| CB011 | 22989.6 | 26325.2 | 388 | 102.52 |
| CB012 | 22554.5 | 26206.5 | 384 | 253 |
| CB013 | 22500.8 | 26385.5 | 430 | 140.04 |
| CB014 | 22475 | 26196 | 386 | 297 |
| CB015 | 22605.5 | 26327.2 | 416 | 152 |
| CB016 | 22663 | 26276 | 387 | 240.78 |
| CB017 | 22844 | 26480 | 404 | 176.5 |
| CB018 | 22748.4 | 26717.2 | 383 | 700 |
| CB019 | 22003 | 26695 | 446 | 331 |
| CB020 | 22875.9 | 26176.9 | 383 | 0 |
| CB021 | 22727.3 | 26213.1 | 379 | 68 |
| CB022 | 22973.5 | 26476.6 | 381 | 245 |
| CB024 | 22711.4 | 27075.7 | 372 | 448.2 |
| CB025 | 23052.4 | 27272.5 | 367 | 268 |
| CB029A | 22788.9 | 26637.3 | 384 | 404 |
| CB036 | 23020 | 27327 | 365 | 143 |
| CB037 | 22988 | 27370 | 365 | 125 |
| CB038 | 22825.2 | 26511.5 | 390 | 325 |
| CB039 | 22850.3 | 26512.6 | 389 | 324.7 |
| CB040 | 22850.6 | 26544.8 | 391 | 351 |
| CB041 | 22898.8 | 26499.9 | 380 | 279 |
| CB042 | 22900.2 | 26537.2 | 386 | 142 |
| CB043 | 22778.4 | 26245.4 | 347 | 50 |
| CB044 | 22917.8 | 26291.3 | 348 | 50 |
| CB045 | 22840.1 | 26266 | 347 | 50 |
| CB046 | 22450.98 | 26482.17 | 462 | 78.5 |
| CB047 | 22458.7 | 26531.3 | 446 | 131.5 |
| CB048 | 22551.2 | 26404.2 | 435 | 120 |
| CB049 | 22408.4 | 26373.5 | 450 | 129.8 |
| CB050 | 22527.6 | 26483.5 | 452 | 60.5 |
| CB051 | 22752.13 | 26668.19 | 389 | 267 |
| CB052 | 22834.46 | 26601.99 | 385 | 399.2 |
| CB053 | 22698.47 | 26712.59 | 389 | 216 |
| CB054 | 22698.28 | 26713.3 | 389 | 225.2 |

| | | | | |
|---|---|---|---|---|
| CB055 | 22651.61 | 26722.25 | 391 | 320.6 |
| CB056 | 22447.25 | 26167.74 | 385 | 246.8 |
| CB057 | 22397.04 | 26258.86 | 407 | 251.7 |
| CB058 | 22170.48 | 26202.81 | 393 | 251.8 |
| CB059 | 22298.42 | 26174.39 | 393 | 182.7 |
| CB060 | 22504.96 | 26358.22 | 426 | 248.9 |
| CB061 | 22207.41 | 26323.7 | 417 | 291 |
| CB062 | 22651.92 | 26524.41 | 431 | 306 |
| CB063 | 22620.61 | 26613.22 | 435 | 311.8 |
| CB064 | 22536.23 | 26485 | 452 | 368.5 |
| CB065 | 22715.73 | 26593.13 | 407 | 440.8 |
| CB066 | 22561.36 | 26725.57 | 388 | 248.8 |
| CB067 | 22750.16 | 26770.3 | 378 | 398.9 |
| EQ001 | 22793.295 | 26175.821 | 389 | 309.1 |
| EQ002 | 22793.418 | 26175.394 | 389 | 341.8 |
| EQ003 | 22735.677 | 26170.491 | 387 | 299 |
| EQ004 | 22704.388 | 26174.923 | 386 | 327.3 |
| EQ005 | 22657.446 | 26173.679 | 387 | 312.3 |
| EQ006 | 22876.196 | 26188.593 | 384 | 309.3 |
| EQ007 | 23014.294 | 26328.151 | 364 | 48 |
| EQ008 | 23014.278 | 26329.307 | 364 | 60.5 |
| EQ009 | 23013.849 | 26330.958 | 364 | 171.5 |
| EQ010 | 22656.842 | 26177.017 | 387 | 243.3 |
| EQ011 | 22765.358 | 26173.378 | 389 | 285.3 |
| EQ012 | 22624.095 | 26185.785 | 388 | 414.6 |
| EQ013 | 22910.78 | 26189.687 | 383 | 294.2 |
| EQ014 | 22956.998 | 26203.604 | 383 | 300.4 |
| EQ015 | 22841.076 | 26177.612 | 387 | 306.3 |
| EQ016 | 23055.566 | 26321.271 | 380 | 48.4 |
| MTC01 | 22799.45 | 26546.47 | 401 | 401.5 |
| MTC02 | 22719.89 | 26569.7 | 411 | 400 |
| MTCB001 | 23069.35 | 26491.65 | 374 | 339.3 |
| MTCB002 | 22480.08 | 26617.27 | 411 | 567.4 |
| MTCB003 | 22240.19 | 26632.11 | 430 | 663.4 |
| MTCB004 | 21922.84 | 26260.15 | 397 | 186.4 |
| MTCB005 | 21920.87 | 26258.46 | 397 | 741.4 |

Table D 2: 2021 Significant Assay Results (by Drillhole)

| Hole ID | East | North | RI | EOH | Dip | Azm (TN) | From | | To | Interval | $WO_3$ % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EQ001 | 22,798 | 26,177 | 389.5 | 309.1 | -49 | 50 | | 164.73 | 169.00 | 4.27 | 1.27 |
| | | | | | | | Incl. | 166.47 | 166.57 | 0.10 | 50.07 |
| | | | | | | | | 185.07 | 191.13 | 6.06 | 0.54 |
| | | | | | | | Incl. | 187.82 | 187.99 | 0.17 | 17.40 |
| | | | | | | | | 202.02 | 208.74 | 6.72 | 0.53 |
| | | | | | | | Incl. | 202.02 | 202.78 | 0.76 | 3.87 |
| | | | | | | | | 221.06 | 221.41 | 0.35 | 2.13 |
| | | | | | | | | 228.84 | 231.37 | 2.53 | 0.48 |
| | | | | | | | | 296.51 | 305.63 | 9.12 | 0.48 |
| | | | | | | | Incl. | 296.51 | 297.75 | 1.24 | 2.64 |
| | | | | | | | Incl. | 305.12 | 305.63 | 0.51 | 2.07 |
| EQ002 | 22,798 | 26,177 | 389.5 | 389.5 | -57 | 50 | | 207.20 | 211.55 | 4.35 | 0.26 |
| | | | | | | | Incl. | 207.20 | 207.62 | 0.42 | 1.95 |
| | | | | | | | | 262.50 | 263.13 | 0.63 | 0.50 |
| | | | | | | | | 308.67 | 313.94 | 5.27 | 0.38 |
| | | | | | | | Incl. | 308.67 | 308.86 | 0.19 | 1.92 |
| | | | | | | | Incl. | 312.77 | 313.94 | 1.17 | 1.42 |
| EQ003 | 22,730 | 26,181 | 387.66 | 290.0 | -50 | 50 | | 120.85 | 122.16 | 1.31 | 1.36 |
| | | | | | | | | 124.82 | 127.82 | 3.00 | 1.51 |
| | | | | | | | Incl. | 126.32 | 127.82 | 1.50 | 2.88 |
| | | | | | | | | 139.79 | 140.17 | 0.38 | 1.26 |
| | | | | | | | | 154.58 | 154.72 | 0.14 | 11.55 |
| | | | | | | | | 285.65 | 286.55 | 0.90 | 0.19 |
| | | | | | | | | 291.77 | 293.32 | 1.55 | 0.46 |
| EQ004 | 22707 | 26182.7 | 386.7 | 325.0 | 50 | 50 | | 114.09 | 119.42 | 5.33 | 1.32 |
| | | | | | | | Incl. | 118.40 | 119.42 | 1.02 | 6.68 |
| | | | | | | | | 127.09 | 135.75 | 8.66 | 0.45 |
| | | | | | | | Incl. | 135.06 | 135.75 | 0.69 | 5.37 |
| | | | | | | | | 173.33 | 181.54 | 8.21 | 1.13 |
| | | | | | | | Incl. | 173.33 | 173.82 | 0.49 | 17.60 |
| | | | | | | | Incl. | 180.90 | 181.54 | 0.64 | 0.95 |
| | | | | | | | | 223.46 | 224.16 | 0.70 | 0.39 |
| | | | | | | | | 310.20 | 310.38 | 0.18 | 0.73 |
| | | | | | | | | 318.76 | 325.30 | 6.54 | 0.14 |
| EQ005 | 22665 | 26187.6 | 387.0 | 327.3 | -58 | 50 | | 115.67 | 118.37 | 2.70 | 0.50 |
| | | | | | | | Incl. | 115.67 | 115.87 | 0.20 | 5.32 |
| | | | | | | | Incl. | 118.30 | 118.37 | 0.07 | 4.13 |
| | | | | | | | | 141.81 | 145.47 | 3.66 | 0.28 |
| | | | | | | | Incl. | 145.31 | 145.47 | 0.16 | 6.02 |
| | | | | | | | | 154.24 | 156.98 | 2.74 | 0.35 |

| Hole ID | East | North | Rl | EOH | Dip | Azm (TN) | | From | To | Interval | $WO_3$ % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | *Incl.* | ***154.56*** | ***154.71*** | ***0.15*** | ***5.85*** |
| | | | | | | | | 174.00 | 174.89 | 0.89 | 0.25 |
| | | | | | | | *Incl.* | ***174.58*** | ***174.89*** | ***0.31*** | ***0.57*** |
| | | | | | | | | 212.22 | 213.92 | 1.70 | 0.13 |
| | | | | | | | *Incl.* | ***213.59*** | ***213.92*** | ***0.33*** | ***0.64*** |
| | | | | | | | | 217.46 | 219.60 | 2.14 | 0.18 |
| | | | | | | | *Incl.* | ***217.90*** | ***218.11*** | ***0.21*** | ***1.43*** |
| | | | | | | | | 300.98 | 301.45 | 0.47 | 0.21 |
| **EQ006** | **22,873** | 26,202 | 383.90 | | -48 | 50 | | **123.37** | **127.72** | ***4.35*** | **1.31** |
| | | | | | | | *Incl.* | ***124.08*** | ***124.62*** | ***0.54*** | ***8.03*** |
| | | | | | | | *Incl.* | ***127.26*** | ***127.72*** | ***0.46*** | ***2.71*** |
| | | | | | | | | 131.00 | 135.12 | 4.12 | 0.53 |
| | | | | | | | *Incl.* | *131.00* | *132.24* | *1.24* | *1.00* |
| | | | | | | | | 150.30 | 152.41 | 2.11 | 0.56 |
| | | | | | | | *Incl.* | ***152.36*** | ***152.41*** | ***0.05*** | ***20.05*** |
| | | | | | | | | **162.30** | **163.65** | **1.35** | **2.37** |
| | | | | | | | *Incl.* | ***162.30*** | ***162.41*** | ***0.11*** | ***1.82*** |
| | | | | | | | *Incl.* | ***163.17*** | ***163.65*** | ***0.48*** | ***6.14*** |
| | | | | | | | | 253.06 | 253.39 | 0.33 | 2.48 |
| | | | | | | | | 267.31 | 270.19 | 2.88 | 0.38 |
| | | | | | | | *Incl.* | ***267.31*** | ***267.50*** | ***0.19*** | ***3.83*** |
| | | | | | | | | 278.28 | 281.98 | 3.70 | 0.78 |
| | | | | | | | *Incl.* | ***281.77*** | ***281.98*** | ***0.21*** | ***12.93*** |
| | | | | | | | | 287.17 | 290.44 | 3.27 | 0.33 |
| | | | | | | | *Incl.* | ***287.17*** | ***287.32*** | ***0.15*** | ***7.14*** |
| **EQ007** | **23017** | 26329 | 365.0 | 48.0 | -45 | 230 | | 28.35 | 28.50 | 0.15 | 7.97 |
| **EQ008** | **23017** | 26329 | 365.0 | 60.5 | | 230 | | 47.70 | 50.20 | 2.50 | 0.31 |
| | | | | | | | *Incl.* | ***47.70*** | ***47.87*** | ***0.17*** | ***0.78*** |
| | | | | | | | *Incl.* | ***50.09*** | ***50.20*** | ***0.11*** | ***1.58*** |
| **EQ009** | **23017** | 26329.0 | 365.0 | 171.5 | -60 | 50 | | 34.40 | 35.00 | 0.60 | 0.31 |
| | | | | | | | *Incl.* | ***34.40*** | ***34.45*** | ***0.05*** | ***2.72*** |
| | | | | | | | | 43.60 | 45.78 | 2.18 | 0.44 |
| | | | | | | | *Incl.* | ***45.26*** | ***45.55*** | ***0.29*** | ***2.84*** |
| | | | | | | | | 53.24 | 53.41 | 0.17 | 0.86 |
| | | | | | | | | 80.39 | 83.22 | 2.83 | 0.67 |
| | | | | | | | | 101.96 | 104.57 | 2.61 | 0.41 |
| | | | | | | | *Incl.* | ***101.96*** | ***102.10*** | ***0.14*** | ***6.47*** |
| | | | | | | | *Incl.* | ***104.46*** | ***104.57*** | ***0.11*** | ***1.33*** |
| | | | | | | | | 125.90 | 127.30 | 1.40 | 0.60 |
| | | | | | | | *Incl.* | ***126.91*** | ***126.98*** | ***0.07*** | ***9.50*** |
| | | | | | | | | 148.62 | 149.65 | 1.03 | 0.21 |

| Hole ID | East | North | RI | EOH | Dip | Azm (TN) | From | To | Interval | WO3 % |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | *Incl.* ***148.62*** | ***148.68*** | ***0.06*** | ***2.71*** |
| | | | | | | | 161.04 | 161.25 | 0.21 | 0.28 |
| EQ010 | 22656.8 | 26177.0 | 243.3 | 245.0 | -45 | 50 | 136.92 | 139.16 | 2.24 | 0.27 |
| | | | | | | | *Incl.* ***139.04*** | ***139.16*** | ***0.12*** | ***4.99*** |
| | | | | | | | 156.84 | 159.45 | 2.61 | 0.21 |
| | | | | | | | *Incl.* 158.37 | 159.45 | 1.08 | 0.50 |
| | | | | | | | 167.51 | 171.11 | 3.60 | 0.32 |
| | | | | | | | *Incl.* ***167.51*** | ***168.05*** | ***0.54*** | ***2.08*** |
| | | | | | | | 173.49 | 182.16 | 8.67 | 0.30 |
| | | | | | | | *Incl.* ***181.23*** | ***182.16*** | ***0.93*** | ***2.59*** |
| EQ011 | 22765.4 | 26173.4 | 285.3 | 285.3 | -45 | 51 | **118.48** | **119.06** | **0.58** | **2.26** |
| | | | | | | | 137.38 | 138.52 | 1.14 | 0.43 |
| | | | | | | | ***141.55*** | ***141.70*** | ***0.15*** | ***6.36*** |
| | | | | | | | ***144.95*** | ***145.47*** | ***0.52*** | ***2.08*** |
| | | | | | | | ***176.67*** | ***176.93*** | ***0.26*** | ***3.31*** |
| | | | | | | | ***222.53*** | ***223.20*** | ***0.67*** | ***4.22*** |
| EQ012 | 22624.1 | 26185.8 | 414.6 | 412.0 | -45 | 50 | 111.46 | 113.60 | 2.14 | 0.53 |
| | | | | | | | *Incl.* **111.46** | **111.73** | **0.27** | **4.10** |
| | | | | | | | 137.82 | 141.66 | 3.84 | 0.32 |
| | | | | | | | *Incl.* ***138.88*** | ***139.01*** | ***0.13*** | ***5.90*** |
| | | | | | | | ***141.50*** | ***141.66*** | ***0.16*** | ***2.53*** |
| | | | | | | | ***327.11*** | ***328.78*** | ***1.67*** | ***3.28*** |
| | | | | | | | *Incl.* ***327.11*** | ***328.34*** | ***1.23*** | ***5.44*** |
| | | | | | | | 346.41 | 349.59 | 3.18 | 0.67 |
| | | | | | | | *Incl.* ***346.41*** | ***346.78*** | ***0.37*** | ***4.33*** |
| | | | | | | | ***382.08*** | ***385.21*** | ***3.13*** | ***1.93*** |
| | | | | | | | *Incl.* ***383.21*** | ***384.21*** | ***1.00*** | ***5.92*** |
| EQ013 | 22910.8 | 26189.7 | 294.2 | 294.2 | -45 | 48 | 135.95 | 148.87 | 12.92 | 0.59 |
| | | | | | | | *Incl.* ***135.95*** | ***136.65*** | ***0.70*** | ***1.02*** |
| | | | | | | | ***140.46*** | ***140.61*** | ***0.15*** | ***3.95*** |
| | | | | | | | ***148.39*** | ***148.87*** | ***0.48*** | ***12.40*** |
| | | | | | | | ***165.76*** | ***170.85*** | ***5.09*** | ***1.41*** |
| | | | | | | | *Incl.* ***165.76*** | ***166.64*** | ***0.88*** | ***3.42*** |
| | | | | | | | ***170.67*** | ***170.85*** | ***0.18*** | ***15.55*** |
| | | | | | | | 257.12 | 266.13 | 9.01 | 0.38 |
| | | | | | | | *Incl.* ***257.12*** | ***257.94*** | ***0.82*** | ***2.49*** |
| | | | | | | | ***265.77*** | ***266.13*** | ***0.36*** | ***3.43*** |
| | | | | | | | ***277.00*** | ***284.18*** | ***7.18*** | ***1.42*** |
| | | | | | | | *Incl.* ***277.00*** | ***277.30*** | ***0.30*** | ***3.61*** |
| | | | | | | | ***282.90*** | ***284.18*** | ***1.28*** | ***6.96*** |
| EQ014 | 22957.0 | 26203.6 | 300.4 | 300.4 | -45 | 45 | 133.32 | 143.03 | 9.71 | 0.53 |

| Hole ID | East | North | Rl | EOH | Dip | Azm (TN) | | From | To | Interval | $WO_3$ % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Incl. | 134.18 | 134.47 | 0.29 | 2.92 |
| | | | | | | | | 139.20 | 139.44 | 0.24 | 13.90 |
| | | | | | | | | 142.78 | 143.03 | 0.25 | 3.25 |
| | | | | | | | | 146.35 | 150.40 | 4.05 | 1.41 |
| | | | | | | | Incl. | 146.35 | 146.70 | 0.35 | 1.65 |
| | | | | | | | | 150.08 | 150.40 | 0.32 | 16.10 |
| | | | | | | | | 159.74 | 165.04 | 5.30 | 0.66 |
| | | | | | | | Incl. | 159.74 | 160.12 | 0.38 | 2.55 |
| | | | | | | | | 162.41 | 162.85 | 0.44 | 4.87 |
| | | | | | | | | 164.90 | 165.04 | 2.25 | 1.79 |
| | | | | | | | | 261.05 | 263.30 | 2.25 | 1.72 |
| | | | | | | | Incl. | 261.05 | 261.40 | 0.35 | 8.02 |
| | | | | | | | | 263.13 | 263.30 | 0.17 | 6.09 |
| EQ015 | 22841.1 | 26177.6 | 306.3 | 306.3 | -45 | 50 | | 138.79 | 147.90 | 9.11 | 1.21 |
| | | | | | | | Incl. | 139.87 | 140.91 | 1.04 | 2.35 |
| | | | | | | | | 144.77 | 145.14 | 0.37 | 20.00 |
| | | | | | | | | 156.35 | 160.80 | 4.45 | 5.09 |
| | | | | | | | Incl. | 156.35 | 156.81 | 0.46 | 10.80 |
| | | | | | | | | 156.81 | 157.11 | 0.30 | 1.27 |
| | | | | | | | | 158.13 | 158.46 | 0.33 | 7.57 |
| | | | | | | | | 159.74 | 160.80 | 1.06 | 13.85 |
| | | | | | | | | 199.29 | 209.99 | 10.70 | 0.93 |
| | | | | | | | Incl. | 199.29 | 199.86 | 0.57 | 14.15 |
| | | | | | | | | 207.23 | 207.62 | 0.39 | 3.12 |
| | | | | | | | | 209.88 | 209.99 | 0.11 | 5.63 |
| | | | | | | | | 245.85 | 252.88 | 7.03 | 0.33 |
| | | | | | | | Incl. | 245.85 | 246.35 | 0.50 | 1.15 |
| | | | | | | | | 247.71 | 248.11 | 0.40 | 1.86 |
| | | | | | | | | 252.64 | 252.88 | 0.24 | 4.04 |
| | | | | | | | | 263.74 | 268.90 | 5.16 | 1.18 |
| | | | | | | | Incl. | 263.74 | 264.00 | 0.26 | 1.24 |
| | | | | | | | | 264.62 | 265.32 | 0.70 | 7.03 |
| | | | | | | | | 268.57 | 268.90 | 0.33 | 2.47 |
| | | | | | | | | 282.51 | 290.45 | 7.94 | 0.26 |
| | | | | | | | Incl. | 282.51 | 283.15 | 0.64 | 2.97 |
| EQ016 | 23053 | 26305 | 380.4 | 48.4 | -45 | 230 | | No Significant Results | | | |

- Intervals represent downhole depths, not true thickness with no applied upper cut
- Results are shown where weighted averages are greater than 2m @ 0.25% $WO_3$

# APPENDIX D: Petrology Study report

## Table E 1: Summary of Petrological Study of Mt Carbine Geology

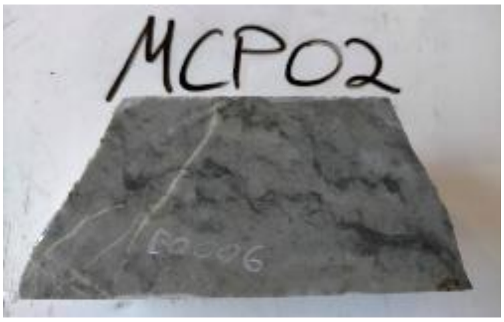
| EQ RESOURCES MT CARBINE PROJECT - PETROGRAPHIC REVIEW (PTEROSAUR PETROLOGY 2021) | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SECTION | SAMPLE | CORE | HOLE ID | FROM m | TO m | Lithology | HOST ROCK MINERALS | VEINS / FRACTURE INFILL Event 1 | WALLROCK ALTERATION E1 | VEINS / FRACTURE INFILL Event 2 | WALLROCK ALTERATION E2 | VEINS / FRACTURE INFILL Event 3 | WALLROCK ALTERATION E3 | VEINS / FRACTURE INFILL Event 4 | WALLROCK ALTERATION E4 |
| TS2109-4.1 | MCP01 | HQ | EQ010 | 162.50 | 162.73 | Veined & altered **hornfelsed phyllite** | Ms-Qz-**Bt** | Qz | ?Chl | Sau-Tur-Po | Ser-Si-Chl-Tur-Po-(**Ccp**-Asp) | Qz-Cal | Cal-(Py) | | |
| TS2109-4.2 | MCP02 | HQ | EQ006 | 109.60 | 109.70 | Complex milled breccia of **dacite dyke(?)** | Qz-Pl-Kfs | 3x Breccia cement: Si-(FeOx) | (Py) | 1x Breccia cement: Sau-Ep-Tur | | Qz-Cal-(**Ccp-Po-Sp**) | (Cal-**Ccp-Po-Sp**) | Qz | |
| TS2109-4.3 | MCP03 | HQ | EQ012 | 37.30 | 37.50 | Complexly veined & altered **pelitic phyllite** | Ms-Qz | Qz-Si-(Ttn) | ?Chl | Breccia cement: Chl-Sau-Si | Chl-Tur? | Sau-Ep-Py-Po-**Ccp-Sp** | (Po-**Ccp-Sp**) | Py-Sd-Chl | |
| TS2109-4.4 | MCP04 | HQ | EQ012 | 40.90 | 41.18 | Brecciated & cemented **latite dyke(?)** | Qz-Pl-Kfs | Breccia cement: Si | | Breccia cement: Si-Sau-Chl-Py | Sau-Chl-Si-(Asp-**Ccp-Gn**?) | Cal-Py | Py | | |
| TS2109-4.5 | MCP05 | HQ | EQ012 | 96.12 | 96.24 | Tourmaline-fluorite altered **phyllite(?)** | ?Ms-(Qz)? | Qz-Ap-(Tur) | Tur-Fl-(?**Ccp**-Asp-Po) | Breccia cement: Si | | Sau-Cal-Py-(**Ccp-Sp**) | (**Ccp-Sp**-Asp-**Gn?**) | | |
| TS2109-4.6 | MCP06 | HQ | EQ013 | 137.80 | 138.20 | Brecciated altered **hornfelsed phyllite** | Ms-Qz-**And** | Qz | ?Chl-Tur | Sau-Ep-Chl-Si-(Ttn) | | Qz-Si-(Py-**Ccp-Sp**) | (Py-**Ccp-Sp,** Po-Sd**)** | | |
| TS2109-4.7 | MCP07 | *HQ?* | EQ013 | 208.32 | 208.55 | Veined & altered **hornfelsed phyllite** | Ms-Qz-**And** | Qz | ?Chl-Tur | Sau-Chl-(Qz-Po) | Po-(**Ccp-Sp**) | Sau-Qz-Py | Py | Py | |
| TS2109-4.8 | MCP08 | *HQ?* | EQ014 | 127.80 | 127.96 | Fractured & veined **psammitic phyllite** | Qz-Ms | Qz | ?Chl-Tur | Sau-Chl-(Ep-Qz-Po) | (Po-**Ccp-Sp**) | Cal-Qz | | Py-(Chl) + Py | |
| TS2109-4.9 | MCP09 | HQ | EQ014 | 166.81 | 167.12 | Skarn-altered **psammite** | Qz-Ms-(Cal?) | Qz | ?Chl | Grs-Ves-Czo-(Qz-Si) | Grs-Czo-Chl-(Po) | Cal-Ep-Qz-(Po-**Ccp-Sp**-Asp) | Cal-Ch-Qz-Ep-Ms-(Po) | | |
| TS2109-4.10 | MCP10 | **NQ** | EQ015 | 46.62 | 46.71 | Sheared, veined & altered **meta-basalt(?)** | Act-Sau | Qz-Chl | ?Chl | Act-Czo-Qz-Chl-Po-Py | Sau-Chl-Po-(**Ccp-Asp**) | Chl-Po-(Cal) | Chl-Po | Py | |
| TS2109-4.11 | MCP11 | **NQ** | EQ015 | 49.61 | 49.68 | Sheared, veined & altered **psammo-pelitic phyllite** | Ms-Qz | Qz | ?Chl-(Tur) | Sau-Chl-(Ttn) | Sau-Chl ? | Qz-Chl-Cal-Py-(**Ccp**) | Chl-Cal-Py-(Asp) | Py | |
| TS2109-4.12a | MCP12 | **NQ** | EQ015 | 159.74 | 160.80 | Scheelite-sphalerite **veined albite** | Ab vein | **Sch-Sp**-Chl | Chl | Py-Cal-(Po-Asp-**Ccp**) | | Chl-Py | | | |
| TS2109-4.12b | MCP12 | **NQ** | EQ015 | *159.74* | *160.80* | Sphalerite-scheelite **veined adularia** | Adl-Qz vein | **Sp-Sch** | (Ab?) | Cal-Chl-Py-Po-(**Ccp**) | | Cal-Py-Qz-Chl-(Asp-Mrc?) | | | |
| TS2109-4.13 | MCP13 | **NQ** | EQ012 | 306.25 | 306.40 | Veined & altered, **hornfelsed phyllite** | Qz-Ms-**Bt** | Qz | | Tur-Ttn-(Po-Sau) | Tur | Qz-Chl-Ep | (Ccp-Asp) | | |
| TS2109-4.14 | MCP14 | HQ | EQ010 | 189.48 | 189.64 | Scheelite veined & altered **phyllite** | Ms-Qz | Qz-**Ccp**-(**Sp**-Asp) | Chl? | Tur-Chl-Po-Sau | Tur-Chl-Po-(Sau) | **Sch**-Chl-Fl | Chl | | |
| TS2109-4.15 | MCP15 | **NQ** | EQ012 | 279.75 | 279.90 | Zeolite-calcite **veined quartz** | Qz-(Ap?) vein | Zeo? | | Cal-Qz-(Ms-**Sch?**) | | | | | |
| | | | | | | | **Abbrev.** | Mineral | (trace levels) | | | | **Sau** | Saussurite | |
| | | | | | | | **Ab** | Albite | **Ccp** | Chalcopyrite | **Kfs** | K-feldspar | **Sch** | Scheelite | |
| | | | | | | | **Act** | Actinolite | **Chl** | Chlorite | **Ms** | Muscovite | **Sd** | Siderite | |
| | | | | | | | **Adl** | Adularia | **Czo** | Clinozoisite | **Mrc** | Marcasite | **Ser** | Sericite | |
| | | | | | | | **And** | Andalusite | **Ep** | Epidote | **Pl** | Plagioclase | **Si** | Micro-silica (& cristobalite?) | |
| | | | | | | | **Ap** | Apatite | **FeOx** | Iron-oxide | **Po** | Pyrrhotite | **Sp** | Sphalerite | |
| | | | | | | | **Asp** | Arsenopyrite | **Fl** | Flourite | **Py** | Pyrite | **Ttn** | Titanite | |
| | | | | | | | **Bt** | Biotite | **Gn** | Galena | **Qz** | Quartz | **Tur** | Tourmaline | |
| | | | | | | | **Cal** | Calcite | **Grs** | Grossular garnet | **Rt** | Rutile | **Zeo** | Zeolite | |

## Petrological Sample Results

Sample MCP01


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Chert with qz/scheelite/sulphides and black and green minerals | EQ010 | 162.5 | 162.73 |

Sample MCP02




| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Chert in hanging wall | EQ006 | 109.6 | 109.7 |

Sample MCP03


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics/metasediment/chert mixture? in hanging wall | EQ012 | 37.3 | 37.5 |

Sample MCP04


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Felsite dyke containing spotty black mineral with haloes | EQ012 | 40.94 | 41.18 |

Sample MCP05


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Qz vein with dravite and fluorapatite? | EQ012 | 96.12 | 96.24 |

Sample MCP06


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics/metasediment? In hanging wall | EQ013 | 137.8 | 138.2 |

Sample MCP07


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment with spotty black mineral | EQ013 | 208.32 | 208.55 |

Sample MCP08


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediments? in footwall | EQ014 | 127.8 | 127.96 |

Sample MCP09


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Potassic alteration | EQ014 | 166.81 | 167.12 |

Sample MCP10


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics in footwall | EQ015 | 46.62 | 46.71 |

Sample MCP11


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment + chert in footwall | EQ015 | 49.61 | 49.68 |

Sample MCP12


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Mineralised vein with altered k-feldspar | EQ015 | 159.74 | 160.8 |

Sample MCP13


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment | EQ012 | 306.25 | 306.4 |

Sample MCP14


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment + chert with scheelite | EQ010 | 189.48 | 189.64 |

Sample MCP15


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Grey/blue Qz vein with minor scheelite/fluorapatite | EQ012 | 279.75 | 279.9 |

Example of Petrological Study on Rock Types and Mineralisation.

Pterosaur Petrology

Geology, Mineralogy & Geochemistry

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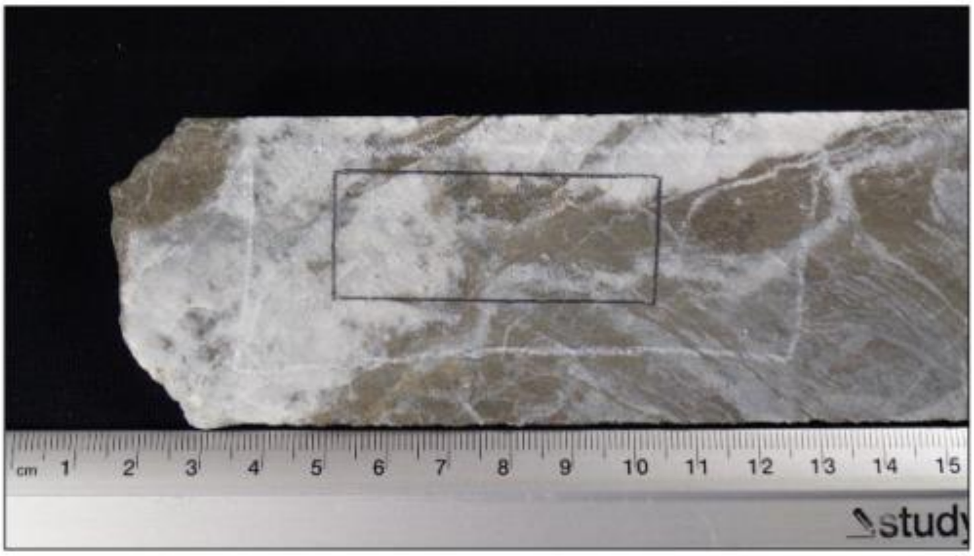
# PETROGRAPHIC ANALYSIS

## TS2109-4.5 Tourmaline-Fluorite Altered Phyllite (?)




**SAMPLE:** ***MCP05*** *(EQ012 96.12-96.24m)*

**LOCATION:** *Mt Carbine Tungsten Mine*

**PROJECT:** *Resource Drilling*

**CLIENT:** *EQ Resources Ltd*

**DATE:** *25th October 2021*

**PETROGRAPHER:**

*Stephen WEGNER - BSc (Hons) Geology*

*Australian Institute of Geoscientists (AIG) Member # 3942*

*JCU Economic Geology Research Unit (EGRU) Member*

*CLIENT: EQ RESOURCES LTD* *25th October 2021* 1

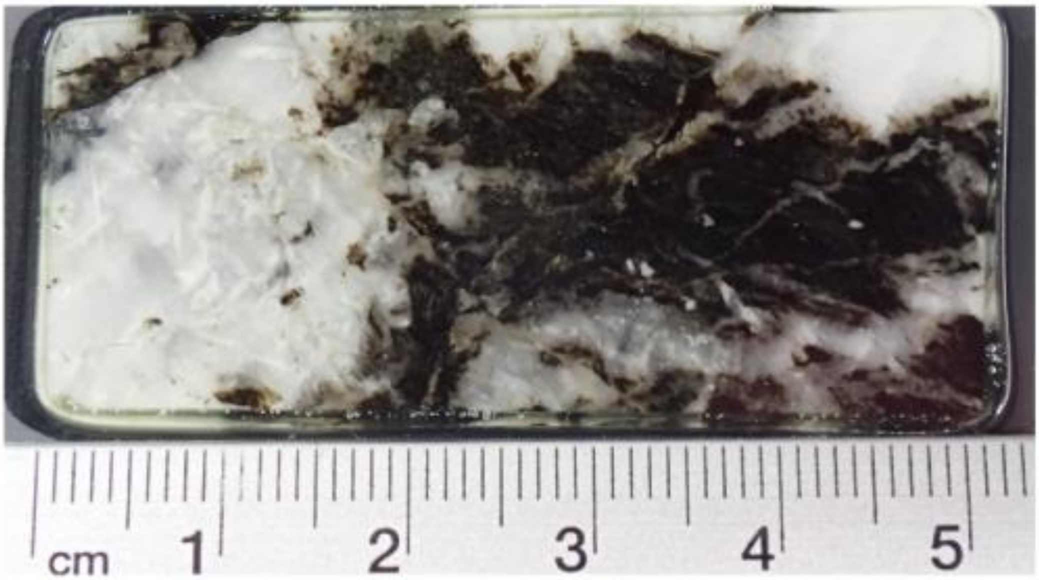
## SPECIMEN HISTORY & PURPOSE

A ~12cm length of cut HQ drill core (front page) was received from the client with request for a petrographic analysis within the white marked area, having regard to identifying the rock type and any hydrothermal alteration or indicators of tungsten mineralisation. The sample, MCP05 96.12-96.24m is reportedly from drill hole EQ012, intersecting units beneath the historic Mt Carbine tungsten mine. This sample is one of fifteen received from the client.

## SAMPLE DESCRIPTION & SELECTION

The drill specimen displays fresh rock dominated by complex quartz veining (and possibly brecciation) of a very fine grained Yellowish Gray (5Y 7/2) uncertain host rock. At least two events of cross-cutting quartz veins; notably 1-2mm veinlets relate to the main 40mm wide white translucent quartz vein. Drops of 1M HCl acid revealed trace specs of calcite associated with isolated specs of yellow sulphide (pyrite?) proximal or within late cross-cutting hairline fracture. A small number of grey-white specs of probable sulphide were observed in isolated patches within the main quartz vein. Uncertain white euhedral short prismatic crystals also observed in the main vein. A 4-watt wide-spectrum ultraviolet light failed to highlight any relevant minerals.

A polished thin section was produced from a cut block (image below) selected from within the white outlined area provided by the client. [Note: red reflection from camera in bottom right corner]




## MICROSCOPIC DESCRIPTION

The following mineral proportions are estimates using modal analysis charts.

**Note**: Although mineral grains can be resolved down to 0.001mm in thin section under transmitted light, identification of minerals smaller than the rock section depth of 0.03mm are subject to interference and diminished optical techniques from other crystals in the light path. Identification of mineral grains with maximum dimension <0.03mm can be subjective.

**VEIN MINERALS 100%** (Pre-alteration)

**80% Quartz 16 mm Anhedral**
Coarse anhedral vein quartz with sutured boundaries and notably high strain (undulose extinction). Grains encapsulate former host rock fragments along with euhedral apatite and tourmaline crystals from the same fluid event. The quartz grains display a moderate density of fluid inclusion trails.

**10% Microcrystalline quartz <0.02 mm Anhedral**
Not strictly veins, but cementing of brittle fracture and related local fine brecciation of host quartz up to 1mm wide, and includes occasionally tourmaline and apatite fragments. Microcrystalline quartz grain boundaries are highly irregular and chert-like.

**5% Apatite 3.6 mm Euhedral**
Large individual euhedral crystals of clear, high relief, low birefringence apatite within large vein quartz crystals as part of the same fluid event. The crystals appear to contain a higher density of fluid inclusions than host vein quartz. A couple of crystals display open small fractures that are infilled with sulphides; chalcopyrite, unknown soft grey and pink phases, and trace sphalerite.

**3% Tourmaline 0.05 (1.8) mm Euhedral**
Fresh golden-brown to clear pleochroic euhedral crystals with long (1.8mm) prismatic forms developed as isolated crystals in the quartz vein. These large crystals grade in size down to fine crystals (0.05mm) replacing former angular fragments of probable host rock. The distinction between free vein crystallisation and replacement tourmaline is hazy at the margins.

**1% Saussurite/epidote <0.001 (0.03) mm Anhedral**
Diffuse, discontinuous, saussurite micro-veins <0.01mm wide within the tourmaline-fluorite altered host. Similar trace saussurite pass along and truncate late stage breccia fracture indicating late phase fluids related to sulphide development.

**1% Chalcopyrite 0.1 mm Anhedral**
Relatively high proportion of small chalcopyrite grains within fluorite developed in and around tourmaline-replaced host clasts. Isolated anhedral grains located along internal grain boundaries of coarse vein quartz, and within fine breccia of late fracture.

**<1% Arsenopyrite 0.7 mm Subhedral to euhedral**
Isolated crystals of white fresh arsenopyrite with occasional diamond forms located primarily within coarse vein quartz. Not strictly connected to structures, the arsenopyrite is generally proximal to chalcopyrite infill of microfracture within nearby apatite.

**<1% Sphalerite 0.04 mm Anhedral**
Isolated honey-brown to red translucent medium grey grains often connected to chalcopyrite.

**<1% Calcite 0.08 mm Anhedral**
Isolated trace examples of minor discontinuous late cement/replacement of fines in breccia matrix along late fracture associated with sulphides. Calcite also appears to develop at the expense of coarse quartz at the breccia margins.

**<1% Unknown grey (galena?) 0.15 mm Anhedral**
Limited examples of uncertain grains that are opaque (no bireflectance or internal reflections) medium to low hardness, light bluish light grey reflectance and partly altered by a very fine patchy pinkish-silver probable pyrrhotite (or vice-versa). Both associated with development of chalcopyrite and particularly arsenopyrite. Possibly galena.

**<1% Unknown pink (pyrrhotite?) 0.1 mm Granular**
Uncertain very fine grained, pinkish-silver (?) probable sulphide replacing unknown blue-grey phase (cuprite?), associated with arsenopyrite and chalcopyrite. Possibly very fine pyrrhotite.

**WALLROCK ALTERATION MINERALS 100%**

**85% Tourmaline 0.05 (1.8) mm Euhedral**
Golden-brown to clear pleochroic euhedral crystals with long (1.8mm) prismatic forms ranging down to mostly fine crystals (0.05mm) replacing former angular fragments of probable host rock. The intense fine replacement tourmaline often has fine interstitial fluorite, lesser chlorite, and trace sulphide. Isolated small clusters of small to medium size tourmaline in the quartz vein likely represent tiny former fragments of host rock. Isolated large crystals in the coarse quartz appear to be independent of alteration, indicating the alteration event is synchronous with the quartz vein.

**13% Fluorite 0.05 (1.2) mm Anhedral**
Mostly interstitial clear fluorite to fine tourmaline replacement of former host rock clasts. Larger irregular anhedral grains appear to grow at the expense of coarse vein quartz. The fluorite is truncated and locally finely brecciated by late stage fracture. Mostly anisotropic, some grains display low grey birefringence colours.

**2% Chlorite 0.1 mm Subhedral**
Radial micaceous subhedral grains, possibly replacement but mostly infill of late void cavities after tourmaline-fluorite replacement of former host rock clast. Crystals display very weak pale green to clear pleochroism indicating compositions leaning towards magnesium end member.

**<1% Pyrrhotite 0.25 mm Anhedral poikilitic**
Rare single example of pale pinkish grey poikilitic pyrrhotite with inclusions of fine tourmaline, central to former host rock clast.

**<1% Rutile 0.15 mm Subhedral infill**
Rare single example of subhedral rutile partial infill / replacement (?) of iron stained mica (former biotite?) at the junction of coarse vein quartz grains; along with fluorite containing trace chalcopyrite, and unknown pinkish phase.

## GENERAL PETROGRAPHIC OBSERVATIONS & INTERPRETATIONS

This section presents quartz veined angular fragments of unknown host rock (~15mm) encapsulated by coarse grained vein quartz (~16mm sutured subgrains). The unknown host is completely replaced by fine euhedral golden-brown tourmaline (0.05-1.8mm) with interstitial clear fluorite (Micrographs 1&2). Larger anhedral fluorite crystals (<1.6mm) appear to be interlocked with host vein quartz. The quartz vein also hosts large euhedral apatite crystals up to 3.6mm, and occasional trace euhedral arsenopyrite crystals up to 0.7mm (Micrographs 3&4).

A number of parallel micro-fractures with localised angular fine breccia clasts, of host quartz and tourmaline, truncate the rock. The micro-breccias are tightly packed but in places cemented by fine microcrystalline quartz (<0.02mm) with irregular cherty grain boundaries.

The rock is further truncated by isolated brittle fractures, roughly orthogonal to the chert-cemented fractures. The late fracture also develops localised fine brecciation that contain substantial fragments and fines of tourmaline. The interstitial cement/replacement phase is not clearly chert, but is overprinted by a cloudy submicroscopic phase of probable saussurite. Within and proximal to this late fracture are development of chalcopyrite and sphalerite. Nearby euhedral arsenopyrite may or may not be associated with the chalcopyrite event.

A trace uncertain blue-grey phase is observed interstitial to fine tourmaline and associated discontinuous micro-veins proximal to arsenopyrite and chalcopyrite. This uncertain bluish-phase is isotropic and moderately altered by pinkish uncertain disseminated phase (Micrographs 4&5). The blue is possibly galena, and the pink possibly pyrrhotite but the relationship is unclear. An isolated single rare grain of poikilitic pyrrhotite is observed encapsulating tourmaline elsewhere in the slide (Micrograph 2). Other phases interstitial to tourmaline include very fine micaceous and radial infill by chlorite (0.005mm).

The textures and forms of the unknown host rock in hand specimen are very similar to other samples of strongly altered phyllite (3m above in the same drill hole).

## PARAGENETIC HISTORY

1. Probable phyllite host rock veined by wide coarse-grained white quartz with numerous related veinlets separating angular clasts. Associated with the main quartz vein are euhedral apatite and lesser tourmaline. Synchronous with the quartz vein is intense tourmaline-fluorite-(chlorite) complete replacement of the host rock.

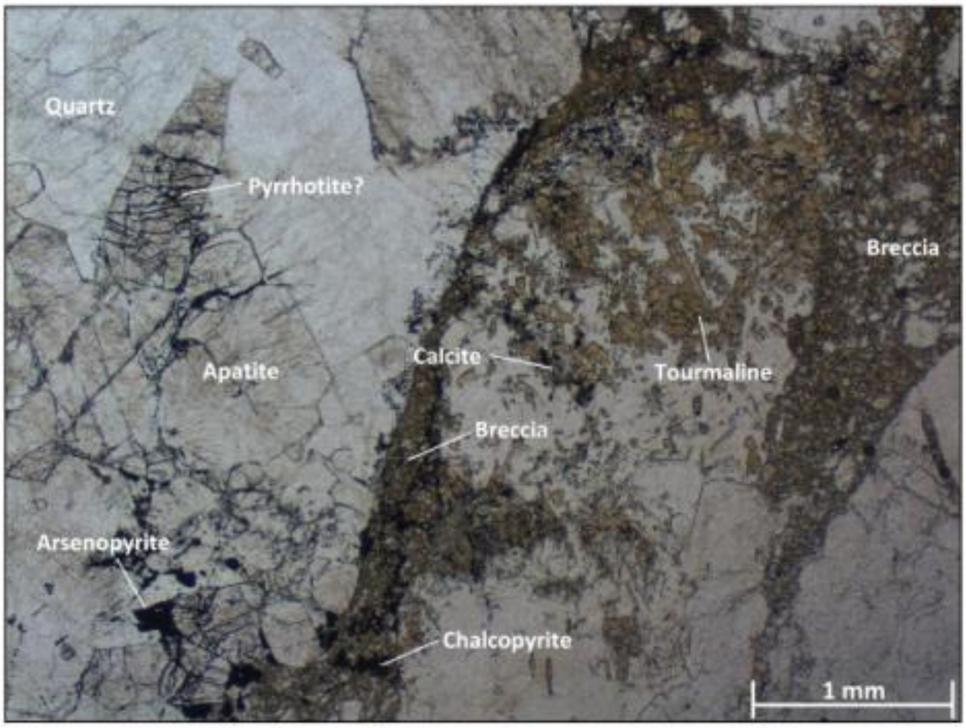
2. Microfracture, subparallel to the main quartz vein, graduates locally to fine breccia of the quartz (and granulation of apatite-tourmaline intersected). This fine breccia is cemented / matrix-replaced with microcrystalline quartz.

3. Isolated discontinuous micro-fractures (roughly orthogonal to the earlier set) display isolated localised brecciation that is patchily replaced/cemented by saussurite-calcite-sulphide (pyrite, chalcopyrite and trace sphalerite). These sulphides, along with arsenopyrite and trace galena/pyrrhotite (?) are also developed in wall rock cracked apatite, tourmaline, and silicified earlier breccia, proximal to this later fracture / breccia event.

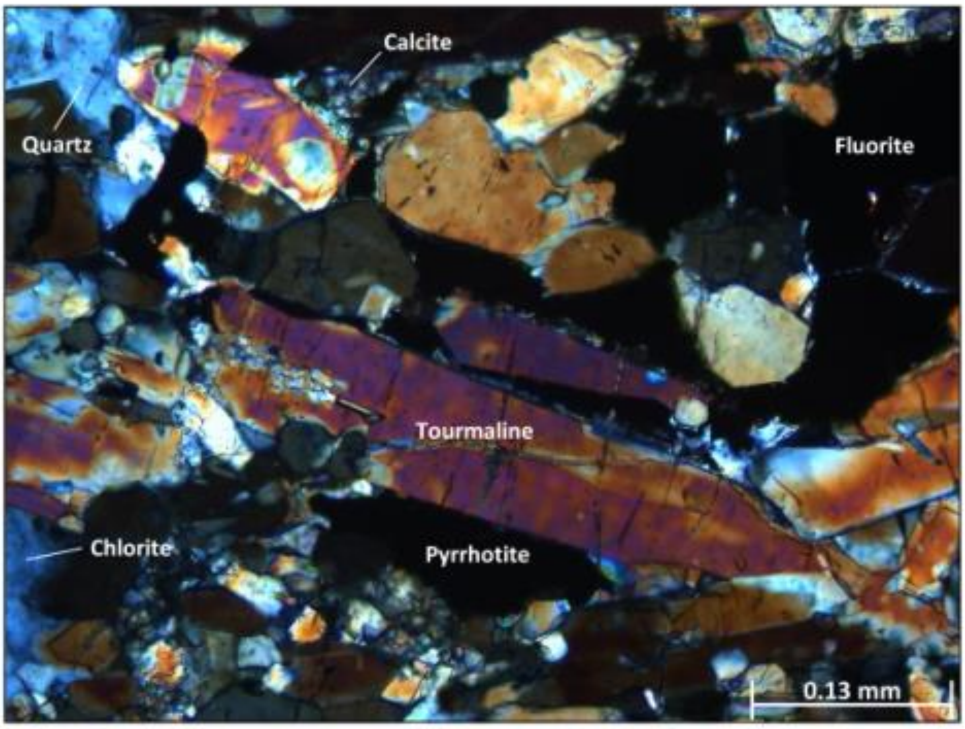
The relatively high levels of isolated sulphide grains within the fluorite (notably chalcopyrite-pyrite) appear to be related to nearby pyrite infilled microfracture through the tourmaline (final fracture event).

## CLASSIFICATION

Fresh, quartz-apatite-tourmaline veined
**PHYLLITE**
completely altered to tourmaline-fluorite, then later twice fractured and mineralised with minor sulphides

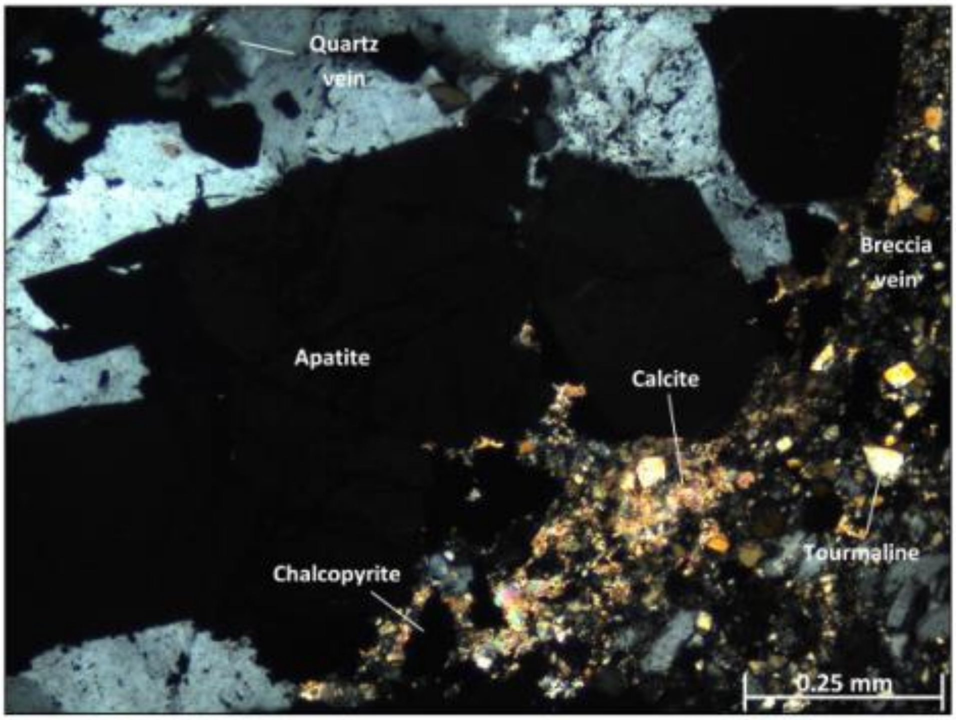



**Micrograph 1**. TS2109-4.5 Plane polarized light [25x Mag. F.O.V. 4.8mm]
Tourmaline-rich portion of quartz vein within breccia line of early fracture. Fine breccia is replaced/cemented by chert and lesser chalcopyrite-calcite. Proximal pyrrhotite (?) arsenopyrite possibly related to breccia event.

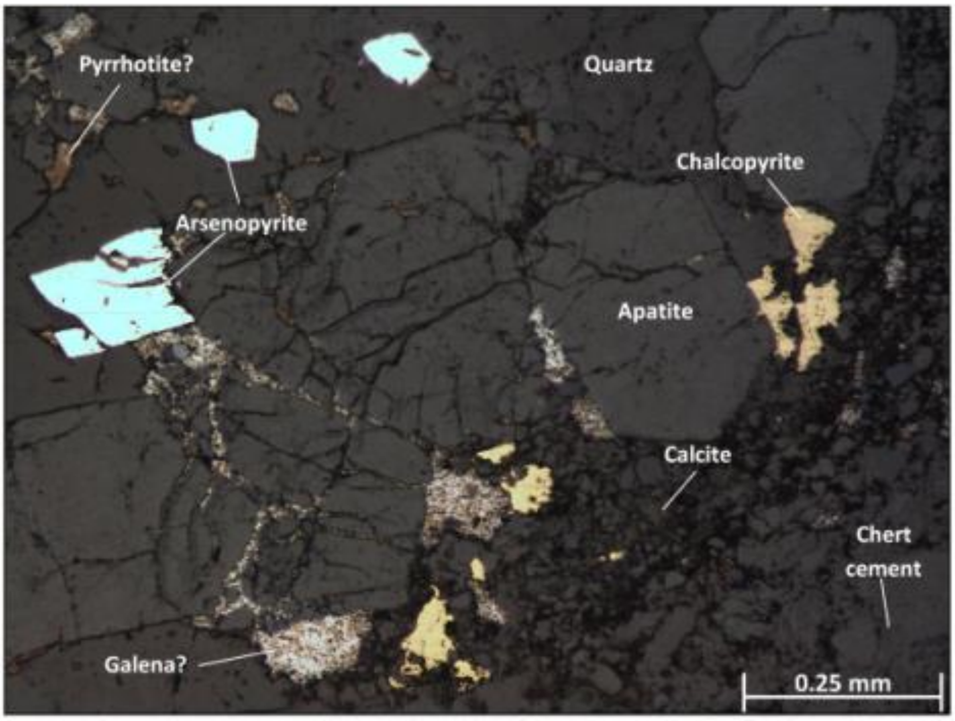



**Micrograph 2**. TS2109-4.5 Cross polarized light [200x Mag. F.O.V. 0.6mm]
Tourmaline-fluorite-quartz replacement of unknown host with minor interstitial chlorite-calcite and rare poikilitic pyrrhotite. No remains of former rock.

*PETROGRAPHIC ANALYSIS TS2109-4.5*
*Mt Carbine Mine Resource Drilling* *MCP05 (EQ012 96.12-96.24m)* *Pterosaur Petrology*




**Micrograph 3**. TS2109-4.5 Cross polarized light [100x Mag. F.O.V. 1.2mm] 1 of 2
Fragments of tourmaline, quartz and fine fluorite in vein-like fine breccia cutting through coarse-grained highly strained quartz and apatite. Breccia matrix cemented by chalcopyrite-calcite-chert.




**Micrograph 4**. TS2109-4.5 Cross polarized reflected light [100x Mag. F.O.V. 1.2mm] 2 of 2
Euhedral arsenopyrite and uncertain pinkish and grey sulphides emanating from brecciated fracture. Calcite and chalcopyrite cement breccia along with very fine cherty quartz.

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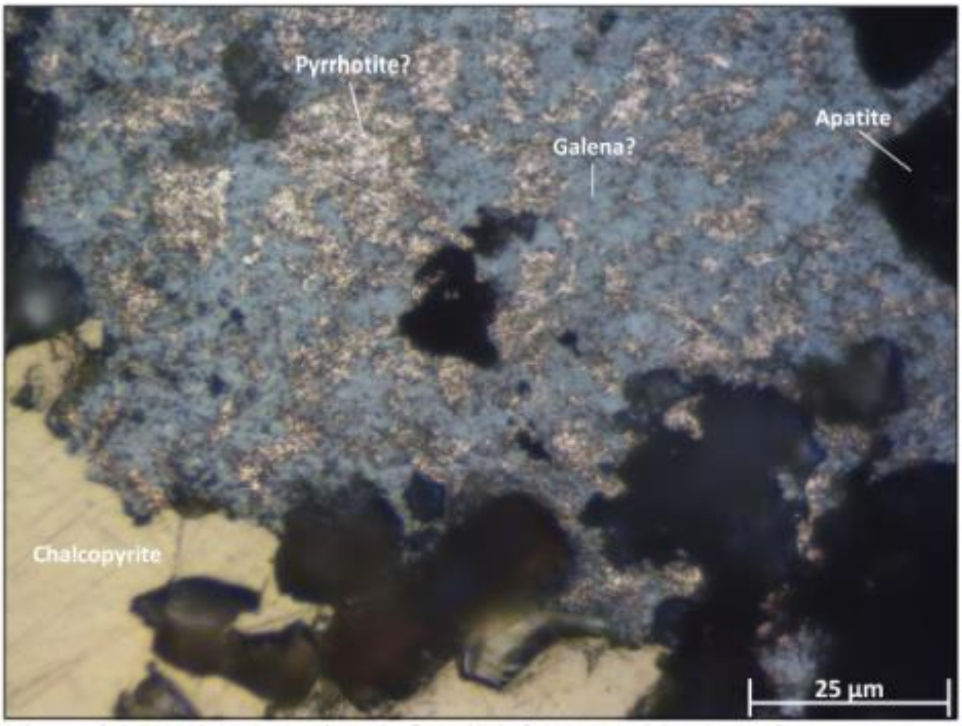



**Micrograph 5**. TS2109-4.5 Cross polarized reflected light [1000x Mag. F.O.V. 0.12mm]
Uncertain blue-grey isotropic sulphide (galena?) in contact with chalcopyrite. Grey phase is partly replaced by disseminated pinkish-silver very fine grained probable pyrrhotite.

# APPENDIX E: QA/QC Assay Results

Table F 1: Assay for Blanks

| Hole_ID | Sample No | Blank Type | WO3% |
|---|---|---|---|
| EQ001 | 100033 | Blank Core | 0.005044 |
| EQ001 | 100063 | Blank Core | 0.001261 |
| EQ001 | 100083 | Blank Core | 0.001261 |
| EQ001 | 100103 | Blank Core | 0 |
| EQ002 | 100137 | Blank Core | 0.001261 |
| EQ002 | 100157 | Blank Core | 0 |
| EQ002 | 100177 | Blank Core | 0.002522 |
| EQ003 | 100379 | Blank Core | 0.002 |
| EQ003 | 100399 | Blank Core | 0.002 |
| EQ003 | 100419 | Blank Core | 0.002 |
| EQ003 | 100439 | Blank Core | 0.001 |
| EQ003 | 100459 | Blank Core | <0.001 |
| EQ003 | 100479 | Blank Core | 0.001 |
| EQ003 | 100499 | Blank Core | 0.001 |
| EQ004 | 100526 | Blank Core | 0.003 |
| EQ004 | 100546 | Blank Core | 0.003 |
| EQ004 | 100566 | Blank Core | <0.001 |
| EQ004 | 100586 | Blank Core | 0.004 |
| EQ004 | 100606 | Blank Core | <0.001 |
| EQ004 | 100626 | Blank Core | 0.002 |
| EQ005 | 100663 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100683 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100703 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100723 | Blank Core | 0.004 |
| EQ005 | 100743 | Blank 1058 0.001% WO3 | 0.001 |
| EQ005 | 100763 | Blank 1058 0.001% WO3 | 0.003 |
| EQ006 | 100211 | Blank Core | 0.001261 |
| EQ006 | 100231 | Blank Core | 0.003783 |
| EQ006 | 100251 | Blank Core | 0.002522 |
| EQ006 | 100271 | Blank Core | 0.001261 |
| EQ006 | 100291 | Blank Core | 0.001261 |
| EQ006 | 100311 | Blank Core | 0.003783 |
| EQ006 | 100331 | Blank Core | 0.005044 |
| EQ006 | 100351 | Blank Core | 0.003783 |
| EQ007 | 100798 | Blank Core | 0.02 |
| EQ007 | 100818 | Blank Core | 0.009 |
| EQ008 | 100853 | Blank Core | 0.008 |
| EQ009 | 100897 | Blank 1083 0.003% WO3 | 0.001 |
| EQ009 | 100907 | Blank 1083 0.003% WO3 | 0.005 |
| EQ009 | 100927 | Blank 1083 0.003% WO3 | 0.003 |
| EQ009 | 100947 | Blank 1083 0.003% WO3 | 0.005 |
| EQ009 | 100967 | Blank 1083 0.003% WO3 | 0.001 |
| EQ010 | 100995 | Blank 1083 0.003% WO3 | 0.002 |
| EQ010 | 101015 | Blank Core | 0.003 |
| EQ010 | 101035 | Blank Core | 0.003 |
| EQ010 | 101091 | Blank Core | <0.001 |
| EQ011 | 101122 | Blank 1031 0.002% WO3 | 0.001 |
| EQ011 | 101132 | Blank 1031 0.002% WO3 | 0.007 |
| EQ011 | 101152 | Blank 1031 0.002% WO3 | 0.002 |
| EQ011 | 101172 | Blank 1031 0.002% WO3 | 0.001 |
| EQ012 | 101207 | Blank 1031 0.002% WO3 | 0.009 |
| EQ012 | 101227 | Blank 1031 0.002% WO3 | 0.003 |
| EQ012 | 101247 | Blank 1031 0.002% WO3 | 0.004 |
| EQ012 | 101267 | Blank 1031 0.002% WO3 | 0.004 |
| EQ012 | 101287 | Blank Core | 0.002 |
| EQ012 | 101307 | Blank 1031 0.002% WO3 | 0.002 |
| EQ012 | 101056 | Blank Core | 0.024 |
| EQ013 | 101339 | Blank Core | 0.001 |
| EQ013 | 101359 | Blank Core | 0.002 |
| EQ013 | 101379 | Blank Core | <0.001 |
| EQ014 | 101406 | Blank Core | <0.001 |
| EQ014 | 101426 | Blank Core | <0.001 |
| EQ014 | 101446 | Blank Core | 0.002 |
| EQ015 | 101472 | Blank Core | 0.002 |
| EQ015 | 101492 | Blank Core | <0.001 |
| EQ015 | 101512 | Blank Core | 0.002 |
| EQ015 | 101532 | Blank Core | <0.001 |

Table F 2: Tungsten Assay for Standards

| Hole_ID | Sample No | Previous sample No | Previous grade (ME-XRF15b) | WO3% (ME-XRF15b) | error |
|---|---|---|---|---|---|
| EQ001 | 100023 | 1014 | 0.688 | 0.692 | 0.004 |
| EQ001 | 100043 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ001 | 100053 | 1047 | 2.850 | 2.875 | 0.025 |
| EQ001 | 100073 | 1052 | 0.046 | 0.043 | -0.003 |
| EQ001 | 100093 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ001 | 100113 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ002 | 100127 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ002 | 100147 | 1026 | 0.366 | 0.361 | -0.005 |
| EQ002 | 100167 | 1026 | 0.366 | 0.364 | -0.002 |
| EQ002 | 100187 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ003 | 100369 | 1003 | 4.320 | 4.300 | -0.020 |
| EQ003 | 100389 | 1043 | 0.206 | 0.204 | -0.002 |
| EQ003 | 100409 | 1026 | 0.366 | 0.366 | 0.000 |
| EQ003 | 100429 | 1026 | 0.366 | 0.372 | 0.006 |
| EQ003 | 100449 | 1043 | 0.206 | 0.205 | -0.001 |
| EQ003 | 100469 | 1026 | 0.366 | 0.367 | 0.001 |
| EQ003 | 100489 | 1026 | 0.366 | 0.372 | 0.006 |
| EQ004 | 100516 | 1003 | 4.320 | 4.320 | 0.000 |
| EQ004 | 100536 | 1026 | 0.366 | 0.362 | -0.004 |
| EQ004 | 100556 | 1026 | 0.366 | 0.370 | 0.004 |
| EQ004 | 100576 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ004 | 100596 | 1026 | 0.366 | 0.369 | 0.003 |
| EQ004 | 100616 | 1026 | 0.366 | 0.363 | -0.003 |
| EQ004 | 100636 | 1034 | 0.444 | 0.431 | -0.013 |
| EQ005 | 100653 | 1024 | 0.128 | 0.126 | -0.002 |
| EQ005 | 100673 | 1024 | 0.128 | 0.130 | 0.002 |
| EQ005 | 100693 | 1024 | 0.128 | 0.126 | -0.002 |
| EQ005 | 100713 | 1024 | 0.128 | 0.128 | 0.000 |
| EQ005 | 100733 | 1023 | 1.595 | 1.595 | 0.000 |
| EQ005 | 100753 | 1024 | 0.128 | 0.124 | -0.004 |
| EQ005 | 100773 | 1023 | 1.595 | 1.585 | -0.010 |
| EQ006 | 100201 | 1003 | 4.320 | 4.338 | 0.018 |
| EQ006 | 100221 | 1026 | 0.366 | 0.366 | 0.000 |
| EQ006 | 100241 | 1026 | 0.366 | 0.357 | -0.009 |
| EQ006 | 100261 | 1026 | 0.366 | 0.362 | -0.004 |
| EQ006 | 100281 | 1026 | 0.366 | 0.357 | -0.009 |
| EQ006 | 100301 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ006 | 100321 | 1026 | 0.366 | 0.358 | -0.008 |
| EQ006 | 100341 | 1003 | 4.320 | 4.275 | -0.045 |
| EQ007 | 100788 | 1024 | 0.128 | 0.122 | -0.006 |
| EQ007 | 100808 | 1122 | 0.108 | 0.099 | -0.009 |
| EQ007 | 100828 | 1122 | 0.108 | 0.102 | -0.006 |
| EQ008 | 100843 | 1122 | 0.108 | 0.100 | -0.008 |
| EQ008 | 100863 | 1099 | 0.110 | 0.105 | -0.005 |
| EQ009 | 100877 | 1023 | 1.595 | 1.585 | -0.010 |
| EQ009 | 100887 | 1017 | 1.885 | 1.880 | -0.005 |
| EQ009 | 100917 | 1099 | 0.110 | 0.102 | -0.008 |
| EQ009 | 100937 | 1099 | 0.110 | 0.102 | -0.008 |
| EQ009 | 100957 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ010 | 100985 | 1072 | 0.146 | 0.144 | -0.002 |
| EQ010 | 101005 | 1023 | 1.595 | 1.570 | -0.025 |
| EQ010 | 101025 | 1072 | 0.146 | 0.140 | -0.006 |
| EQ010 | 101081 | 1074 | 0.251 | 0.243 | -0.008 |
| EQ011 | 101102 | 1009 | 0.855 | 0.837 | -0.018 |
| EQ011 | 101112 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ011 | 101142 | 1016 | 0.047 | 0.050 | 0.003 |
| EQ011 | 101162 | 1016 | 0.047 | 0.050 | 0.003 |
| EQ011 | 101182 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101197 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101217 | 1016 | 0.047 | 0.048 | 0.001 |
| EQ012 | 101237 | 1038 | 0.031 | 0.030 | -0.001 |
| EQ012 | 101257 | 1016 | 0.047 | 0.052 | 0.005 |
| EQ012 | 101277 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101297 | 1038 | 0.031 | 0.033 | 0.002 |
| EQ012 | 101317 | 1038 | 0.031 | 0.033 | 0.002 |
| EQ012 | 101046 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ012 | 101066 | 1074 | 0.251 | 0.244 | -0.007 |
| EQ013 | 101329 | 1038 | 0.031 | 0.038 | 0.007 |
| EQ013 | 101349 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ013 | 101369 | 1006 | 3.090 | 3.060 | -0.030 |
| EQ014 | 101396 | 100186 | 1.419 | 1.420 | 0.001 |
| EQ014 | 101416 | 100138 | 0.453 | 0.468 | 0.015 |
| EQ014 | 101436 | 100138 | 0.453 | 0.457 | 0.004 |
| EQ015 | 101462 | 100138 | 0.453 | 0.455 | 0.002 |
| EQ015 | 101482 | 100186 | 1.419 | 1.420 | 0.001 |
| EQ015 | 101502 | 100138 | 0.453 | 0.456 | 0.003 |
| EQ015 | 101522 | 100138 | 0.453 | 0.453 | 0.000 |
| EQ015 | 101542 | 100138 | 0.453 | 0.452 | -0.001 |
| EQ016 | 101555 | 100138 | 0.453 | 0.456 | 0.003 |

# APPENDIX F: QA/QC for Survey

## LIDAR Survey Report

# UAV SURVEY REPORT

| | |
|---|---|
| Client: | Speciality Metals International |
| Project: | Mt Carbine Mine |
| Area: | **Full Mine Lease Area** |
| Date Flown: | **27/10/2020** |
| Time Flown: Local time at mid-flight | 1250 |

Airmap3D A Division of seamsurveys

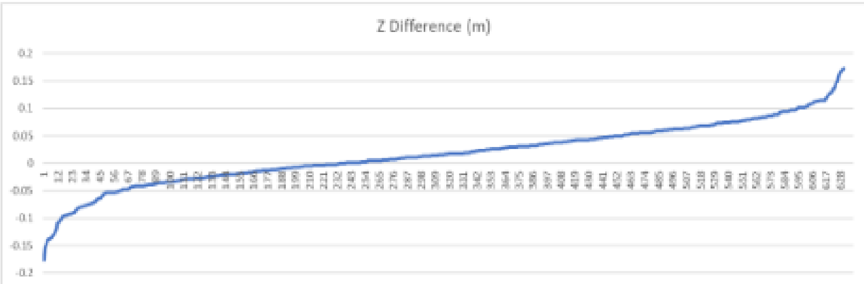
**Data supplied to client:**

| DATA FILES | |
|---|---|
| **Description** | **File Name** |
| Vulcan Ready Surface Model | 201027 Mt Carbine - Surface.00t |
| Generic XYZ Surface Model | 201027 Mt Carbine - Surface.txt |

| IMAGE / DOCUMENT FILES | |
|---|---|
| **Description** | **File Name** |
| A0 General Overview Imagery | 201027 Mt Carbine - A0 Overview.jpg |
| 10cm Georeferenced Imagery (geotiff) | 201027 Mt Carbine - 10cm MGA94.tif |
| 10cm Georeferenced Imagery (ecw) | 201027 Mt Carbine - 10cm MGA94.ecw |
| QA and general information report | 201027 UAV Report - Mt Carbine.pdf |

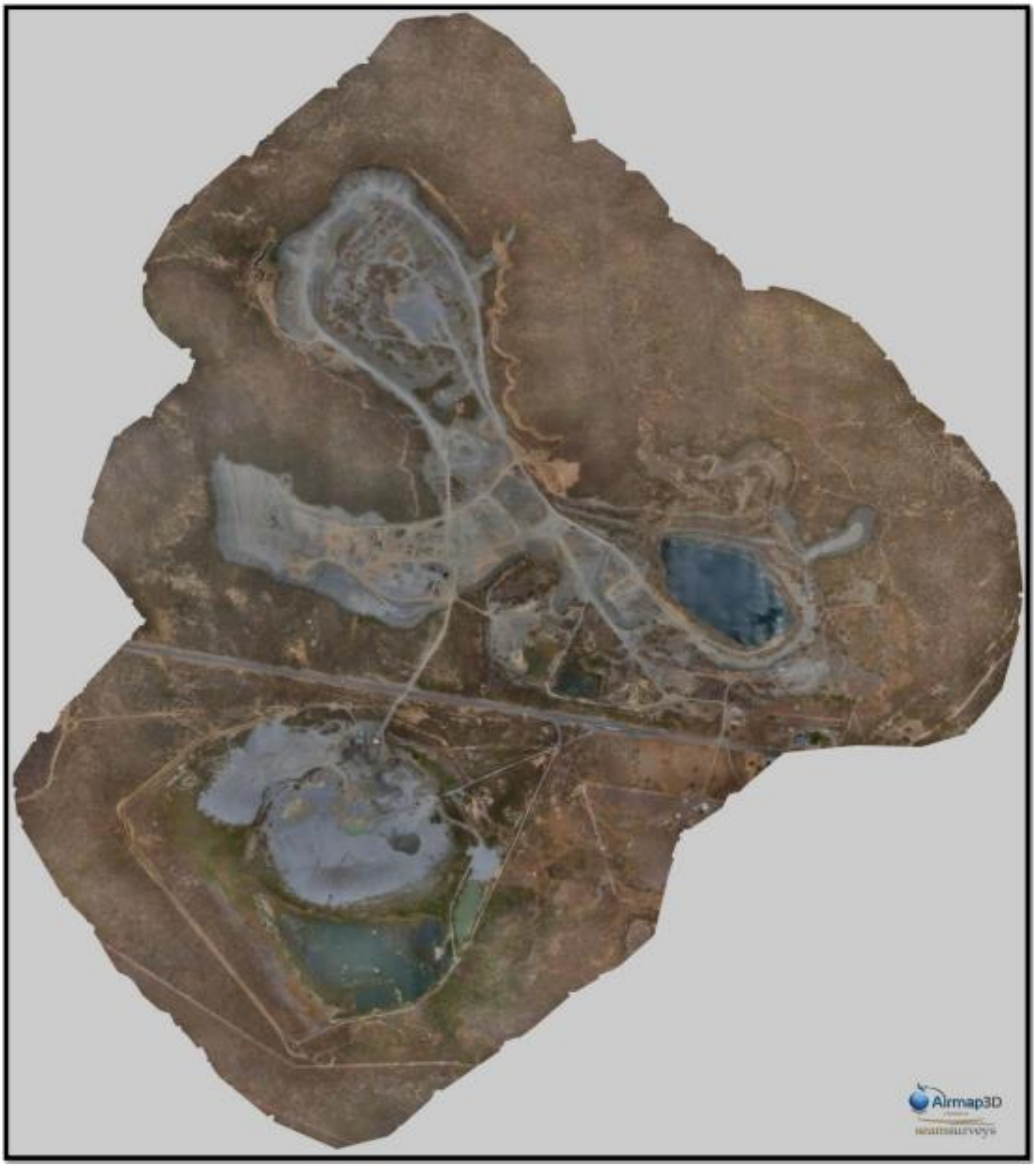
**QA Results**

| *Descriptive Statistics (m)* | |
|---|---|
| **Mean** | **0.017** |
| Standard Error | 0.002 |
| Median | 0.015 |
| Mode | 0.001 |
| **Standard Deviation** | **0.055** |
| Sample Variance | 0.003 |
| Kurtosis | 0.393 |
| Skewness | -0.210 |
| Range | 0.349 |
| Minimum | -0.176 |
| Maximum | 0.173 |
| Sum | 10.601 |
| **Count** | **631** |




The above figures have been derived by comparing independently observed RTK GPS points against the resulting 3D photogrammetry model.
The above statistics are a comparison of the vertical (z value) component only as historically this will represent the largest error.

LIDAR Survey Area



## Survey Stations & Local Grid Conversion

Our ref: 35317-2-1
Your ref:

28th July 2021

Mt Carbine Quarrying Operations Pty Ltd.
6888 Mulligan Highway,
MT CARBINE, QLD 4871

Via email: abainbridge@eqresources.com.au

Dear Tony/Dean

**SURVEY REPORT**
**FOR LOCATION OF BOREHOLES**
**AND COORDINATE REFERENCE POINTS**
**AT MT CARBINE QUARRY**

On the 23rd of July Brazier Motti undertook a detail survey of boreholes, trig stations and building locations at the Mt Carbine Quarry.

The survey was carried out using Trimble RTK GNSS, the primary control marks were adopted from published permanent survey control mark coordinates and confirmed using RTK GNSS.

The Survey marks used are:

PSM 108841
E: 300806.478 (MGA2020)
N:8171662.415 (MGA 2020)
RL:359.955 (AHD)
Horizontal Position Uncertainty of .009m

PSM 107246
E: 300514.372 (MGA2020)
N:8171747.722 (MGA 2020)
RL:362.675 (AHD)
Horizontal Position Uncertainty of .015m

The accuracy of the survey using RTK GPS is ±20mm horizontal position and ±30mm vertical position.

The survey located 16 boreholes, 5 trig stations and various buildings using MGA2020 coordinates. The MGA2020 and Local mine grid coordinates of the boreholes and trig stations have been listed in the Table below.

braziermotti.com.au **Pages: 2**

| Mine grid coordinates | | | MGA2020 Coordinates | | | |
|---|---|---|---|---|---|---|
| Point# | Easting | Northing | Easting | Northing | Elevation | Description |
| 1 | 23046.505 | 25981.417 | 300514.372 | 8171747.722 | 362.675 | PSM/107246 |
| 2 | 23297.833 | 26152.991 | 300806.478 | 8171662.415 | 359.955 | PSM/108841 |
| Z1002 | 22653.742 | 26234.484 | 300460.626 | 8172211.852 | 384.789 | TRIG 5 |
| Z1003 | 22578.077 | 26234.299 | 300412.457 | 8172270.204 | 385.907 | TRIG 7 |
| Z1004 | 22624.095 | 26185.785 | 300404.177 | 8172203.851 | 387.839 | BH/EQ12 |
| Z1005 | 22656.842 | 26177.017 | 300418.187 | 8172172.981 | 386.880 | BH/EQ10 |
| Z1006 | 22657.446 | 26173.679 | 300415.991 | 8172170.395 | 386.836 | BH/EQ5 |
| Z1007 | 22704.388 | 26174.923 | 300446.748 | 8172134.911 | 386.265 | BH/EQ4 |
| Z1008 | 22735.677 | 26170.491 | 300463.183 | 8172107.920 | 387.446 | BH/EQ3 |
| Z1009 | 22765.358 | 26173.378 | 300484.254 | 8172086.817 | 388.697 | BH/EQ11 |
| Z1010 | 22793.295 | 26175.821 | 300503.874 | 8172066.780 | 389.439 | BH/EQ1 |
| Z1011 | 22793.418 | 26175.394 | 300503.622 | 8172066.414 | 389.476 | BH/EQ2 |
| Z1012 | 22841.076 | 26177.612 | 300535.586 | 8172030.995 | 386.779 | BH/EQ15 |
| Z1013 | 22876.196 | 26188.593 | 300566.363 | 8172010.826 | 383.632 | BH/EQ6 |
| Z1014 | 22910.780 | 26189.687 | 300589.160 | 8171984.796 | 382.757 | BH/EQ13 |
| Z1015 | 22956.998 | 26203.604 | 300629.250 | 8171957.916 | 382.717 | BH/EQ14 |
| Z1016 | 23055.566 | 26321.271 | 300782.739 | 8171956.436 | 380.383 | BH/EQ16 |
| Z1017 | 23013.849 | 26330.958 | 300763.746 | 8171994.821 | 364.151 | BH/EQ9 |
| Z1018 | 23014.278 | 26329.307 | 300762.742 | 8171993.441 | 364.092 | BH/EQ8 |
| Z1019 | 23014.294 | 26328.151 | 300761.860 | 8171992.695 | 364.188 | BH/EQ7 |
| Z1021 | 22900.226 | 26472.194 | 300800.764 | 8172172.268 | 380.492 | OMEGA |
| Z1022 | 22780.542 | 26508.637 | 300752.957 | 8172287.883 | 399.317 | ALPHA |
| Z1023 | 22623.397 | 26379.772 | 300553.634 | 8172327.520 | 398.768 | BETA |

How to transform MGA2020 coordinates to Local grid coordinates:

1) The block shift from MGA2020 to MGA94 is E: -0.992 and N: -1.468.
2) Then translate from the MGA94 points to the mine coordinates by adjusting E: -278042.398 N: -8145975.2
3) Then rotate around point CB064 ( 22536.230E 26485.000N) by -50°36'00"

Yours faithfully,

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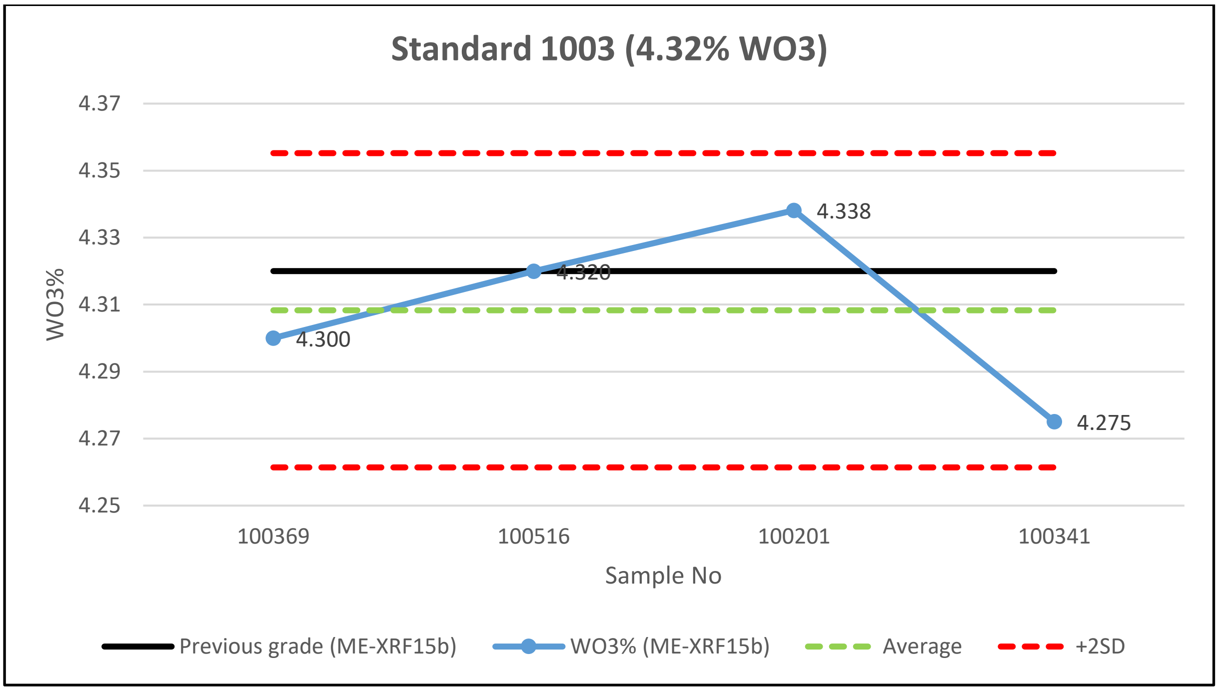
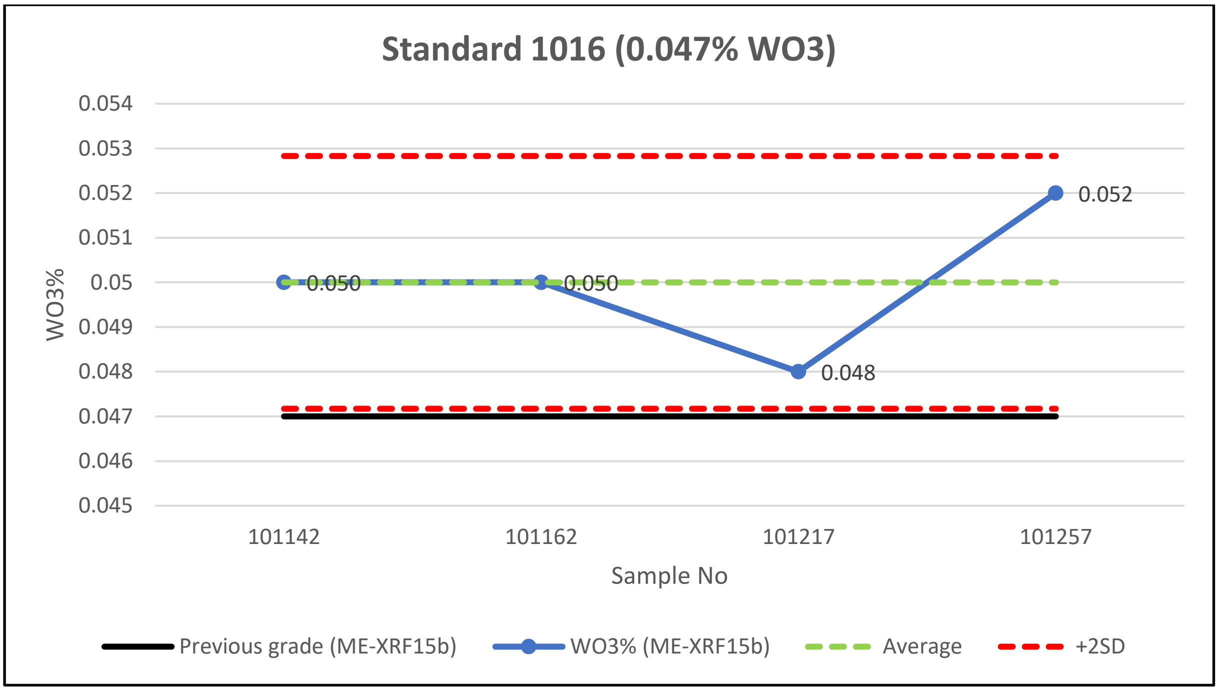
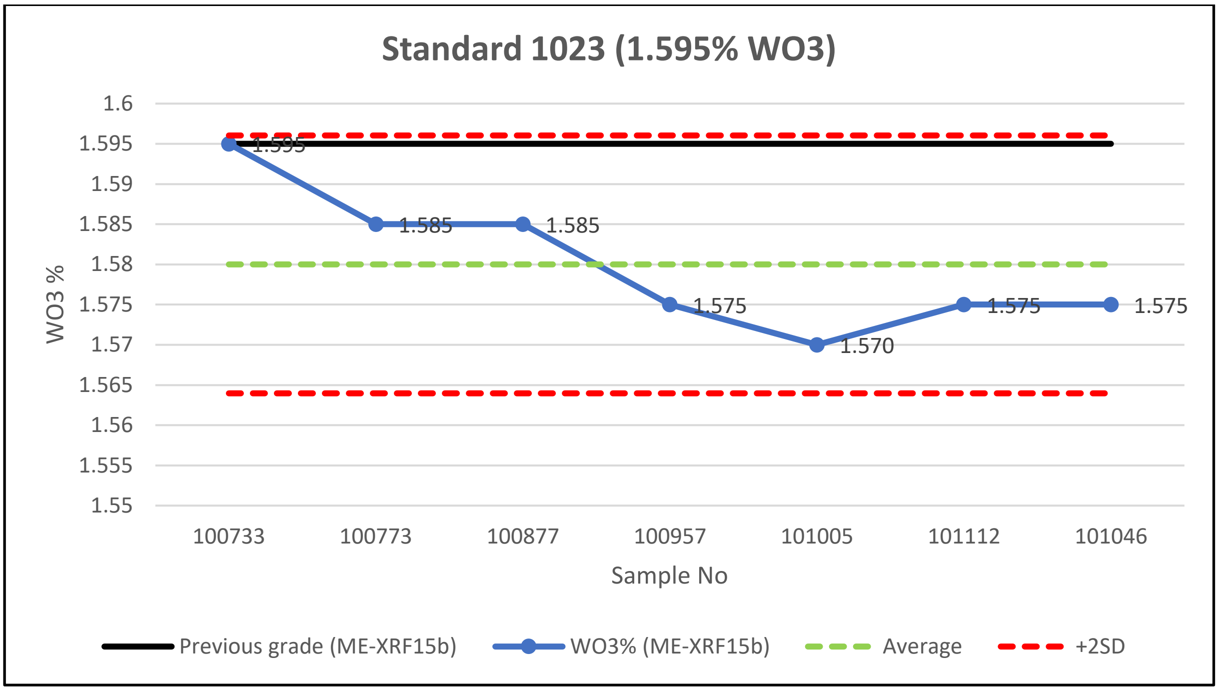
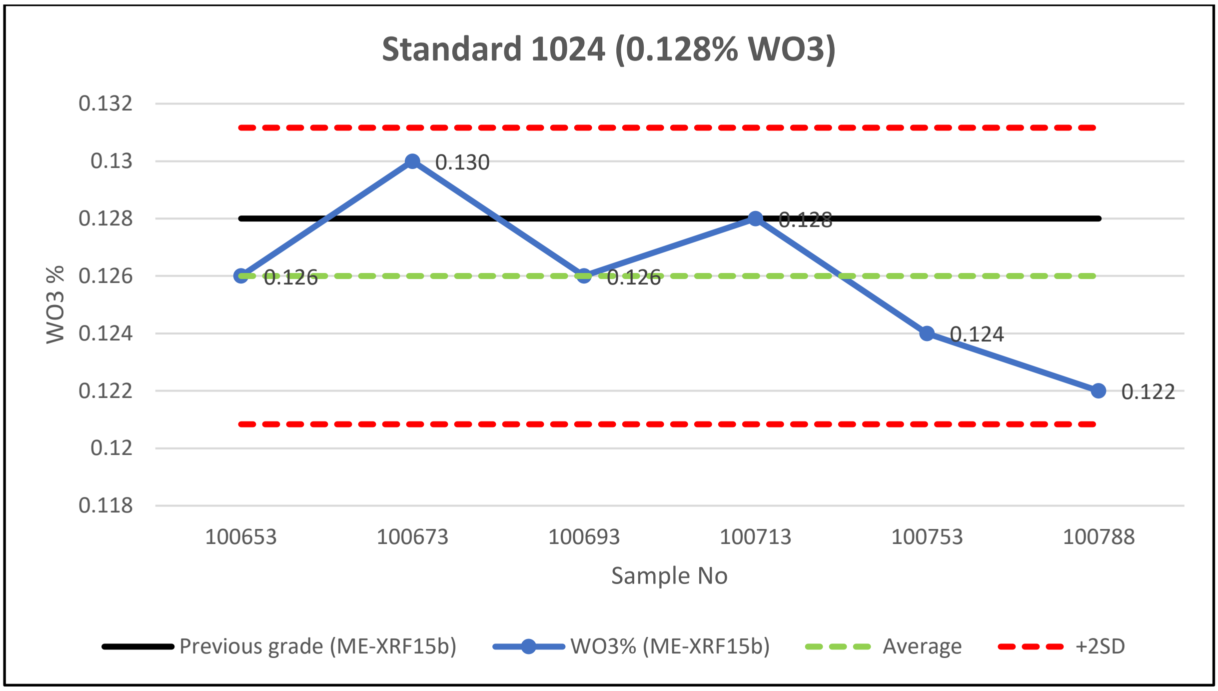
Neil Murphy
*Project Manager*
**Brazier Motti Pty Ltd**

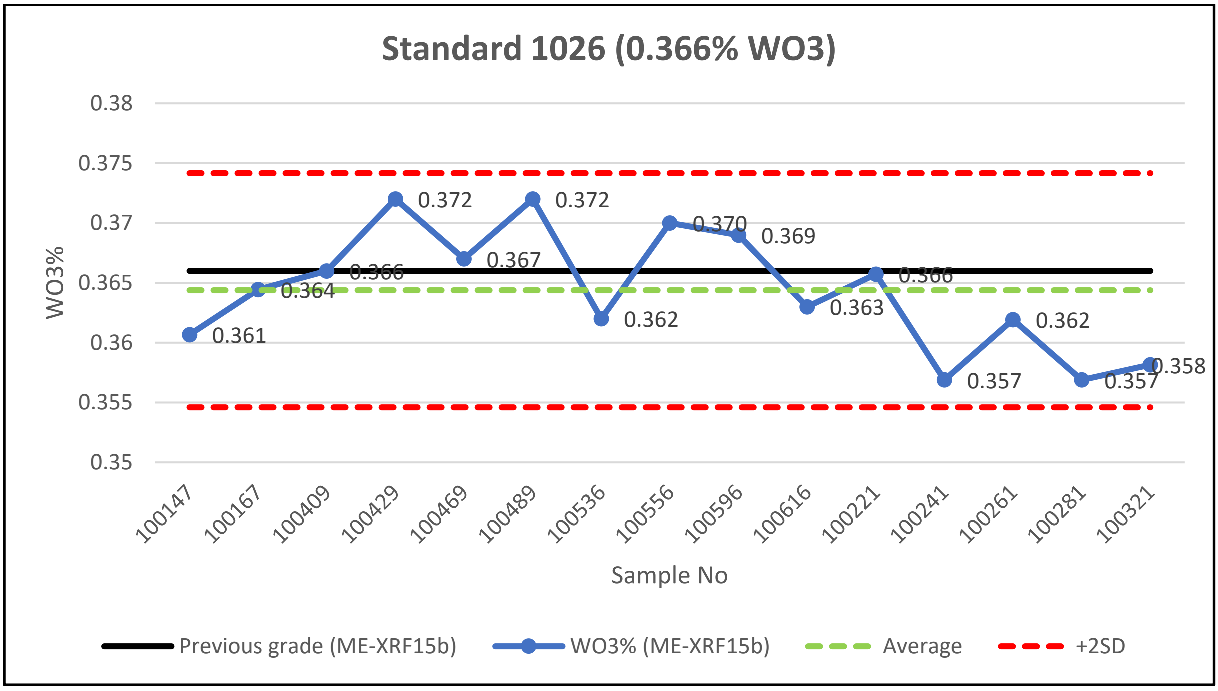
# APPENDIX G: QA/QC Analysis of Standards

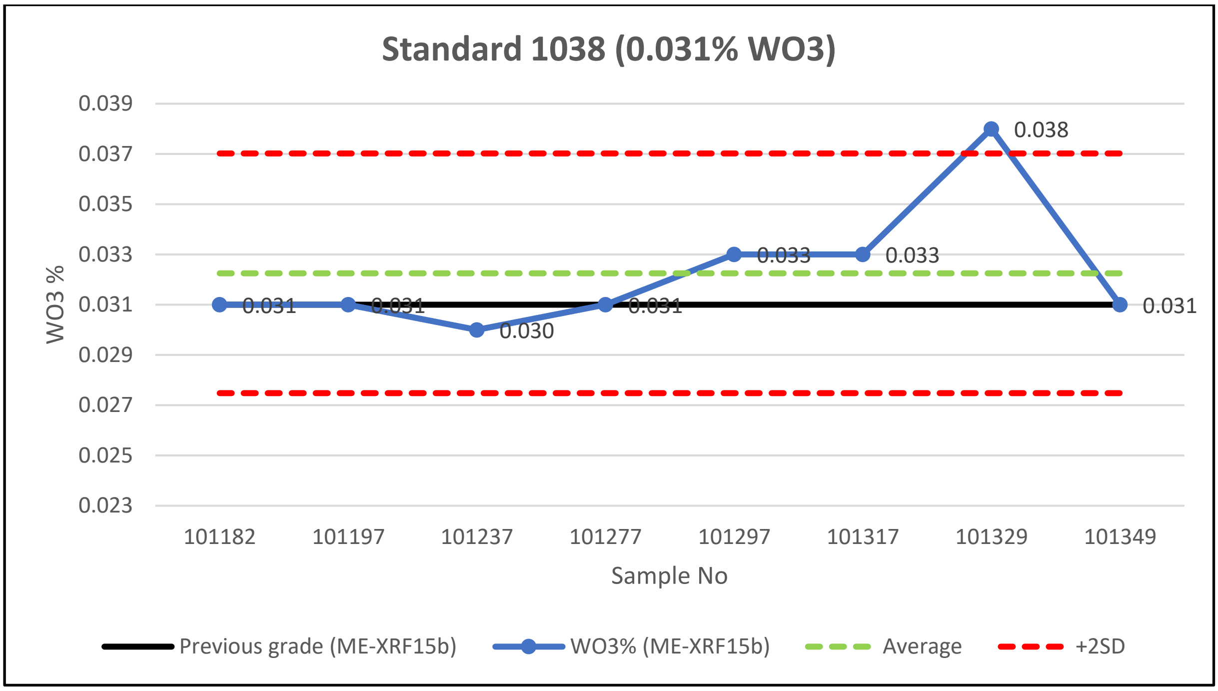

Standard 1003 (4.32% WO3)
4.37
4.35
4.33
4.31
4.29
4.27
4.25
WO3%
4.338
4.320
4.300
4.275
100369
100516
100201
100341
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD

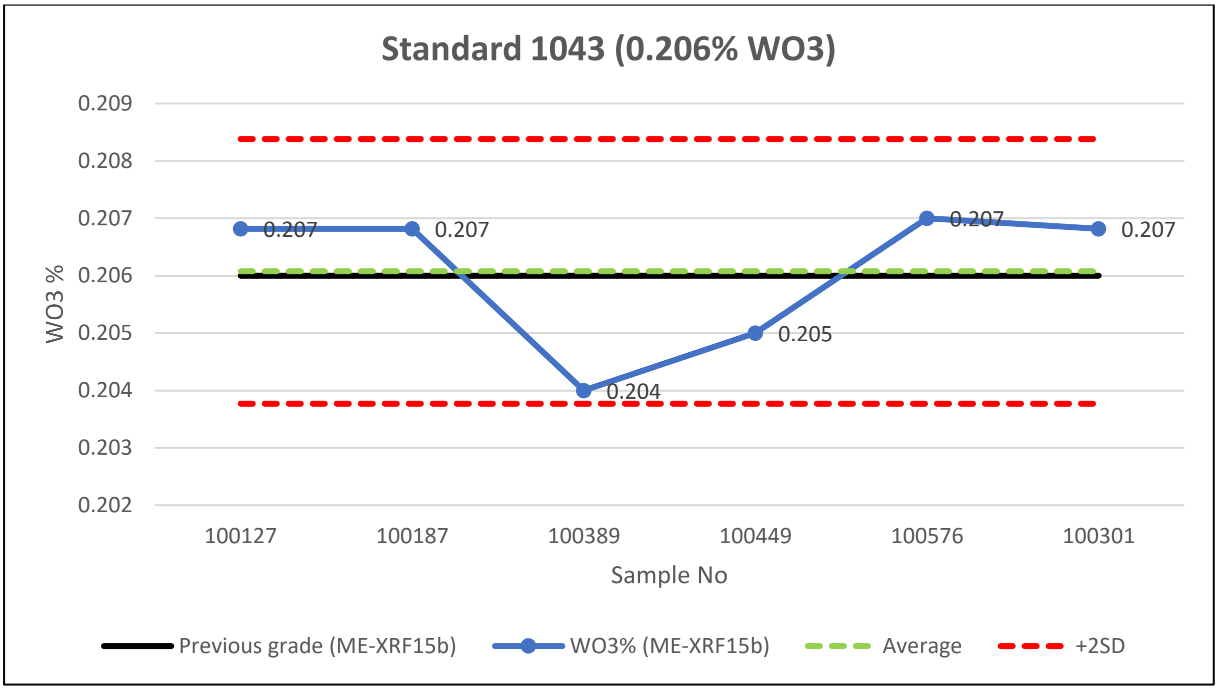

Standard 1016 (0.047% WO3)
0.054
0.053
0.052
0.051
0.05
0.049
0.048
0.047
0.046
0.045
WO3%
0.052
0.050
0.050
0.048
101142
101162
101217
101257
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD

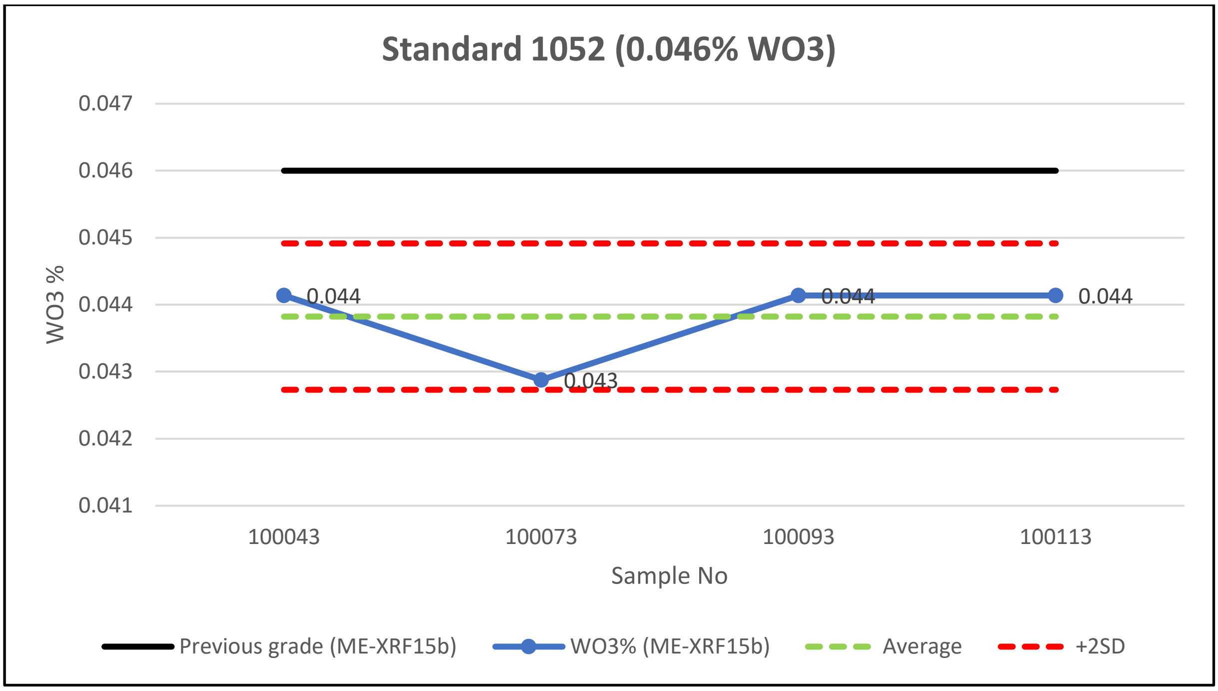

Standard 1023 (1.595% WO3)
WO3 %
1.6
1.595
1.59
1.585
1.58
1.575
1.57
1.565
1.56
1.555
1.55
1.595
1.585
1.585
1.575
1.570
1.575
1.575
100733
100773
100877
100957
101005
101112
101046
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD

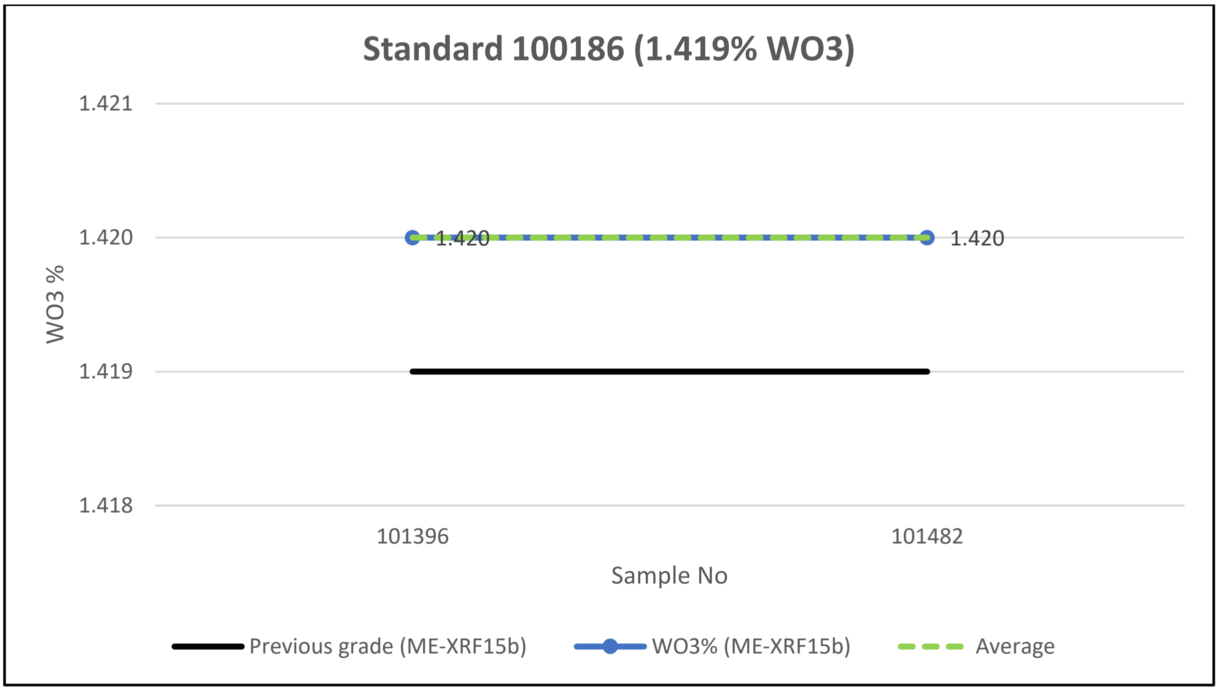

Standard 1024 (0.128% WO3)
WO3 %
0.132
0.13
0.128
0.126
0.124
0.122
0.12
0.118
0.126
0.130
0.126
0.128
0.124
0.122
100653
100673
100693
100713
100753
100788
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD

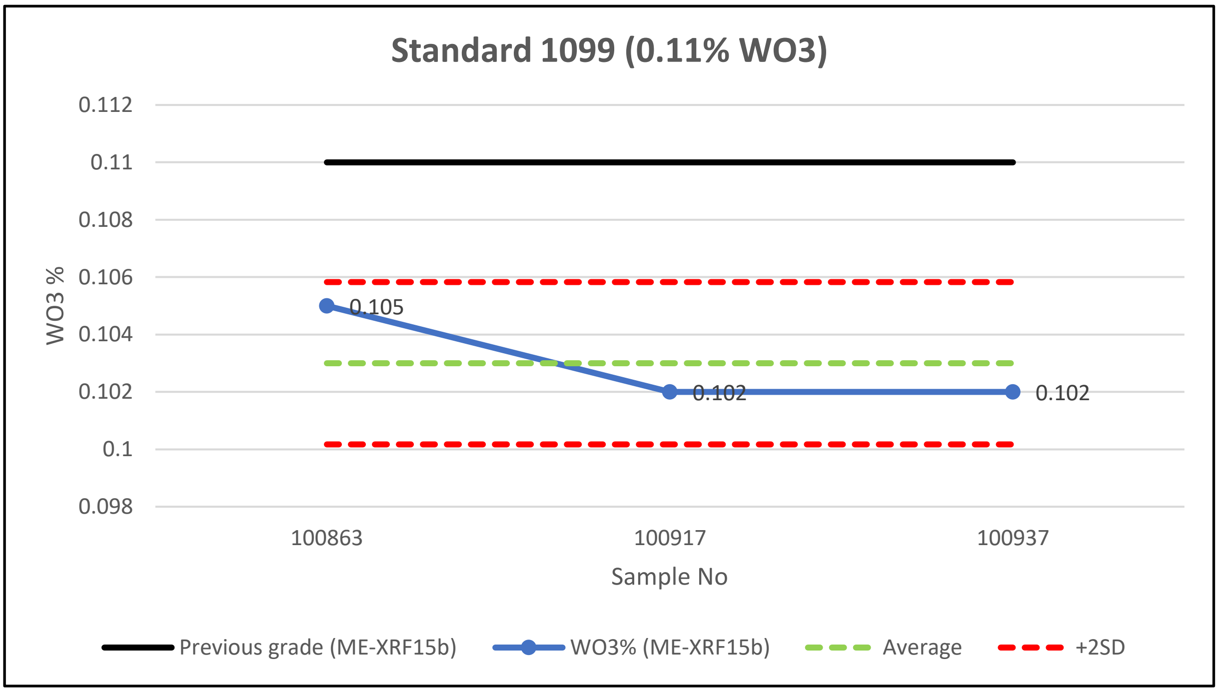

Standard 1026 (0.366% WO3)
WO3%
0.38
0.375
0.37
0.365
0.36
0.355
0.35
0.361
0.364
0.366
0.372
0.367
0.372
0.362
0.370
0.369
0.363
0.366
0.357
0.362
0.357
0.358
100147
100167
100409
100429
100469
100489
100536
100556
100596
100616
100221
100241
100261
100281
100321
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD


Standard 1038 (0.031% WO3)
WO3 %
0.039
0.037
0.035
0.033
0.031
0.029
0.027
0.025
0.023
0.031
0.031
0.030
0.031
0.033
0.033
0.038
0.031
101182
101197
101237
101277
101297
101317
101329
101349
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD


Standard 1043 (0.206% WO3)
WO3 %
0.209
0.208
0.207
0.206
0.205
0.204
0.203
0.202
0.207
0.207
0.204
0.205
0.207
0.207
100127
100187
100389
100449
100576
100301
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD


Standard 1052 (0.046% WO3)
WO3 %
0.047
0.046
0.045
0.044
0.043
0.042
0.041
0.044
0.043
0.044
0.044
100043
100073
100093
100113
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD


Standard 100186 (1.419% WO3)
1.421
1.420
1.419
1.418
WO3 %
1.420
1.420
101396
101482
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average


Standard 1099 (0.11% WO3)
0.112
0.11
0.108
0.106
0.104
0.102
0.1
0.098
WO3 %
0.105
0.102
0.102
100863
100917
100937
Sample No
Previous grade (ME-XRF15b)
WO3% (ME-XRF15b)
Average
+2SD

# APPENDIX H: Multi-Element Statistics for Mt Carbine

## Statistics of Multi-Element for Mt Carbine

| Domain | Eleement | Count | Length | Mean | Standard deviation | Coefficient of variation | Variance | Minimum | Lower quartile | Median | Upper quartile | Maximum |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Host + veins | Al2O3 | 48 | 24.35 | 14.382 | 4.216 | 0.293 | 17.778 | 3 | 12.9 | 15.7 | 16.95 | 23.2 |
| | As | 39 | 18.43 | 0.042 | 0.063 | 1.510 | 0.004 | 0.01 | 0.01 | 0.01 | 0.03 | 0.27 |
| | BaO | 46 | 23.54 | 0.053 | 0.020 | 0.367 | 0.000 | 0.01 | 0.04 | 0.05 | 0.07 | 0.11 |
| | Bi | 7 | 3.37 | 0.027 | 0.020 | 0.746 | 0.000 | 0.01 | 0.02 | 0.02 | 0.03 | 0.08 |
| | CaO | 48 | 24.35 | 1.402 | 0.533 | 0.381 | 0.285 | 0.39 | 1.11 | 1.36 | 1.68 | 2.86 |
| | CeO2 | 24 | 12.21 | 0.011 | 0.003 | 0.292 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 1 | 0.44 | 0.030 | | | | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |
| | Cu | 37 | 18.01 | 0.017 | 0.045 | 2.610 | 0.002 | 0.005 | 0.006 | 0.007 | 0.014 | 0.335 |
| | Fe | 48 | 24.35 | 3.512 | 0.930 | 0.265 | 0.865 | 1.24 | 3.15 | 3.69 | 3.93 | 7.73 |
| | HfO2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | K2O | 47 | 23.86 | 3.117 | 1.065 | 0.342 | 1.134 | 0.59 | 2.8 | 3.33 | 3.8 | 5.72 |
| | La2O3 | 25 | 12.76 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | MgO | 48 | 24.35 | 1.607 | 0.847 | 0.527 | 0.717 | 0.29 | 1.3 | 1.71 | 1.88 | 6.62 |
| | Mn | 48 | 24.35 | 0.071 | 0.022 | 0.308 | 0.000 | 0.02 | 0.06 | 0.07 | 0.09 | 0.14 |
| | Mo | 4 | 1.08 | 0.019 | 0.021 | 1.109 | 0.000 | 0.007 | 0.007 | 0.008 | 0.022 | 0.05 |
| | Nb | 1 | 1.17 | 0.007 | | | | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| | Ni | 4 | 2.67 | 0.007 | 0.002 | 0.233 | 0.000 | 0.006 | 0.006 | 0.006 | 0.006 | 0.009 |
| | P2O5 | 48 | 24.35 | 0.244 | 0.278 | 1.139 | 0.077 | 0.09 | 0.12 | 0.14 | 0.25 | 1.54 |
| | Pb | 4 | 0.9 | 0.019 | 0.019 | 0.966 | 0.000 | 0.005 | 0.005 | 0.016 | 0.041 | 0.041 |
| | Rb | 46 | 23.06 | 0.031 | 0.014 | 0.444 | 0.000 | 0.006 | 0.026 | 0.03 | 0.037 | 0.106 |
| | S | 48 | 24.35 | 0.158 | 0.424 | 2.682 | 0.180 | 0.02 | 0.05 | 0.07 | 0.14 | 3.59 |
| | Sb | 1 | 0.24 | 0.007 | | | | 0.007 | 0.007 | 0.007 | 0.007 | 0.007 |
| | SiO2 | 48 | 24.35 | 68.171 | 8.393 | 0.123 | 70.450 | 52.3 | 63.1 | 65.8 | 69.7 | 92.3 |
| | Sn | 41 | 21.77 | 0.009 | 0.003 | 0.321 | 0.000 | 0.005 | 0.008 | 0.009 | 0.012 | 0.022 |
| | Sr | 43 | 21.66 | 0.016 | 0.007 | 0.441 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| | TiO2 | 48 | 24.35 | 0.503 | 0.161 | 0.320 | 0.026 | 0.1 | 0.42 | 0.57 | 0.62 | 0.68 |
| | V | 34 | 18.37 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 43 | 21.85 | 0.087 | 0.257 | 2.943 | 0.066 | 0.001 | 0.002 | 0.004 | 0.027 | 1.125 |
| | Y2O3 | 31 | 14.64 | 0.006 | 0.001 | 0.164 | 0.000 | 0.005 | 0.005 | 0.006 | 0.007 | 0.01 |
| | Zn | 46 | 23.23 | 0.016 | 0.016 | 1.010 | 0.000 | 0.005 | 0.01 | 0.011 | 0.016 | 0.135 |
| | Zr | 45 | 22.71 | 0.013 | 0.004 | 0.353 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 |
| Host rock | Al2O3 | 110 | 79.19 | 16.015 | 1.937 | 0.121 | 3.751 | 4.58 | 15.7 | 16.3 | 17.05 | 19.2 |
| | As | 79 | 55.04 | 0.030 | 0.059 | 1.971 | 0.003 | 0.01 | 0.01 | 0.02 | 0.02 | 0.43 |
| | BaO | 109 | 78.96 | 0.051 | 0.013 | 0.248 | 0.000 | 0.01 | 0.04 | 0.05 | 0.06 | 0.09 |
| | Bi | 3 | 2.06 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | CaO | 110 | 79.19 | 1.192 | 0.428 | 0.359 | 0.183 | 0.53 | 0.93 | 1.12 | 1.32 | 4.05 |
| | CeO2 | 69 | 48.38 | 0.010 | 0.001 | 0.134 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 3 | 1.42 | 0.012 | 0.006 | 0.468 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | Cu | 75 | 52.15 | 0.011 | 0.015 | 1.302 | 0.000 | 0.005 | 0.007 | 0.008 | 0.01 | 0.115 |
| | Fe | 110 | 79.19 | 3.759 | 0.516 | 0.137 | 0.266 | 1.88 | 3.66 | 3.79 | 3.96 | 5.65 |
| | HfO2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | K2O | 110 | 79.19 | 3.060 | 0.642 | 0.210 | 0.413 | 0.78 | 2.76 | 3.12 | 3.39 | 5.33 |
| | La2O3 | 67 | 47.77 | 0.010 | 0.001 | 0.065 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |
| | MgO | 110 | 79.19 | 1.725 | 0.268 | 0.155 | 0.072 | 0.43 | 1.7 | 1.78 | 1.86 | 2.06 |
| | Mn | 110 | 79.19 | 0.075 | 0.020 | 0.262 | 0.000 | 0.05 | 0.06 | 0.07 | 0.09 | 0.21 |
| | Mo | 3 | 1.68 | 0.005 | 0.000 | 0.000 | 0.000 | 0.005 | 0.005 | 0.005 | 0.005 | 0.005 |
| | Nb | 3 | 1.66 | 0.006 | 0.002 | 0.446 | 0.000 | 0.005 | 0.005 | 0.005 | 0.005 | 0.01 |
| | Ni | 13 | 7.96 | 0.012 | 0.007 | 0.610 | 0.000 | 0.005 | 0.006 | 0.007 | 0.016 | 0.024 |
| | P2O5 | 110 | 79.19 | 0.160 | 0.083 | 0.520 | 0.007 | 0.05 | 0.12 | 0.14 | 0.16 | 0.53 |
| | Pb | 12 | 9.84 | 0.006 | 0.001 | 0.234 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.009 |
| | Rb | 110 | 79.19 | 0.026 | 0.007 | 0.253 | 0.000 | 0.005 | 0.023 | 0.027 | 0.03 | 0.048 |
| | S | 110 | 79.19 | 0.101 | 0.078 | 0.772 | 0.006 | 0.01 | 0.06 | 0.09 | 0.12 | 0.5 |
| | Sb | 3 | 2.46 | 0.005 | 0.001 | 0.113 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.006 |
| | SiO2 | 110 | 79.19 | 65.686 | 3.749 | 0.057 | 14.052 | 58.6 | 64 | 64.9 | 66.4 | 88.5 |
| | Sn | 82 | 57 | 0.008 | 0.003 | 0.335 | 0.000 | 0.005 | 0.006 | 0.007 | 0.009 | 0.019 |
| | Sr | 105 | 76.18 | 0.015 | 0.006 | 0.410 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| | TiO2 | 110 | 79.19 | 0.600 | 0.096 | 0.160 | 0.009 | 0.13 | 0.59 | 0.62 | 0.65 | 0.73 |
| | V | 102 | 72.52 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 84 | 60.5 | 0.067 | 0.287 | 4.292 | 0.083 | 0.001 | 0.002 | 0.003 | 0.008 | 1.79 |
| | Y2O3 | 65 | 48.96 | 0.006 | 0.001 | 0.170 | 0.000 | 0.005 | 0.005 | 0.006 | 0.006 | 0.009 |
| | Zn | 110 | 79.19 | 0.013 | 0.007 | 0.535 | 0.000 | 0.006 | 0.01 | 0.011 | 0.014 | 0.079 |
| | Zr | 109 | 77.9 | 0.014 | 0.005 | 0.360 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.03 |
| Vein | Al2O3 | 155 | 46.93 | 5.552 | 4.585 | 0.826 | 21.021 | 0.15 | 2.32 | 4.16 | 7.64 | 19.1 |
| | As | 90 | 27.55 | 0.035 | 0.055 | 1.562 | 0.003 | 0.01 | 0.01 | 0.01 | 0.02 | 0.35 |
| | BaO | 112 | 30.97 | 0.029 | 0.029 | 0.996 | 0.001 | 0.01 | 0.01 | 0.02 | 0.03 | 0.18 |
| | Bi | 58 | 17.96 | 0.018 | 0.019 | 1.059 | 0.000 | 0.01 | 0.01 | 0.01 | 0.02 | 0.22 |
| | CaO | 154 | 46.82 | 0.881 | 1.211 | 1.374 | 1.466 | 0.08 | 0.36 | 0.61 | 1 | 9.31 |
| | CeO2 | 13 | 2.32 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | Co | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | Cr | 1 | 0.54 | 0.010 | 0 | 0 | 0 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | Cu | 58 | 17.09 | 0.049 | 0.128 | 2.602 | 0.016 | 0.005 | 0.006 | 0.012 | 0.02 | 0.742 |
| | Fe | 155 | 46.93 | 1.697 | 0.867 | 0.511 | 0.751 | 0.58 | 0.99 | 1.61 | 2.06 | 10.05 |
| | HfO2 | 3 | 0.36 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | K2O | 144 | 45.56 | 1.875 | 2.220 | 1.184 | 4.927 | 0.03 | 0.51 | 1.02 | 2.5 | 13.15 |
| | La2O3 | 18 | 2.27 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | MgO | 155 | 46.93 | 0.359 | 0.365 | 1.016 | 0.133 | 0.02 | 0.11 | 0.25 | 0.44 | 2.03 |
| | Mn | 155 | 46.93 | 0.066 | 0.122 | 1.829 | 0.015 | 0.01 | 0.02 | 0.03 | 0.05 | 1.73 |
| | Mo | 26 | 4.99 | 0.012 | 0.012 | 0.966 | 0.000 | 0.005 | 0.006 | 0.007 | 0.013 | 0.069 |
| | Nb | 23 | 7.64 | 0.020 | 0.039 | 1.922 | 0.002 | 0.005 | 0.007 | 0.014 | 0.021 | 0.317 |
| | Ni | 10 | 2.45 | 0.015 | 0.015 | 0.994 | 0.000 | 0.005 | 0.008 | 0.011 | 0.014 | 0.052 |
| | P2O5 | 154 | 46.24 | 0.161 | 0.191 | 1.188 | 0.036 | 0.01 | 0.04 | 0.11 | 0.19 | 1.34 |
| | Pb | 62 | 18.08 | 0.009 | 0.009 | 1.007 | 0.000 | 0.005 | 0.005 | 0.006 | 0.011 | 0.119 |
| | Rb | 106 | 31.31 | 0.020 | 0.018 | 0.890 | 0.000 | 0.005 | 0.006 | 0.013 | 0.028 | 0.081 |
| | S | 147 | 44.8 | 0.137 | 0.237 | 1.721 | 0.056 | 0.01 | 0.03 | 0.06 | 0.13 | 2.45 |
| | Sb | 10 | 2.47 | 0.007 | 0.001 | 0.196 | 0.000 | 0.005 | 0.006 | 0.008 | 0.008 | 0.01 |
| | SiO2 | 155 | 46.93 | 85.268 | 10.874 | 0.128 | 118.248 | 6.28 | 81.7 | 88.4 | 92.8 | 99.7 |
| | Sn | 51 | 12.99 | 0.013 | 0.012 | 0.914 | 0.000 | 0.005 | 0.007 | 0.012 | 0.014 | 0.068 |
| | Sr | 58 | 13.07 | 0.019 | 0.030 | 1.551 | 0.001 | 0.01 | 0.01 | 0.01 | 0.02 | 0.22 |
| | TiO2 | 153 | 45.8 | 0.115 | 0.120 | 1.048 | 0.014 | 0.01 | 0.04 | 0.08 | 0.15 | 0.68 |
| | V | 19 | 3.23 | 0.010 | 0.000 | 0.000 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| | W | 123 | 34.6 | 0.896 | 2.792 | 3.117 | 7.796 | 0.001 | 0.002 | 0.097 | 0.653 | 39.7 |
| | Y2O3 | 28 | 6.5 | 0.005 | 0.001 | 0.144 | 0.000 | 0.005 | 0.005 | 0.005 | 0.006 | 0.009 |
| | Zn | 84 | 22.03 | 0.016 | 0.037 | 2.284 | 0.001 | 0.005 | 0.006 | 0.007 | 0.01 | 0.203 |
| | Zr | 38 | 8.4 | 0.011 | 0.003 | 0.259 | 0.000 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 |

# Appendix B METS Ignited Report

Sustainable Minerals Institute
**8 August 2021**

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA
CREATE CHANGE

# Mets Ignited Final Report: Grade by Size characterisation of low-grade stockpile for ore sorting applications – Mt Carbine

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# Tables



# Appendices

# 1. Introduction

## 1.1 Mt Carbine Tungsten deposit

The Mt Carbine tungsten deposit is located approximately 80 km northwest of Cairns in far NE Queensland and is amongst the largest of a cluster of Sn-W deposits related to Permian-aged felsic magmatism in the region (Figure 1). Tungsten mineralisation in the region occurs as granite-related greisens and sheeted veins which are hosted by Silurian to Carboniferous-aged metasediments of the Hodgkinson Formation. Signifcant tungsten deposits include the Watershed W-Sn deposit with an in situ resource of 49.3 Mt at 0.14 % $WO_3$ and the Wolfram Camp W-Mo-Bi depsoit which produced 10,243 t of tungsten, molybdenum and bismuth between 1894 and 2017.

Mount Carbine was discovered in the 1880s and mined intermittantly until the main phase of operation between 1969 and 1987 which produced 14,800 tonnes of high-grade $WO_3$ concentrate from 10.3 million tonnes of crushed ore (White, 2014). In 2012, the indicated and inferred hard rock resource at Mt Carbine was 47.3 Mt at 0.13 % $WO_3$. The hard rock resource is currently undergoing a phase of further resource definition drilling by EQ Resources. An additional resource of 4.0 Mt at 0.06 % $WO_3$ is contained in historical ore sorter rejects and 2.0 Mt at 0.1 % $WO_3$ in coarse, historical tailings. The subject of this study is the low grade historical surface stockpile with an indicated resource of 12.0 Mt at 0.075 % $WO_3$ (White, 2014). Part of this study is to evaluate the grade heterogeneity across the low grade stockpile based on bulk sampling and to determine the distribution of tungsten grade across different particle sizes. The aim is to evaluate the opportunities for coarse waste rejection and ore sorter feed characteristics for improved reprocessing of this historical low grade material.

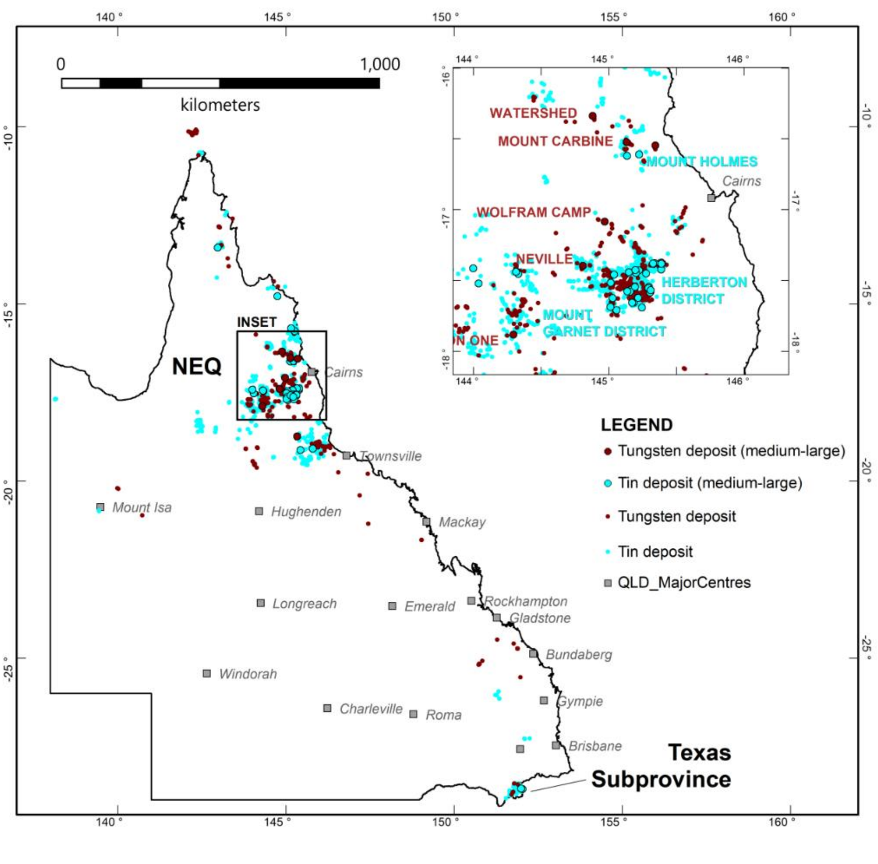



*Figure 1: Location of the tin and tungsten dominated mineral occurrences of Queensland (From Gow and Lisitsin, 2021).*

# 2. Sample materials

This study has involved two sampling phases from the low grade stockpile (Figure 2):

1) Two initial bulk sample trenches (Trench 1 and 2) which were crushed on site and screened prior to ore sorting on site. Sample materials collected for characterisation included:
   - Ore sorter accept material
   - Ore sorter reject material
   - Undersize (-8 mm) material (fines)
2) Collection of 6 bulk samples (Pits 1 to 6), each between 600 and 1,000 kg in total mass, for systematic grade-by-size analysis involving screening and size-based assay with targeted mineralogical analysis.

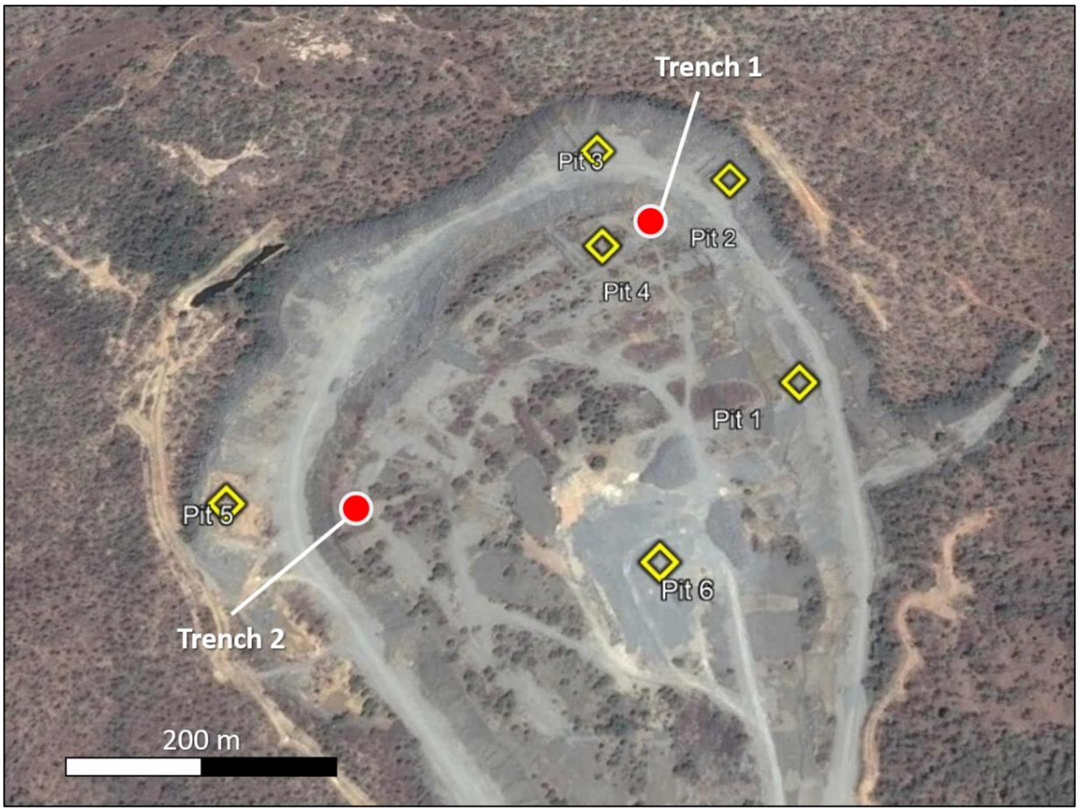



*Figure 2: Location of trench samples 1 and 2 for the sorter trial and Pits 1 to 6 for the grade by size assessment within the low grade stockpile at Mt Carbine.*

## 2.1 Trench 1 and Trench 2: Ore sorter trials

Bulk materials were extrated from the low grade stockpile at locations designated as Trench 1 and Trench 2 (Figure 2; Table 1) using a front end loader. These materials were screened to remove the +160 mm material prior to crushing on site to 100% passing 25 mm. The crushed product was screened to generate a -25 mm + 8 mm fraction (sorter feed) and -8 mm (undersize) fraction, intended to be directed to the beneficiation plant. The total mass of the trench materials trialled were 785,000 kg and 650,000 kg for trenches 1 and 2 respectively (Table 1). The -25 +8 mm material from each trench was fed through the Tomra X-ray transmission (XRT) ore sorter on site at Mt Carbine using the parameters outlined in Table 1.

The initial sorter trials from Trench 1 and 2 indicate that nearly 65 % of the bulk sample mass reported to the undersize fraction (-8 mm) after crushing with the remaining 35 % of mass being directed to the sorter at feed rates of between 23 and 29 tonnes per hour (equivalent to approximately 10 hours per sample; Table 1). These initial trials suggest that the crushing phase may have generated an excess of undersize material. The University of Queensland was provided with representative samples from the ore sorter testwork program to evaluate the grade distribution and elemental deportment during ore sorting. The full sorting results including sorter yield for these trench samples are discussed in Section 3.

*Table 1. Ore sorter feed and undersize masses from Trenches 1 and 2 as part of the initial sorter trial. Sorter yield is tabulated in Table 3).*

| Location | Head Feed (t) | -8 mm undersize (t) | -8 mm undersize (%) | Sorter Feed (t) | Sorter Feed (%) | Sorter feed rate (t/h) |
|---|---|---|---|---|---|---|
| Trench 1 | 785 | 509 | 64.8 | 276 | 35.2 | 29 |
| Trench 2 | 650 | 418 | 64.3 | 232 | 35.7 | 23 |

## 2.2 Sample Pits 1 to 6: Grade by size samples

Bulk samples were excavated from six pits (Figure 2) using a front end loader. The bulk samples were scalped to remove +106 mm material which was stockpiled separately. The -106 mm material from each pit was subsampled by cone and quartering to individual sample lots ranging between 729 and 990 kg (Figure 3; Table 2). These samples were sent to the SMI at UQ for grade by size analysis (Figure 4). The samples were transferred from bulka bags to 44 gallon drums and hand screened through Gilson screens (Figure 4B). The following Gilson screens were used for initial screening: 75 mm, 53 mm, 26.5 mm and 8 mm. These screens were chosen to align with site-based screening equipment capabilities and to produce materials suitable for ore sorter feed (e.g., -53 +26.5 mm and -26.5 +8 mm fractions). The -8 mm fraction represents the undersize material screened prior to sorting and the +75 mm material represents oversize material that would be crushed prior to ore sorting. The -8 mm material was further screened to -8 + 1 mm and -1 mm size fractions using a 1 mm Gilson screen to investigate the deportment of tungsten phases in the undersize material.

### 2.2.1 Natural Grade by Size testing

The screened materials in the following size fractions: -106 +75 mm; -75 +53 mm; -53 +26.5 mm; -26.5 +8 mm; -8 +1 mm and -1 mm were weighed to obtain the fraction mass to produce particle size distribution charts. The fractions were representatively sub-sampled for chemical assay at ALS (Brisbane) to determine tungsten grade and multielement geochemistry of each fraction. This data was used to evaluate the natural distribution of tungsten grades across each size fraction for integration with economic modelling, mine planning and scheduling carried out by DAS. The results of the natural grade by size study are discussed in Section 4. Figure 5 illustrates the simplified flow chart used in the natural grade by size study.

### 2.2.2 Induced Grade by Size testing

The natural size fractions -106 +75 mm, -75 mm +53 mm and -53 +26.5 mm were crushed using a jaw crusher at the SMI Indooroopilly Pilot Plant using a closed side setting of 25 mm (Figure 5). The progeny from each crushed fraction was then screened to -25 +8 mm, -8 + 1 mm and -1 mm fractions. This test work was designed to investigate the effects of coarse liberation and coarse waste rejection opportunities for size fractions greater than that optimised for the ore sorter. For example, if the results of the natural grade by size study indicate that a particular coarse fraction (e.g., -106 +75 mm) is naturally very low grade, the crushing test was designed to evaluate if coarse crushing would provide a significant upgrade in tungsten grade to the undersize fractions (-8 + 1mm and -1 mm). This may present opportunities for size-based screening and/or ore sorting of the coarse progeny (>8 mm) after crushing. The -26.5 + 8 mm size fraction was not crushed in the crushing trial as this is the optimal feed size for the XRT ore sorter. Due to timing constraints, the crushed products were not able to be tested in the field on the XRT ore sorter, but this remains a further testing opportunity.


*Figure 3: Site based pit sampling and screening. A) Initial sampling of Pit 5; B) Screening of bulk sample materials; C) Bulka bags of sub-sampled material from Pits 1 to 6 prior to dispatch to SMI.*

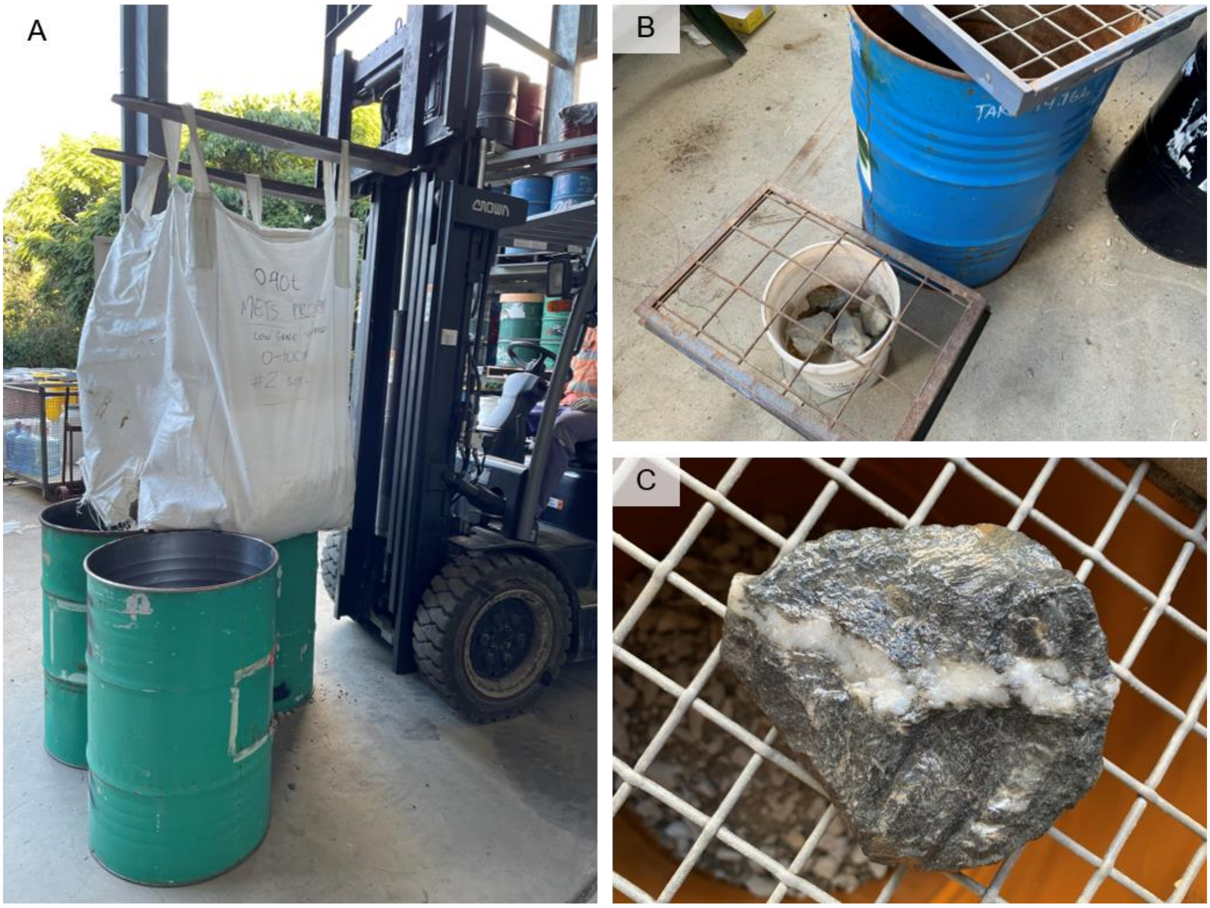



*Figure 4: Screening of bulka bag samples from Pits 1 to 6 at the SMI – UQ Indooroopilly Pilot Plant. A) Transfer of samples from bulka bags to drums; B) Screening of bulk sample materials using Gilson screens; C) Example of +75 mm particle with quartz-wolframite-scheelite vein on Gilson screen.*

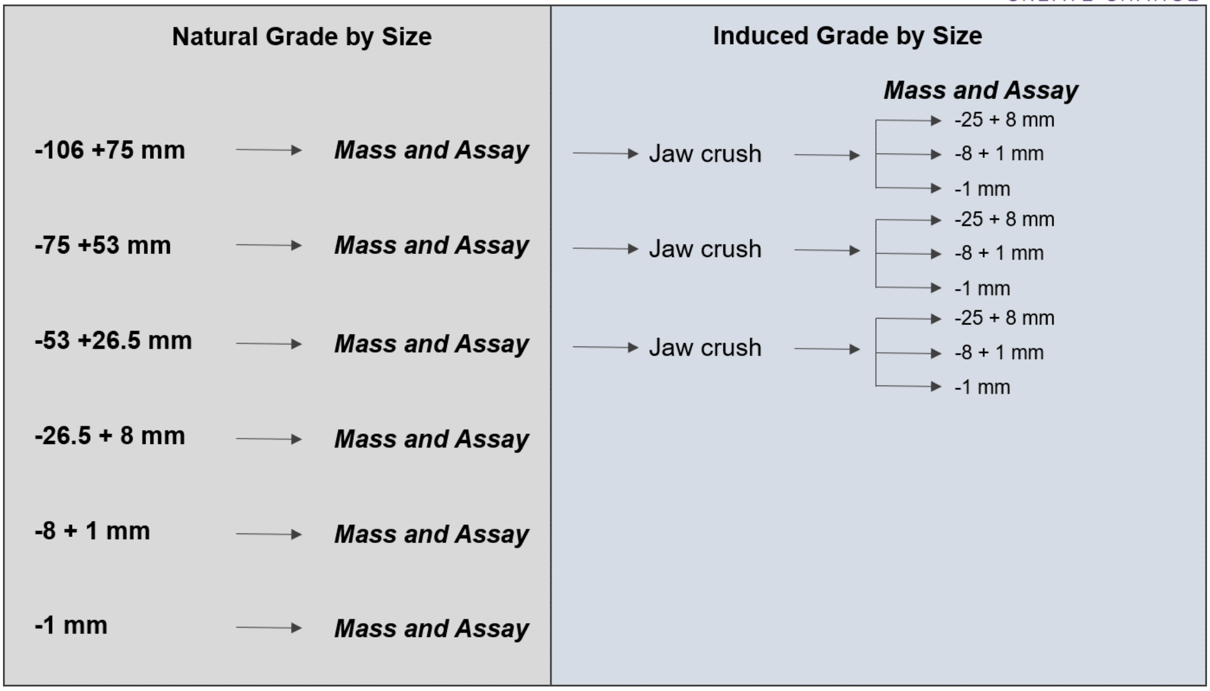



*Figure 5: Simplified flow sheet for analysis of screened samples as part of the natural grade by size and induced grade by size test work program.*

# 3. Ore sorter trial results

The results of the ore sorter trial results from Trench 1 and 2 (Figure 2 and Table 1) are briefly summarised. These formed an initial part of the broader sorter trial work program carried out by EQ Resources as part of this study.

## 3.1 Trench 1 and Trench 2 Mass distribution

Table 1 summarises the material mass ontained from Trenches 1 and 2 and the proportion of material in the -25 + 8 mm size range that was fed to the XRT ore sorter as part of the sorter trial. Tables 2 and 3 summarise the results of the initial sorter trial in terms of sorter accept yield (IE. the percentage of feed material that was classified as ore grade and accepted by the ore sorter). For Trench 1 material, from 276,000 kg of material fed to the ore sorter, 52,000 kg was accepted indicating a sorter yield of 18.8 % and a rejection of more than 80 % of the mass (Table 2). In contrast, Trench 2 had a lower sorter yield of 8.6 % based on total sorter feed of 232,000 kg and sorter accept mass of 20,000 kg indicating a higher mass rejection of 91.4 % (Table 3; Figure 6).

*Table 2. Trench 1 mass and grade distribution and ore sorter feed and accept response (sorter yield) for Trench 1 as part of the initial sorter trial.*

| Trench 1 – Full Trench Summary | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Material Type** | **Mass (kg)** | **Mass %** | **Assay W (ppm)** | **Assay W (wt. %)** | **Assay W (WO3 %)** | **Tungsten Dist. (%)** | **Upgrade Factor** |
| METS-201015-200-A-001 | -8 mm Undersize | 509,000 | 64.8 | 935 | 0.094 | 0.118 | 51.8 | 0.80 |
| METS-201015-300-A-002 | -25 +8 mm Sorter Accept | 52,000 | 6.6 | 8,300 | 0.830 | 1.047 | 46.9 | 7.09 |
| METS-201015-400-A-003 | -25 +8 mm Sorter Reject | 224,000 | 28.5 | 53 | 0.005 | 0.007 | 1.3 | 0.05 |
| **Trench Head Grade/Totals** | | **785,000** | **100.0** | **1,171** | **0.117** | **0.148** | **100** | |
| **Trench 1 – Ore sorter feed only (-25 +8 mm fraction only)** | | | | | | | | |
| **Sample ID** | **Material Type** | **Mass (kg)** | **Yield Mass %** | **Assay W (ppm)** | **Assay W (wt. %)** | **Assay W (WO3 %)** | **Tungsten Dist. (%)** | **Upgrade Factor** |
| METS-201015-300-A-002 | +8 - 25 mm Sorter Accept | 52,000 | **18.8** | 8,300 | 0.830 | 1.047 | 97.3 | 5.17 |
| METS-201015-400-A-003 | +8 - 25 mm Sorter Reject | 224,000 | 81.2 | 53 | 0.005 | 0.007 | 2.7 | 0.03 |
| **Sorter Feed Head Grade** | | **276,000** | **100.0** | **1,607** | **0.161** | **0.203** | **100** | |

*Table 3. Trench 2 mass and grade distribution and ore sorter feed and accept response (sorter yield) as part of the initial sorter trial.*

| Trench 2 – Full Trench Summary | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sample ID** | **Material Type** | **Mass (kg)** | **Mass %** | **Assay W (ppm)** | **Assay W (wt. %)** | **Assay W (WO3 %)** | **Tungsten Dist. (%)** | **Upgrade Factor** |
| METS-201021-200-A-004 | -8 mm Undersize | 418,000 | 64.3 | 802 | 0.080 | 0.101 | 77.4 | 1.2 |
| METS-201021-300-A-005 | +8 - 25 mm Soter Accept | 20,000 | 3.1 | 4,480 | 0.448 | 0.565 | 20.7 | 6.7 |
| METS-201021-400-A-006 | +8 - 25 mm Sorter Reject | 212,000 | 32.6 | 39 | 0.004 | 0.005 | 1.9 | 0.1 |
| **Trench Head Grade/Totals** | | **650,000** | **100.0** | **666** | **0.067** | **0.084** | **100** | |
| **Trench 2 – Ore sorter feed only (-25 +8 mm fraction only)** | | | | | | | | |
| **Sample ID** | **Material Type** | **Mass (kg)** | **Yield Mass %** | **Assay W (ppm)** | **Assay W (wt. %)** | **Assay W (WO3 %)** | **Tungsten Dist. (%)** | **Upgrade Factor** |
| METS-201021-300-A-005 | +8 - 25 mm Sorter Accept | 20,000 | **8.6** | 4,480 | 0.448 | 0.565 | 91.6 | 10.6 |
| METS-201021-400-A-006 | +8 - 25 mm Sorter Reject | 212,000 | 91.4 | 39 | 0.004 | 0.005 | 8.4 | 0.1 |
| **Sorter Feed Head Grade/ Totals** | | **232,000** | **100.0** | **422** | **0.042** | **0.053** | **100** | |

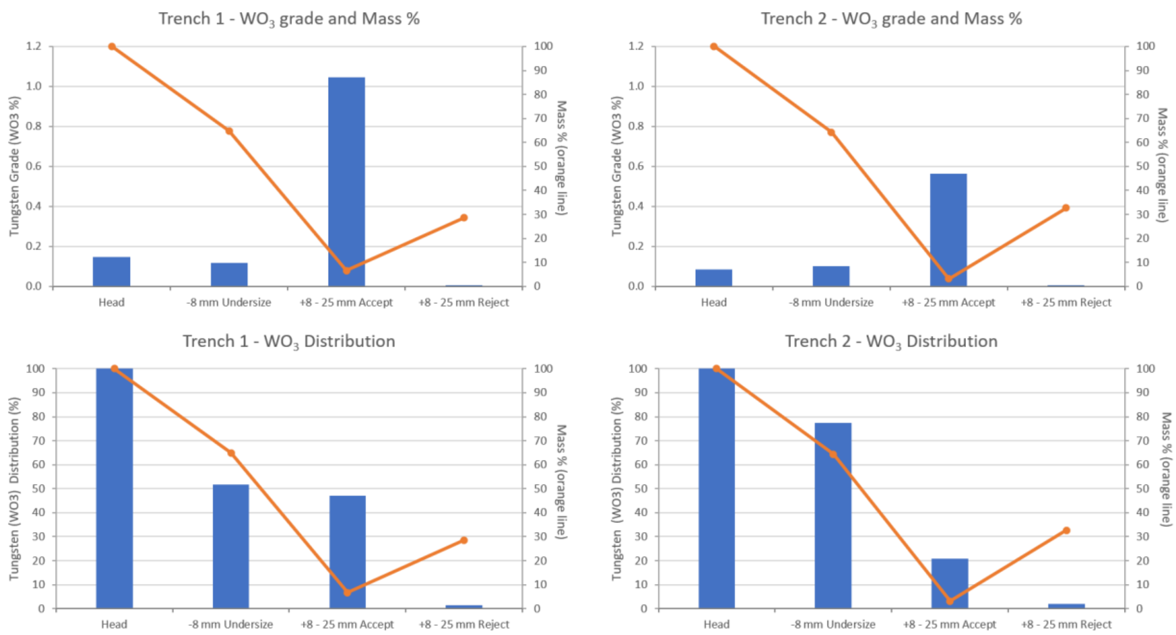



*Figure 6: Results of the initial sorter trial on crushed materials from Trench 1 and Trench 2 showing $WO_3$ grade and mass distribution. See Table 2 and Table 3.*

## 3.2 Trench 1 and 2 Tungsten Head Grade and Distribution

The assay grades for material types tested from Trenches 1 and 2 as part of the sorter trials are shown in Figure 6 and Figure 7 indicating that both Trench 1 and 2 have low calculated head grades of 0.15 and 0.08 % $WO_3$ respectively (Tables 2 and 3). The undersize material (-8 mm) from both trenches accounts for more than 64 % of the total mass of the sample (Tables 2 and 3; Figure 6) and equates to more than 50 % of the $WO_3$ distribution in Trench 1 and 77 % of the $WO_3$ in Trench 2 (Figure 6). The upgrade factor for the undersize (-8 mm material) is calculated to be 0.8 and 1.2 for Trench 1 and 2, respectively. This indicates that there is apparently no significant induced upgrade of tungsten bearing mineral phases (scheelite or wolframite) to the fine fraction for these trench materials in this trial. This is significant in terms of recovery of tungsten given that losses during the beneficiation stage may be greater than during ore sorting stages. Discussion with EQ Resources suggests that the generation of large quantities of undersize (-8 mm) material (>64 %) is attributed to crusher settings used for this trial. Optimised crushing to minimise generation of undersize and maximise production of material in the -25 +8 mm fraction would lead to high mass being directed to the ore sorter.

Figure 6 highlights that the sorter accept material represents 6.6 % and 3.1 % of the total mass of Trench 1 and Trench 2 material, respectively whilst accounting for 46 % of the total $WO_3$ in Trench 1 but only 20 % of $WO_3$ in Trench 2 (Tables 2 and 3). Relative to the head grades for Trench 1 and 2, the sorter accept material represents an upgrade of 7.1 and 6.7 (Tables 2 and 3).

## 3.3 Ore Sorter Feed Grade and Tungsten Distribution

The removal of the undersize material prior to ore sorting produced a feed material of -25 +8 mm with a head grade of 0.203 % $WO_3$ for Trench 1 and 0.053 % $WO_3$ for Trench 2 (Tables 2 and 3; Figure 7). This represents significnat variablility of the feed grade to the sorter where the feed grade for Trench 2 is nearly 4 times lower than that of Trench 1 (Figure 7). The grade of the sorter accept materials of 1.0 % $WO_3$ and 0.56 % $WO_3$ for Trench 1 and 2 respectively correlates with the lower overall feed grade. However, the overall sorter yield from Trench 1 of 18.8 % compared to 8.6 % for Trench 2 indicates that more material was rejected from the lower grade Trench 2 (Tables 2 and 3; Figure 7). Figure 7 indicates that the lower yield from Trench 2 correlates with slightly higher tungsten losses to the ore sorter reject material (8.4 % of tungsten in 91.4 % of the mass with a sorter reject head grade of only 0.005 % $WO_3$ (Table 3). In contrast, the lower proportion of rejected mass from

Trench 1 (81.2 %) accounts for only 1.9 % of tungsten in sorter feed with an assay grade for the rejected material of 0.005 % $WO_3$.

The resulting calculated upgrade from the ore sorting trials carried out on Trench 1 and 2 indicate upgrades of between 6.7 and 10.6 respectively highlighting the significant role ore sorting plays in transforming very low grade feed material from the low grade stockpile at Mt Carbine into upgraded ore for the beneficiation plant.

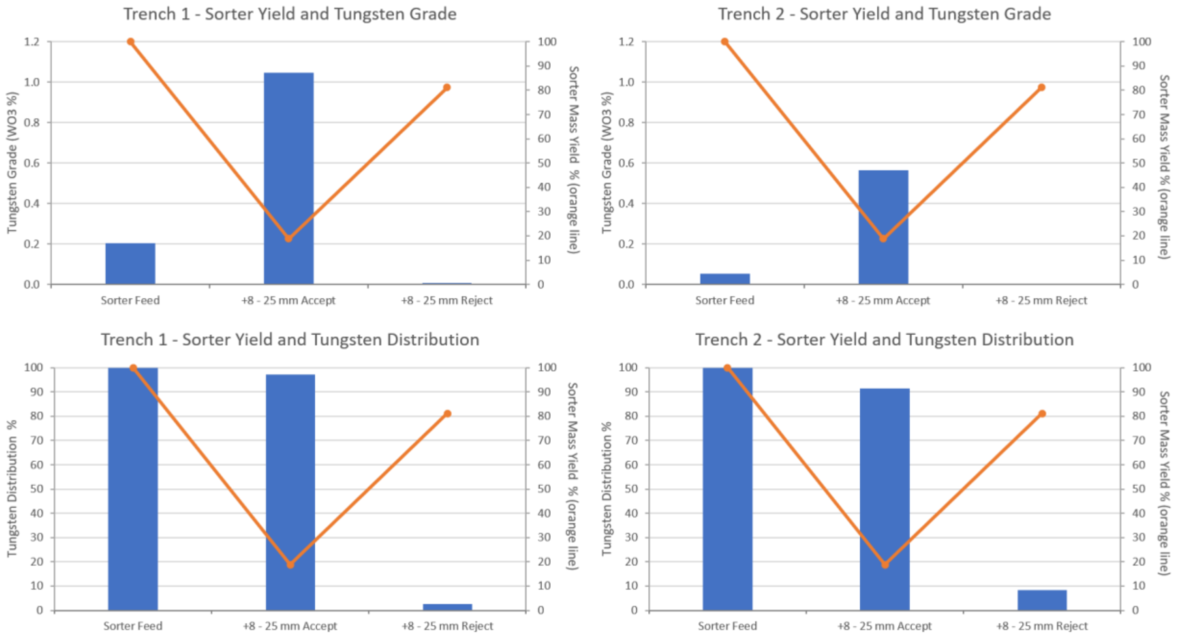



*Figure 7: Sorter feed head grades and sorter yield results for Trench 1 and Trench 2 highlighting $WO_3$ grade and mass distribution along with overall tungsten distribution. See Table 2 and Table 3 for corresponding data.*

# 4. Bulk Sample Grade by Size Results Pits 1 to 6

## 4.1 Particle Size distribution (PSD) Pits 1 to 6

The particle size distribution (PSD) was determined for all bulk material samples from Pits 1 to 6 received at the SMI-UQ Pilot Plant. The PSD for the main size fractions used for grade by size testing described in Section 2.2.2 are tabulated in Table 4. The full PSD obtained for each bulk sample are compiled in Appendix A and shown graphically in Figure 8. The PSD data indicate that Pit 1 has a different overall particle size distribution to the other pits in the study (Figure 8) with a P80 of approximately 23.4 mm compared to the average P80 for the 5 other pit samples of 49.7 mm. This has been attributed to a higher abundance of finer material, potentially dominated by clays observed during extraction of the sample in Pit 1.

The results of the PSD indicate that overall, between 20 and 50 % of the natural mass in the Pit materials sampled is less than 8 mm and would report to the undersize material during screening prior to ore sorting (Table 4; Figure 8). For optimal ore sorting applications with minimal crushing, it is beneficial for a significant proportion of the natural stockpile mass to be contained within the -26.5 +8 mm size fraction. The PSD indicates that between approximately 26 and 30 % of the total mass from each pit sample naturally occurs in this size fraction range (Table 4). This program investigates if generation of addition sorter feed material in this size fraction range (-26.5 +8 mm) by crushing coarser size fractions (IE. fractions >26.5 mm) is beneficial.

*Table 4. Masses and particle size distribution (PSD) data for bulk samples processed at SMI-UQ from Pits 1 to 6 as part of the grade by size study.*

| | | Pit 1 | | | | Pit 2 | | | | Pit 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (mm) | Fraction range | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing |
| Head | | **729** | **100** | | | **880** | **100** | | | **850** | **100** | | |
| +75 | -106 + 75 mm | 7.0 | 1.0 | 100.0 | 99.0 | 31.0 | 3.5 | 100.0 | 96.5 | 19.2 | 2.3 | 100.0 | 97.7 |
| +53 | -75 + 53 mm | 30.0 | 4.1 | 99.0 | 94.9 | 77.0 | 8.8 | 96.5 | 87.7 | 88.2 | 10.4 | 97.7 | 87.4 |
| +26.5 | -53 + 26.5 mm | 91.0 | 12.5 | 94.9 | 82.4 | 212.0 | 24.1 | 87.7 | 63.6 | 220.1 | 25.9 | 87.4 | 61.5 |
| +8 | -26.5 + 8 mm | 239.4 | 32.8 | 82.4 | 49.6 | 304.4 | 34.6 | 63.6 | 29.1 | 283.6 | 33.4 | 61.5 | 28.1 |
| +1 | -8 + 1 mm | 291.1 | 39.9 | 49.6 | 9.7 | 219.6 | 25.0 | 29.1 | 4.1 | 179.2 | 21.1 | 28.1 | 7.0 |
| 0 | -1 mm | 70.5 | 9.7 | 9.7 | - | 36.0 | 4.1 | 4.1 | - | 59.7 | 7.0 | 7.0 | - |

| | | Pit 4 | | | | Pit 5 | | | | Pit 6 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (mm) | Fraction range | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing |
| Head | | **990** | **100** | | | **787** | **100** | | | **932** | **100** | | |
| +75 | -106 + 75 mm | 28.0 | 2.8 | 100.0 | 97.2 | 46.0 | 5.8 | 100.0 | 94.2 | 66.0 | 7.1 | 100.0 | 92.9 |
| +53 | -75 + 53 mm | 121.0 | 12.2 | 97.2 | 84.9 | 100.0 | 12.7 | 94.2 | 81.4 | 131.0 | 14.1 | 92.9 | 78.9 |
| +26.5 | -53 + 26.5 mm | 237.0 | 23.9 | 84.9 | 61.0 | 210.0 | 26.7 | 81.4 | 54.8 | 284.0 | 30.5 | 78.9 | 48.4 |
| +8 | -26.5 + 8 mm | 269.3 | 27.2 | 61.0 | 33.8 | 225.7 | 28.7 | 54.8 | 26.1 | 269.3 | 28.9 | 48.4 | 19.5 |
| +1 | -8 + 1 mm | 250.4 | 25.3 | 33.8 | 8.5 | 154.1 | 19.6 | 26.1 | 6.5 | 124.9 | 13.4 | 19.5 | 6.1 |
| 0 | -1 mm | 84.3 | 8.5 | 8.5 | - | 51.2 | 6.5 | 6.5 | - | 56.8 | 6.1 | 6.1 | - |

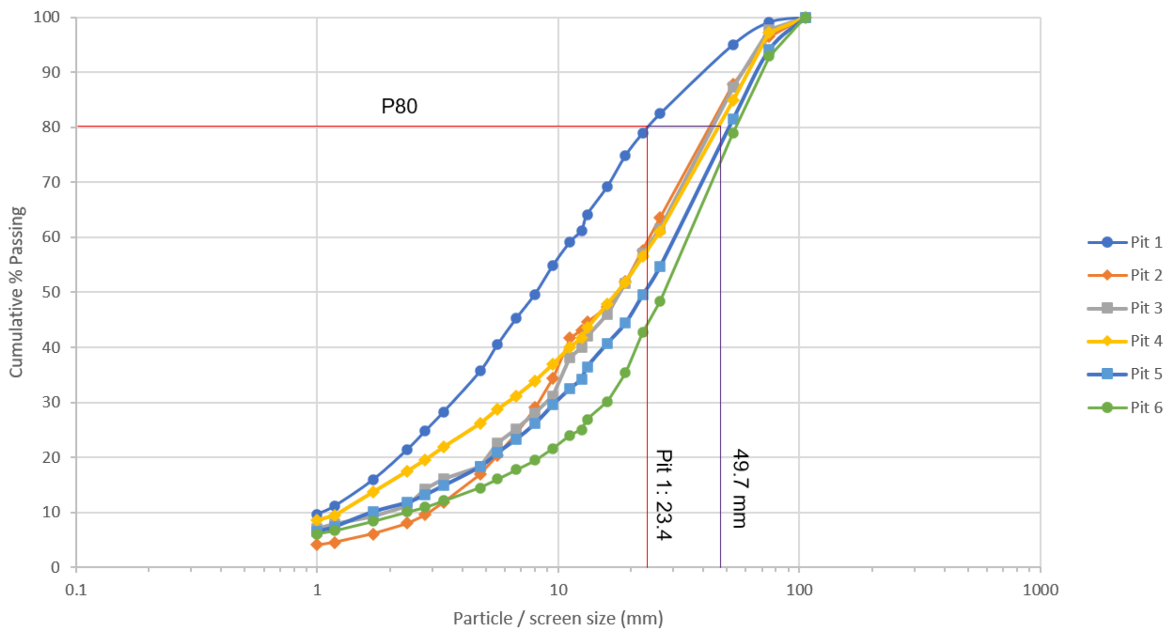



*Figure 8: Full particle size distribution plot for bulk samples from Pits 1 to 6. Refer to Appendix A-1 for full PSD data and Table 4 for PSD data for key size fractions.*

## 4.2 Natural Grade by Size Results

### 4.2.1 Natural Grade by Size behaviour – Pits 1 to 6

The natural grade distribution across the analysed size fractions for each pit sample are tabulated in Table 5. Figure 9 shows the calculated head $WO_3$ grade (from Table 5) for each bulk sample from Pits 1 to 6 highlighting that the head grade of the minus 106 mm material varies across the low grade stockpile from a minimum of 0.053 % $WO_3$ in Pit 2 to a maximum of 0.126 % $WO_3$ in Pit 1. It is emphasised that the calculated head grades in Table 5 and Figure 9 are only for the materials received at the SMI and do not represent head grade of the stockpile due to the absence of sample materials in size fractions greater than 106 mm.

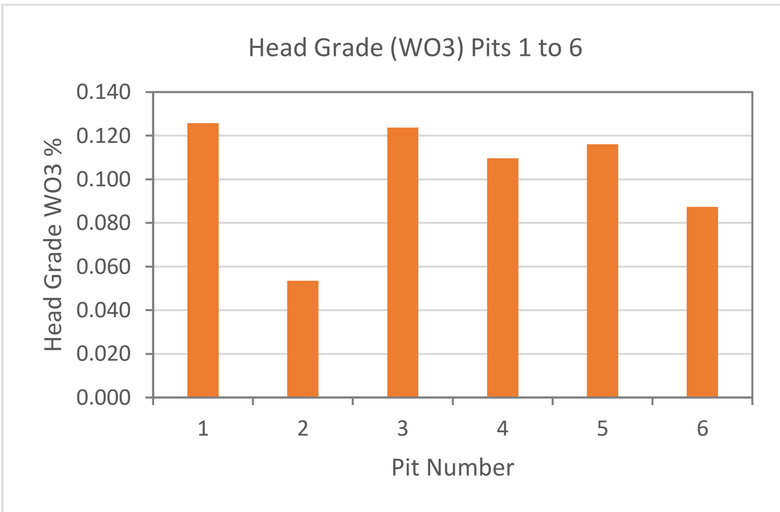



*Figure 9: Calculated head grade for bulk samples from Pits 1 to 6: Note that this data only relates to the -106 mm fraction from each pit and does not therefore represent the head grade of the whole pit or stockpile.*

*Table 5. Sample mass distribution, $WO_3$ assay grade (%) and tungsten distribution for bulk samples processed at SMI-UQ from Pits 1 to 6 as part of the grade by size study.*

| Screen size | Fraction (mm) | Pit 1 Mass % | Pit 1 Cum. Mass % | Pit 1 WO3% | Pit 1 W % Distribution | Pit 1 W % Dist. Cum. | Pit 2 Mass % | Pit 2 Cum. Mass % | Pit 2 WO3 % | Pit 2 W % Distribution | Pit 2 W % Dist. Cum. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Head** | **100** | **100** | **0.126** | **100** | **100** | **100** | **100** | **0.053** | **100** | **100** |
| +75 | -106 + 75 | 1.0 | 100 | 0.004 | 0.03 | 100 | 3.5 | 100.0 | 0.003 | 0.18 | 100 |
| +53 | -75 + 53 | 4.1 | 99.0 | 0.004 | 0.12 | 100 | 8.8 | 96.5 | 0.069 | 11.2 | 99.8 |
| +26.5 | -53 + 26.5 | 12.5 | 94.9 | 0.013 | 1.3 | 99.8 | 24.1 | 87.7 | 0.012 | 5.3 | 88.6 |
| +8 | -26.5 + 8 | 32.8 | 82.4 | 0.141 | 36.9 | 98.6 | 34.6 | 63.6 | 0.057 | 36.9 | 83.3 |
| +1 | -8 + 1 | 39.9 | 49.6 | 0.144 | 45.6 | 61.7 | 25.0 | 29.1 | 0.071 | 33.0 | 46.4 |
| -1 | -1 | 9.7 | 9.7 | 0.209 | 16.1 | 16.1 | 4.1 | 4.1 | 0.175 | 13.4 | 13.4 |

| Screen size | Fraction (mm) | Pit 3 Mass % | Pit 3 Cum. Mass % | Pit 3 WO3% | Pit 3 W % Distribution | Pit 3 W % Dist. Cum. | Pit 4 Mass % | Pit 4 Cum. Mass % | Pit 4 WO3 % | Pit 4 W % Distribution | Pit 4 W % Dist. Cum. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Head** | **100** | **100** | **0.124** | **100** | **100** | **100** | **100** | **0.110** | **100** | **100** |
| +75 | -106 + 75 | 2.3 | 100 | 0.556 | 10.2 | 100 | 2.8 | 100 | 0.794 | 20.5 | 100 |
| +53 | -75 + 53 | 10.4 | 97.7 | 0.116 | 9.7 | 89.8 | 12.2 | 97.2 | 0.115 | 12.8 | 79.5 |
| +26.5 | -53 + 26.5 | 25.9 | 87.4 | 0.068 | 14.3 | 80.1 | 23.9 | 84.9 | 0.024 | 5.2 | 66.7 |
| +8 | -26.5 + 8 | 33.4 | 61.5 | 0.146 | 39.5 | 65.8 | 27.2 | 61.0 | 0.100 | 24.9 | 61.4 |
| +1 | -8 + 1 | 21.1 | 28.1 | 0.125 | 21.3 | 26.4 | 25.3 | 33.8 | 0.106 | 24.5 | 36.6 |
| -1 | -1 | 7.0 | 7.0 | 0.090 | 5.1 | 5.1 | 8.5 | 8.5 | 0.155 | 12.1 | 12.1 |

*Table 5 (continued). Sample mass distribution, $WO_3$ assay grade (%) and tungsten distribution for bulk samples processed at SMI-UQ from Pits 1 to 6 as part of the grade by size study.*

| | | Pit 5 | | | | | Pit 6 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Screen size** | **Fraction (mm)** | **Mass %** | **Cum. Mass %** | **WO3%** | **W % Distribution** | **W % Dist. Cum.** | **Mass %** | **Cum. Mass %** | **WO3 %** | **W % Distribution** | **W % Dist. Cum.** |
| | **Head** | **100** | **100** | **0.116** | **100** | **100** | **100** | **100** | **0.087** | **100** | **100** |
| +75 | -106 + 75 | 5.8 | 100 | 0.225 | 11.4 | 100 | 7.1 | 100 | 0.009 | 0.76 | 100 |
| +53 | -75 + 53 | 12.7 | 94.2 | 0.016 | 1.7 | 88.6 | 14.1 | 92.9 | 0.030 | 4.9 | 99.2 |
| +26.5 | -53 + 26.5 | 26.7 | 81.4 | 0.041 | 9.5 | 86.9 | 30.5 | 78.9 | 0.095 | 33.3 | 94.4 |
| +8 | -26.5 + 8 | 28.7 | 54.8 | 0.051 | 12.5 | 77.4 | 28.9 | 48.4 | 0.034 | 11.4 | 61.1 |
| +1 | -8 + 1 | 19.6 | 26.1 | 0.260 | 43.8 | 64.9 | 13.4 | 19.5 | 0.173 | 26.5 | 49.7 |
| -1 | -1 | 6.5 | 6.5 | 0.376 | 21.1 | 21.1 | 6.1 | 6.1 | 0.333 | 23.2 | 23.2 |

The distribution of tungsten grades between the different analysed size fractions from the bulk materials indicate that in some Pits, there can be a natural tendancy for tungsten minerals to preferentially fractionate into the finer size fractions (Figure 10). This is indicated by the elevated $WO_3$ grade particularly in the -1 mm fraction but also in the -8 +1 mm fraction in Pits 5 and 6 where the $WO_3$ grade in the -1 mm fraction is up to 3 times higher than the head grade (Figure 10). In other Pits (e.g., Pit 3 and Pit 4) the highest tungsten grades occur in the coarsest (-106 +75 mm) size fractions. This suggests that highly mineralised coarse particles occur in the coarser size fractions. Preliminary modelling based on measured particle density data from Pits 3 and 4 suggest that these elevated grades can be attributed to only one or two mineralised particles occuring in this size fraction.

The natural distribution of grade across the measured size fractions can be attributed to the degree of liberation of the target ore phases, wolframite and scheelite which are the main tungsten bearing phases at Mt Carbine. The preferential deportment of $WO_3$ grade to the finer fractions indicates that wolframite and scheelite has been liberated from its geological host mineral phases (likely to be dominantly quartz vein material) during progressive breakage. Initial breakage would have occurred during blasting of the material potentially causing coarse liberation of wolframite and scheelite if mineralised veins preferentially reopened and fractured. This would cause coarsely libereated wolframite and scheelite to preferentially naturally deport into size fractions broadly equivalent to its natural grain size. In Pits 5 and 6, the high grade of the -8 mm and -1 mm fractions (Figure 10) suggest that the original source material contained mineralised quartz veins with coarsely crystalline (>1 mm) wolframite and scheelite. Previous work (White, 2014) and this study, confirm the grain size of wolframite and scheelite in mineralised samples can exceed 10 mm diameter.

The opposite trend observed in Pits 3 and 4 where the highest tungsten grades occur in the coarsest analysed size fraction (+75 mm) indicate that wolframite and scheelite were less likely to have been liberated at coarse sizes during breakage (blasting, hauling and dumping). Coarse particles with high densities and textural evidence for wolframite and scheelite mineralisation are indicative of high tungsten grades. Potential further work could investigate new density separation methods to selectively identfy and separate dense, mineralised particles, from barren, unmineralised particles in these coarser size fractions.

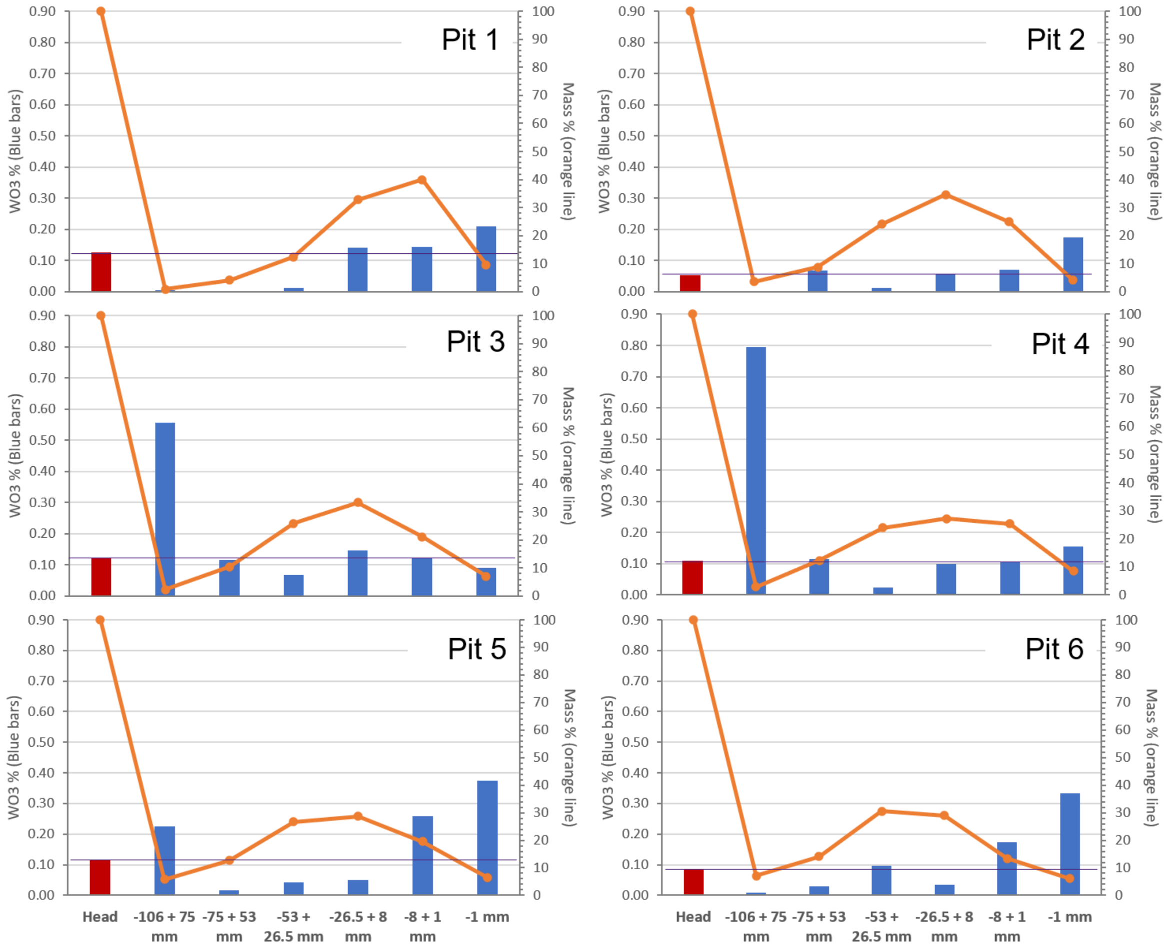



*Figure 10: Natural grade by size (Blue bars, $WO_3$ %) and mass distribution (Orange line, mass %) for bulk materials from Pits 1 to 6 along with calculated head grade for each pit (Red bars). See Table 5 for values. Purple horizontal lines extrapolate the head grade in each Pit sample.*

## 4.2.2 Natural Tungsten Grade Distribution – Pits 1 to 6

Table 5 and Figure 11 summarise the distribution of tungsten between each analysed size fraction for each Pit. The results consider the mass and grade of material in each size fraction to determine the proportion of tungsten that deports to each size fraction. This data is significant when considering size-based separation methods and mass rejection strategies (Figure 12).

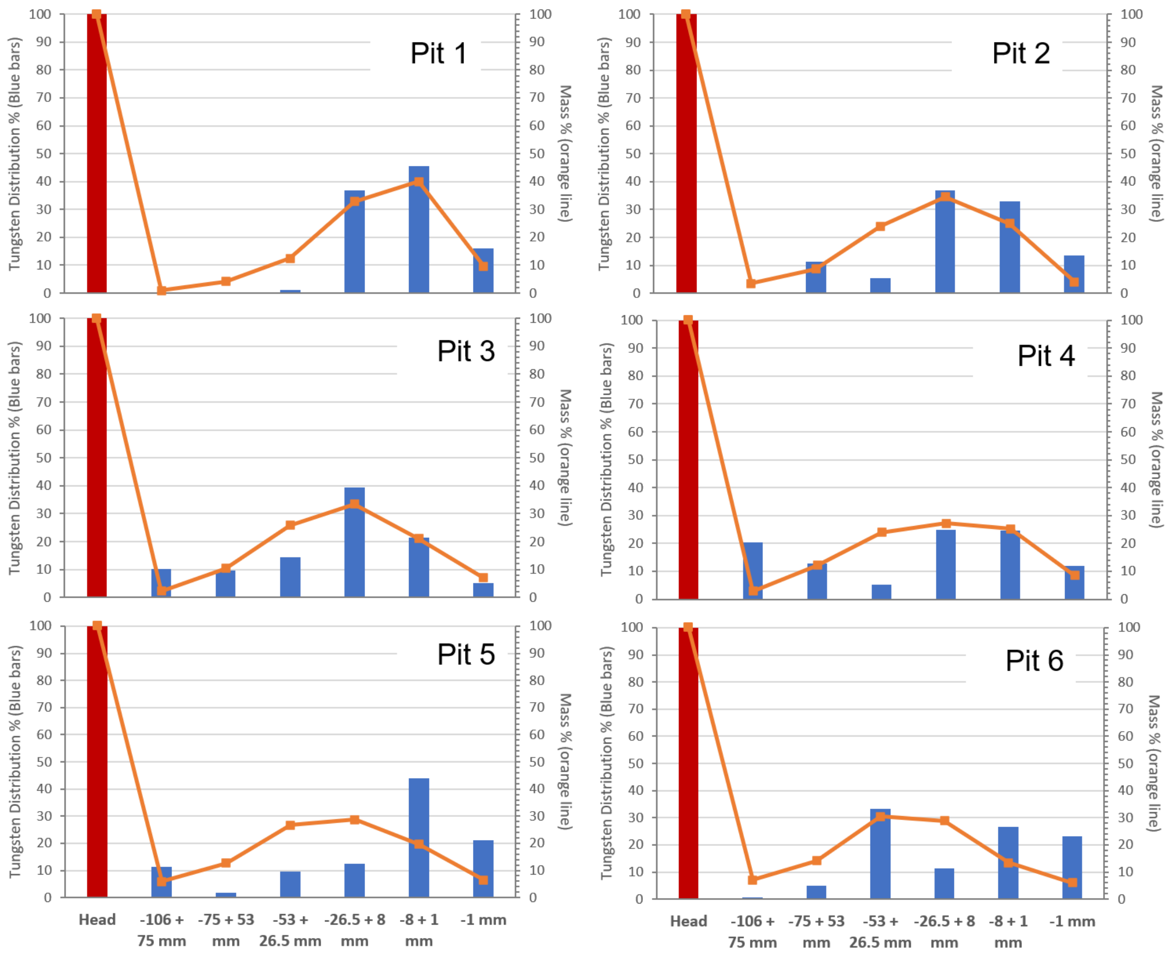



*Figure 11: Calculated tungsten distribution (Blue bars, $WO_3$ %) and mass distribution (Orange lines/markers, mass %) for bulk materials from Pits 1 to 6. Red bars represent 100 % of tungsten recovered from 100 % of mass. See Table 5 for values. Figure 11 indicates the cumulative tungsten and mass distribution as a function of particle size.*

Figure 11 indicates that material in the ore sorter feed size range (-26.5 +8 mm) from Pits 1, 2, 3 and 4 represents between 25 and 40 % of the total tungsten contained in each bulk sample whilst representing only approximately 30 % of the total mass. The head grade of the -26.5 +8 mm material from Pits 1 to 4 ranges from very low grade of 0.057 % $WO_3$ (Pit 2) to higher grades of 0.146 % $WO_3$ in Pit 3 (Figure 10 and Table 5). The results of preliminary sorter trials carried out on crushed material in this sorter feed size range indicate that high tungsten recovery is possible from such materials with a significant tungsten upgrade potential (See Section 3). The low sorter feed grades of the -26.5 +8 mm fraction from Pit 2 (0.057 % $WO_3$) is similar to that for Trench 2 material analysed as part of the sorter trial (Section 3) which produced a lower sorter yield, but a more highly upgraded sorter product (Table 3). In contrast, the higher grade sorter feed material (-26.5 +8 mm) from Trenches 1, 3 and 4 is more similar to the sorter feed material from Trench 1 (Section 3) which produced higher sorter yield but lower overall upgrade ratio (Table 2).

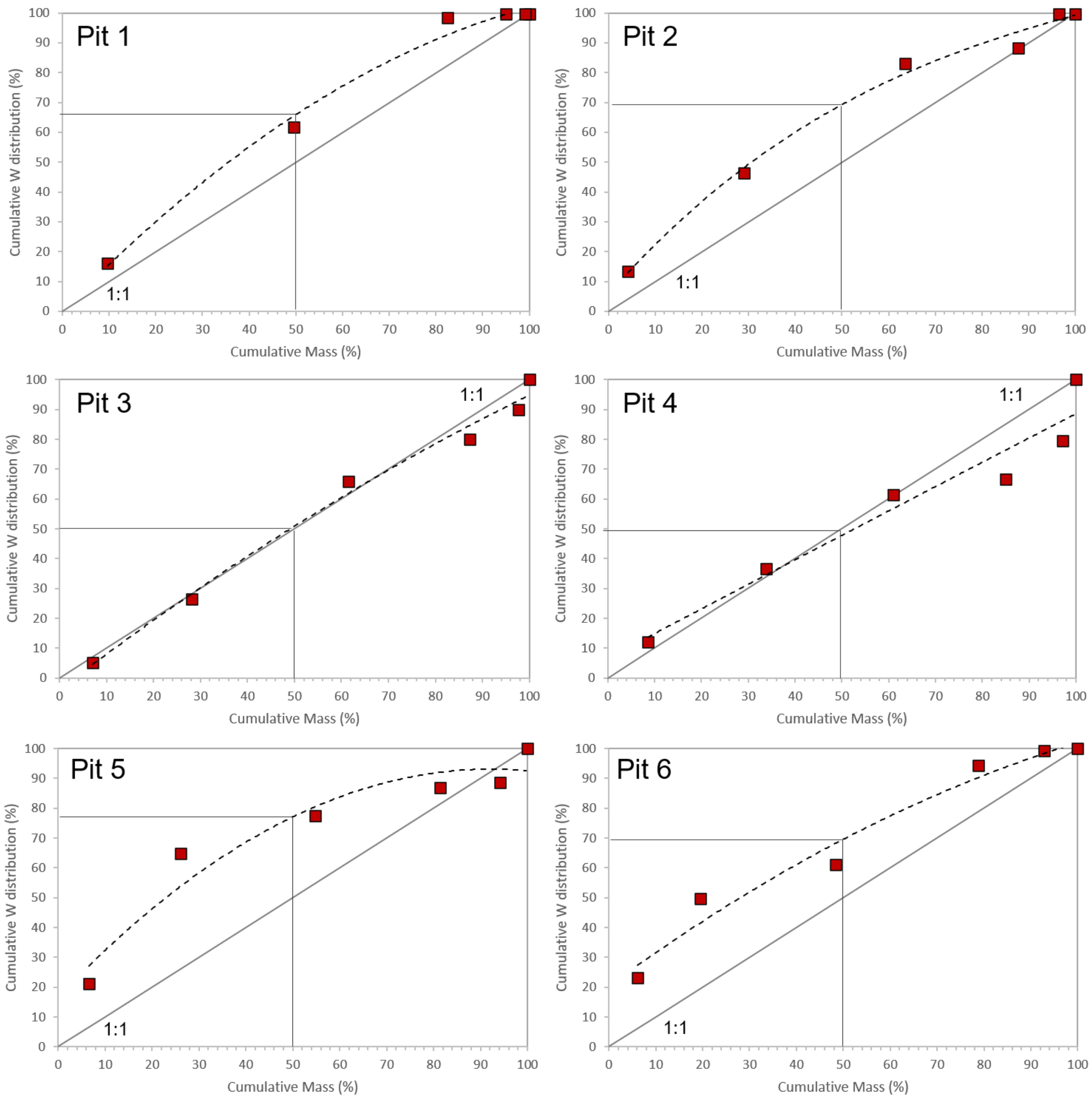



*Figure 12: Cumulative mass (%) vs. cumulative tungsten distribution (%) plots for bulk materials from Pits 1 to 6. The 1:1 line represents the trend where there is no significant upgrade through mass rejection. Curved dashed lines indicate a polynomial (2nd order) fit to the datapoints for each Pit. Vertical lines at 50% cumulative mass (x-axis) correspond to the proportion of tungsten (y-axis) that would be lost to waste at a 50 % mass rejection rate. See text for explanation.*

The -26.5 + 8 mm material in Pit 5 and Pit 6 is very low grade (0.051 and 0.034 % $WO_3$ respectively;Table 5; Figure 10) such that despite this size fraction having an overall mass distribution of around 30 % (Figure 11), the tungsten distribution is low at 12.5 and 11.4 % respectively (Figure 11). Consequently, this material from Pit 5 and 6 may not be best suited for ore sorting applications due to the low tungsten distribution in the -26.5 +8 mm fraction, Pits 5 and 6 demonstrate a higher overall deportment of tungsten to the sorter undersize fractions (-8 +1 mm and -1 mm) of between 50 and 60 % (Figure 11; Table 5). In contrast, Pits 3 and 4 have a lower overall distribution of tungsten in the undersize size fractions than Pits 1 and 2 (Figure 11) which reflects the lower head grade (and lower degree of natural fractionation) into these size fractions. The high tungsten grades in the -106 +75 mm material in Pits 3 and 4 (Figure 10) results in an overall tungsten distributon in these fractions of 10 and 20 % respectively (Figure 11). For these bulk samples, it is likely that further processin of this coarse material may be economically beneficial, depending on the method employed. The results of the crushing test work on these size fractions is discussed in Section 4.2.3.

Cumulative mass distribution vs. cumulative tungsten distribution curves for each of the six bulk samples are shown in Figure 12. These graphs indicate that for samples where the coarser size fractions have low tungsten grades and an tendancy for finer fractions to have a higher tungsten grade (e.g., Pits 1, 2, 5 and 6) there is a natural amenability for potential coarse waste rejection strategies.

### 4.2.3 Crushing Induced Grade by Size Assay Results: Pits 1 to 6

Head size fractions greater than the ore sorter feed size (>26.5 mm) from the natural grade by size study were subjected to a systematic crushing test (Figure 5) which aimed to characterise:

1) The degree of induced deportment of tungsten minerals to the undersize (-8 +1 mm and -1 mm size fractions) during crushing to evaluate if these materials can be upgraded by crushing and screening;
2) To predict the mass and grade of material generated from coarser fractions during crushing that is of a size range suitable for XRT ore sorting (IE. -26.5 +8 mm).

A representative split of the uncrushed coarse size fractions (-106 +75 mm; -75 +53 mm and -53 2.5 mm) from the natural grade by size study were subjected to controlled crushing using a jaw crusher with a closed side setting (CSS) of 19 mm. Each fraction was screened using a range of sieves and the mass recorded prior to compositing to -26.5 +8 mm; -8 +1 mm and -1 mm size fractions for assay and mineralogical analysis (Figure 5).

The results of the crushing tests for coarse materials from each pit are summarised in Table 6 and Figure 13. Full graphical results are collated in Appendix A-2. Overall, the results indicate that during crushing, the coarse size fraction materials from all Pit samples generate a reasonably consistent proportion of material in the size range suitable for XRT ore sorting (-26.5 +8 mm) of between 68 and 78 % of the total mass (Figure 13; Table 6). The majority of the remaining mass predominantly occurs in the -1 mm fracton with a mass distribution in this fraction of between 19 and 28 %, with the exception of Pit 3 which generated a low mass of -1 mm material (<7.4 %) from all crushed head size fractions (Figure 13; Table 6). The coarsest size fraction tested (-106 +75 mm) from Pits 1 and 2 have very low tungsten head grades (<0.004 % $WO_3$; not visible in Figure 13 due to the scale) and despite yielding moderate induced fractionation of tungsten into the -1 mm crushed fraction (0.007 % $WO_3$; Figure 13; Table 6) this fraction overall contains a very low overall distribution of total tungsten in the bulk sample (0.03 %; Table 5). A similar result is observed for the same size fraction in Pit 2 (Tables 5 and 6; Figure 13). These results indicate that the crushed product of the -106 +75 mm size fraction from Pit 1 would yield an ore sorter feed (-26.5 +8 mm) with a feed grade of 0.002 % $WO_3$ and undersize (-8 mm and -1 mm material) with a head grades of 0.003 and 0.007 % $WO_3$ respectively (Table 5). This highlights that even with effects of preferential deportment induced by crushing, these low grade materials from Pit 1 should be rejected without crushing/screening and are not amenable to significant upgrade.

*Table 6. Induced grade by size deportment results for head size fractions -106+75 mm, -75 +53 mm and -53 +26.5 mm each crushed to 100% passing -26.5 mm and screened to -26.5+8 mm (ore sorter feed size), -8 +1 mm and -1 mm (undersize screen sizes).*

| Pit Location | Head Fraction | Head Grade (WO3) | Crushed Size Fraction | Mass (%) | WO3 (%) | W Distribution (%) |
|---|---|---|---|---|---|---|
| **Pit 1** | **-106 +75 mm** | **0.003** | -26.5 +8 mm | 73.7 | 0.002 | 38.7 |
| | | | -8 +1 mm | 4.2 | 0.003 | 4.2 |
| | | | -1 mm | 22.1 | 0.007 | 57.1 |
| | **-75 + 53.5 mm** | **0.010** | -26.5 +8 mm | 71.0 | 0.002 | 14.3 |
| | | | -8 +1 mm | 4.1 | 0.004 | 1.7 |
| | | | -1 mm | 24.9 | 0.034 | 84.0 |
| | **-53.5 + 26.5 mm** | **0.027** | -26.5 +8 mm | 71.4 | 0.014 | 36.0 |
| | | | -8 +1 mm | 3.9 | 0.018 | 2.5 |
| | | | -1 mm | 24.7 | 0.068 | 61.5 |
| **Pit 2** | **-106 +75 mm** | **0.004** | -26.5 +8 mm | 66.5 | 0.004 | 62.9 |
| | | | -8 +1 mm | 5.2 | 0.003 | 4.5 |
| | | | -1 mm | 28.4 | 0.004 | 32.6 |
| | **-75 + 53.5 mm** | **0.014** | -26.5 +8 mm | 71.1 | 0.004 | 19.3 |
| | | | -8 +1 mm | 4.3 | 0.020 | 5.9 |
| | | | -1 mm | 24.6 | 0.044 | 74.8 |
| | **-53.5 + 26.5 mm** | **0.022** | -26.5 +8 mm | 76.2 | 0.010 | 35.0 |
| | | | -8 +1 mm | 3.6 | 0.027 | 4.5 |
| | | | -1 mm | 20.2 | 0.065 | 60.4 |
| **Pit 3** | **-106 +75 mm** | **0.556** | -26.5 +8 mm | 76.6 | 0.550 | 75.7 |
| | | | -8 +1 mm | 18.5 | 0.565 | 18.8 |
| | | | -1 mm | 4.9 | 0.625 | 5.5 |
| | **-75 + 53.5 mm** | **0.116** | -26.5 +8 mm | 68.9 | 0.088 | 52.5 |
| | | | -8 +1 mm | 23.7 | 0.175 | 35.9 |
| | | | -1 mm | 7.4 | 0.182 | 11.6 |
| | **-53.5 + 26.5 mm** | **0.068** | -26.5 +8 mm | 74.3 | 0.069 | 75.6 |
| | | | -8 +1 mm | 19.2 | 0.054 | 15.2 |
| | | | -1 mm | 6.5 | 0.097 | 9.2 |

*Table 6 (continued). Induced grade by size deportment results for head size fractions -106+75 mm, -75 +53 mm and -53 +26.5 mm each crushed to 100% passing -26.5 mm and screened to -26.5+8 mm (ore sorter feed size), -8 +1 mm and -1 mm (undersize screen sizes).*

| Pit Location | Head Fraction | Head Grade (WO3) | Crushed Size Fraction | Mass (%) | WO3 (%) | W Distribution (%) |
|---|---|---|---|---|---|---|
| **Pit 4** | **-106 +75 mm** | **1.129** | -26.5 +8 mm | 69.4 | 1.079 | 66.3 |
| | | | -8 +1 mm | 4.0 | 1.293 | 4.6 |
| | | | -1 mm | 26.6 | 1.235 | 29.1 |
| | **-75 + 53.5 mm** | **0.059** | -26.5 +8 mm | 66.0 | 0.012 | 14.0 |
| | | | -8 +1 mm | 5.1 | 0.132 | 11.5 |
| | | | -1 mm | 28.9 | 0.151 | 74.5 |
| | **-53.5 + 26.5 mm** | **0.102** | -26.5 +8 mm | 72.3 | 0.111 | 78.2 |
| | | | -8 +1 mm | 4.4 | 0.059 | 2.5 |
| | | | -1 mm | 23.4 | 0.084 | 19.2 |
| **Pit 5** | **-106 +75 mm** | **0.242** | -26.5 +8 mm | 66.5 | 0.155 | 42.6 |
| | | | -8 +1 mm | 5.2 | 0.399 | 8.5 |
| | | | -1 mm | 28.4 | 0.417 | 48.9 |
| | **-75 + 53.5 mm** | **0.027** | -26.5 +8 mm | 65.9 | 0.012 | 30.2 |
| | | | -8 +1 mm | 5.1 | 0.011 | 2.2 |
| | | | -1 mm | 29.0 | 0.062 | 67.6 |
| | **-53.5 + 26.5 mm** | **0.063** | -26.5 +8 mm | 68.0 | 0.027 | 29.2 |
| | | | -8 +1 mm | 5.2 | 0.053 | 4.4 |
| | | | -1 mm | 26.8 | 0.155 | 66.4 |
| **Pit 6** | **-106 +75 mm** | **0.018** | -26.5 +8 mm | 67.6 | 0.006 | 23.0 |
| | | | -8 +1 mm | 5.1 | 0.009 | 2.5 |
| | | | -1 mm | 27.4 | 0.048 | 74.5 |
| | **-75 + 53.5 mm** | **0.055** | -26.5 +8 mm | 67.5 | 0.021 | 25.6 |
| | | | -8 +1 mm | 4.8 | 0.029 | 2.5 |
| | | | -1 mm | 27.8 | 0.141 | 71.9 |
| | **-53.5 + 26.5 mm** | **0.107** | -26.5 +8 mm | 76.7 | 0.081 | 57.9 |
| | | | -8 +1 mm | 3.8 | 0.136 | 4.8 |
| | | | -1 mm | 19.6 | 0.204 | 37.2 |

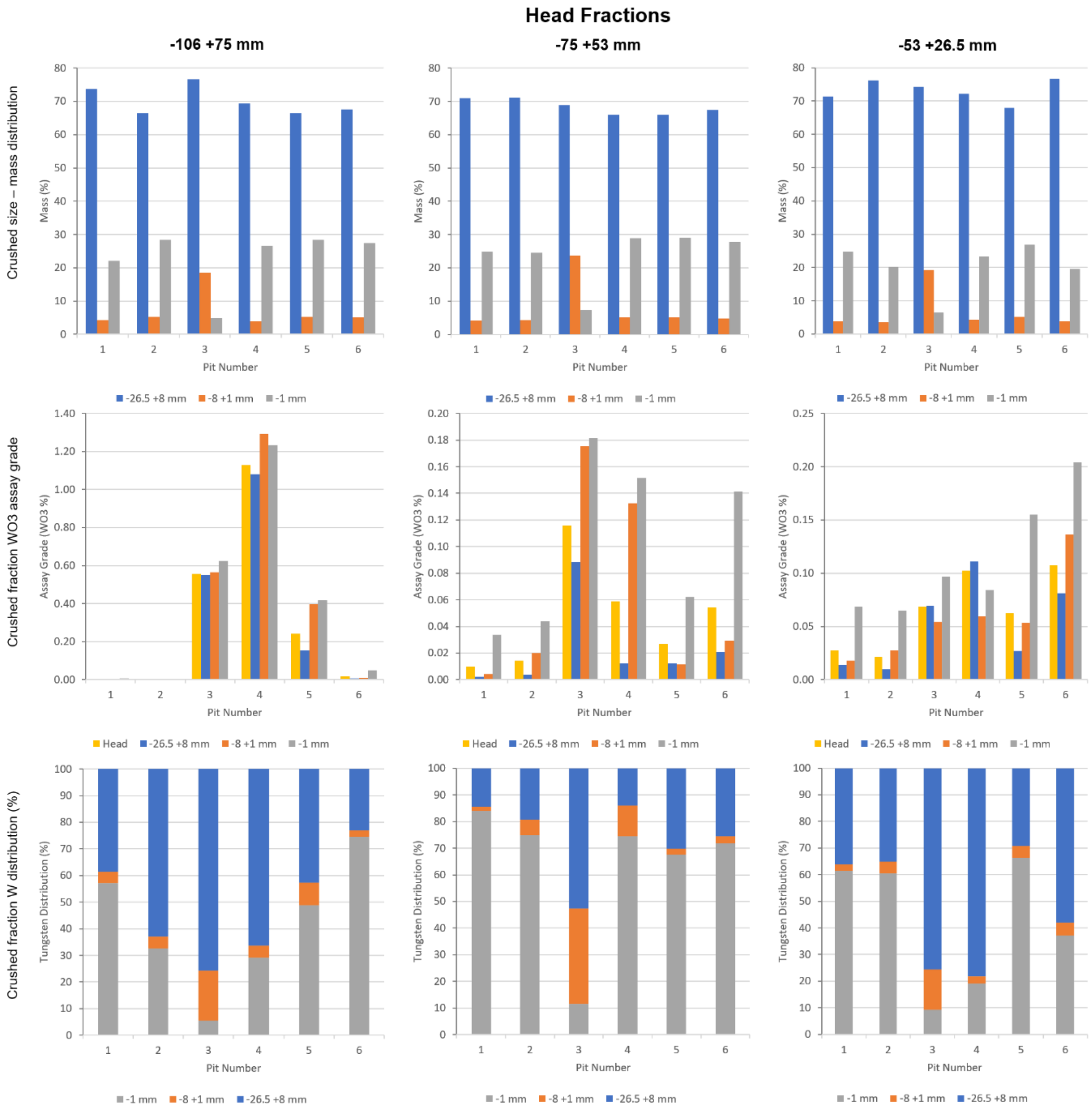



*Figure 13: Summary results of crushing trials performed on coarse size fractions -106 +75 mm; -75 +53 mm and -53 +26.5 mm from the natural grade by size study on each Pit sample. Upper graphs show the mass distribution for crushed products in each size range for Pits 1 to 6. Middle plot shows the calculated head grade of each fraction and the corresponding grade deportment between the crushed fractions (NB. Pits 1 and 2 are very low grade <0.004 % $WO_3$ and do not plot on these graphs; See Appendix 2 for full results). Lower plot illustrates the tungsten distribution between the crushed size fractions.*

In contrast to the poor upgrade performance of coarse material from Pit 1, the -106 +75 mm materials from Pits 3 and 4 contained significant head grades of tungsten (0.556 and 0.794 % $WO_3$, respectively; Table 5) accounting for 10 and 20 % respectively of total tungsten in the bulk samples. Opportunities to upgrade this material prior to ore sorting would could be transformative for the economics of this coarse fraction. The crushed products of the -106 +75 mm fractions from Pits 3 and 4 show a moderate increase in tungsten grade into the finest fraction (-1 mm) but tungsten grades are high across all of the progeny size fractions (Table 6 and Figure 13). This suggests that wolframite and scheelite are not liberated during crushing and likely remain locked in all size fractions. The tungsten distribution graphs (Figure 13) for Pits 3 and 4 indicate that for this size fraction (-106 +75 mm), the -26.5 +8 mm sorter feed fraction contains the majority of tungsten and could potentially be recovered through ore sorting.

Overall, preferential deportment of tungsten grade increases through crushing of progressively the progressively finer size fractions (Figure 13). This effect is particularly evident in Pits 4, 5 and 6 for the -75 +53 mm fraction and the -53 +26.5 mm fractions (Figure 13) where the -1 mm progeny is upgraded relative to the head grade of the size fraction by 2 to 4 times. The same trend of increasing tungsten grade into the crushed undersize is observed in both the -75 +53 mm and -53 +26.5 mm head fractions for all Pits (Figure 13). Significantly, in these materials, the -1 mm crushed fractions account for more than 70 % of the tungsten distribution in less than 30 % of the total mass. This means that ore sorting of the coarser fractions (-26.5 +8 mm) from these crushed products would yield only a maximum of 30 % of tungsten from typically more than 70 % of the total mass. Economic considerations should dictate the effectiveness of ore sorting of these crushed products based on scale-up test work and crusher optimisation. This crushing testwork generated a considerably lower mass proportion of undersize (-8 mm) material (<30 %) than the initial ore sorter test work (>64 % for Trenches 1 and 2; Section 3). Test work to optimise the crusher settings either for maximum production of upgraded undersize material, or for optimal mass in the ore sorting size range is key to early waste rejection strategies.

<u>To reference this document:</u>

Fox, N., White, K., Parbhakar-Fox, A.K., 2021. Mt Carbine Grade by Size Results – METS Ignited Program, Sustainable Minerals Institute, University of Queensland.

# 5. References

White, A., 2014, Review of the Mt Carbine Tungsten Resource, Consultant Report, p. 20.

# 6. Appendices

THE UNIVERSITY OF QUEENSLAND AUSTRALIA

CREATE CHANGE

# A-1 FULL PARTICLE SIZE DISTRIBUTION PLOTS – NATURAL GRADE BY SIZE STUDY

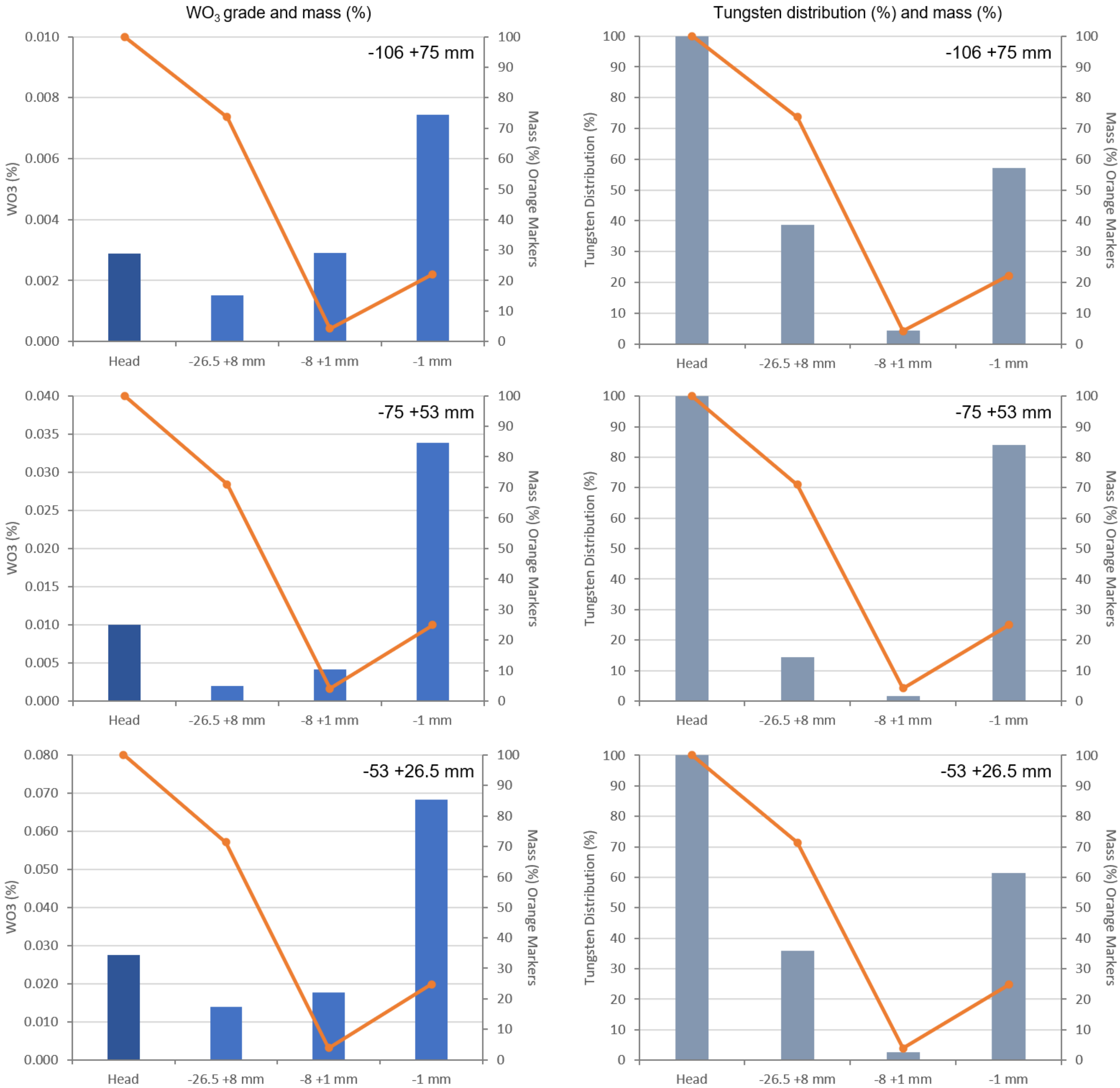
*Table A-1 Full particle size distribution for Pit samples 1 to 6.*

| | Pit 1 | | | | Pit 2 | | | | Pit 3 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (mm) | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing |
| *106* | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| *75* | 7.0 | 1.0 | 100.0 | 99.0 | 31.0 | 3.5 | 100.0 | 96.5 | 19.2 | 2.3 | 100.0 | 97.7 |
| *53* | 30.0 | 4.1 | 99.0 | 94.9 | 77.0 | 8.8 | 96.5 | 87.7 | 88.2 | 10.4 | 97.7 | 87.4 |
| *26.5* | 91.0 | 12.5 | 94.9 | 82.4 | 212.0 | 24.1 | 87.7 | 63.6 | 220.1 | 25.9 | 87.4 | 61.5 |
| *22.4* | 25.9 | 3.6 | 82.4 | 78.9 | 52.8 | 6.0 | 63.6 | 57.6 | 37.6 | 4.4 | 61.5 | 57.0 |
| *19* | 29.9 | 4.1 | 78.9 | 74.8 | 50.1 | 5.7 | 57.6 | 51.9 | 46.8 | 5.5 | 57.0 | 51.5 |
| *16* | 40.7 | 5.6 | 74.8 | 69.2 | 40.3 | 4.6 | 51.9 | 47.4 | 47.1 | 5.5 | 51.5 | 46.0 |
| *13.2* | 37.1 | 5.1 | 69.2 | 64.1 | 24.6 | 2.8 | 47.4 | 44.6 | 33.0 | 3.9 | 46.0 | 42.1 |
| *12.5* | 21.1 | 2.9 | 64.1 | 61.2 | 12.5 | 1.4 | 44.6 | 43.1 | 18.7 | 2.2 | 42.1 | 39.9 |
| *11.2* | 15.3 | 2.1 | 61.2 | 59.1 | 12.8 | 1.5 | 43.1 | 41.7 | 15.3 | 1.8 | 39.9 | 38.1 |
| *9.5* | 31.3 | 4.3 | 59.1 | 54.8 | 64.1 | 7.3 | 41.7 | 34.4 | 59.6 | 7.0 | 38.1 | 31.1 |
| *8* | 38.2 | 5.2 | 54.8 | 49.6 | 47.0 | 5.3 | 34.4 | 29.1 | 25.6 | 3.0 | 31.1 | 28.1 |
| *6.7* | 31.8 | 4.4 | 49.6 | 45.2 | 41.8 | 4.8 | 29.1 | 24.3 | 24.6 | 2.9 | 28.1 | 25.2 |
| *5.6* | 34.7 | 4.8 | 45.2 | 40.5 | 34.5 | 3.9 | 24.3 | 20.4 | 22.9 | 2.7 | 25.2 | 22.5 |
| *4.75* | 35.0 | 4.8 | 40.5 | 35.7 | 30.5 | 3.5 | 20.4 | 16.9 | 36.2 | 4.3 | 22.5 | 18.3 |
| *3.35* | 53.9 | 7.4 | 35.7 | 28.3 | 44.4 | 5.0 | 16.9 | 11.9 | 18.6 | 2.2 | 18.3 | 16.1 |
| *2.8* | 25.9 | 3.6 | 28.3 | 24.7 | 20.5 | 2.3 | 11.9 | 9.5 | 16.0 | 1.9 | 16.1 | 14.2 |
| *2.36* | 24.4 | 3.4 | 24.7 | 21.4 | 13.0 | 1.5 | 9.5 | 8.1 | 26.4 | 3.1 | 14.2 | 11.1 |
| *1.7* | 40.1 | 5.5 | 21.4 | 15.9 | 17.6 | 2.0 | 8.1 | 6.1 | 15.1 | 1.8 | 11.1 | 9.3 |
| *1.18* | 34.5 | 4.7 | 15.9 | 11.2 | 13.3 | 1.5 | 6.1 | 4.5 | 11.2 | 1.3 | 9.3 | 8.0 |
| *1* | 10.8 | 1.5 | 11.2 | 9.7 | 4.0 | 0.5 | 4.5 | 4.1 | 8.2 | 1.0 | 8.0 | 7.0 |
| *0* | 70.5 | 9.7 | 9.7 | | 36.0 | 4.1 | 4.1 | | 59.7 | 7.0 | 7.0 | |
| **Totals** | **729** | **100** | | | **880** | **100** | **100** | | **850.02** | **100** | **100** | |

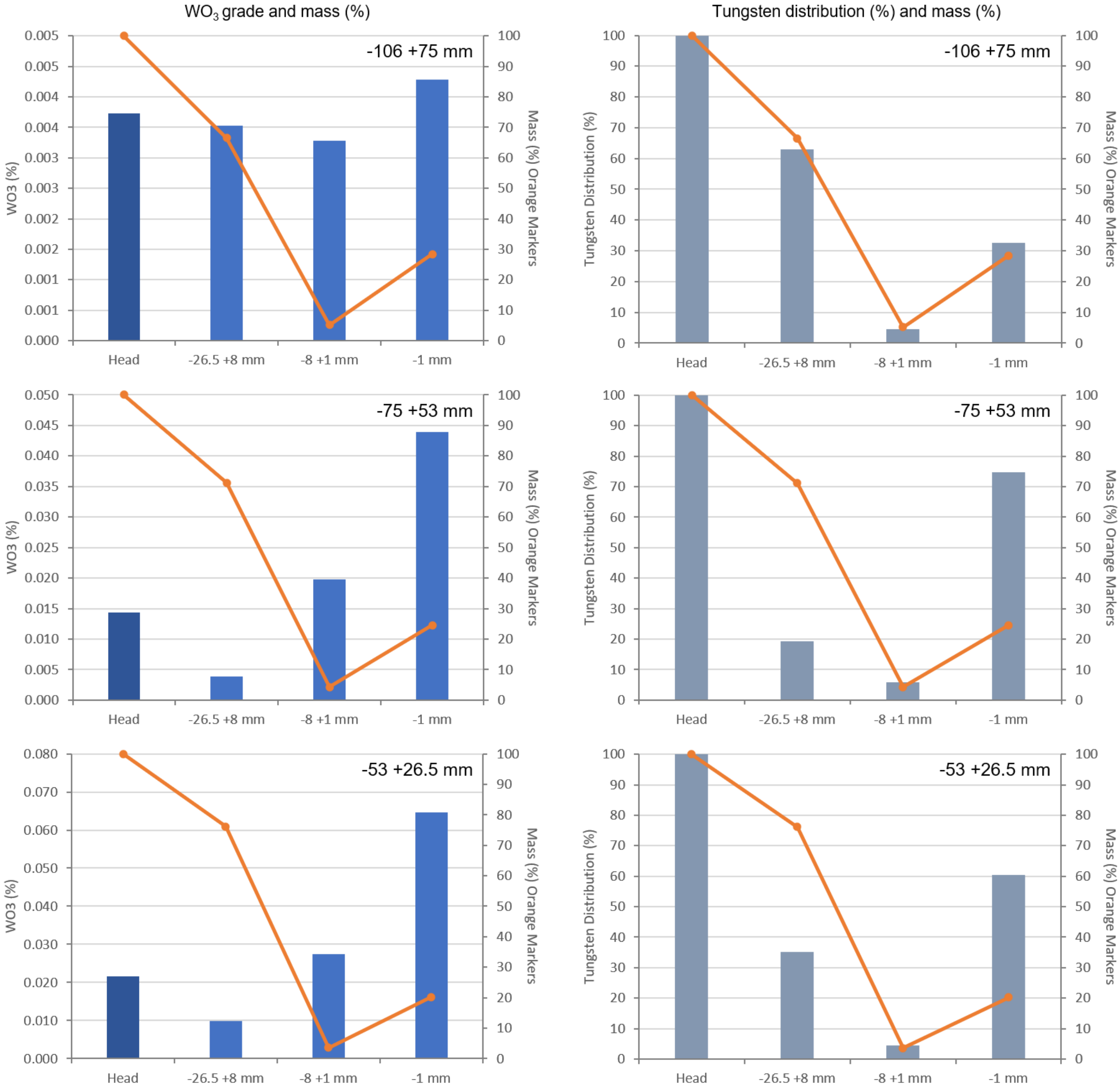
| | Pit 4 | | | | Pit 5 | | | | Pit 6 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Screen size (mm) | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing | Mass (kg) | Mass % Retained | Cum. Mass Retained % | Cum. % Passing |
| *106* | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 | 0.0 | 0.0 | 0.0 | 100.0 |
| *75* | 28.0 | 2.8 | 100.0 | 97.2 | 46.0 | 5.8 | 100.0 | 94.2 | 66.0 | 7.1 | 100.0 | 92.9 |
| *53* | 121.0 | 12.2 | 97.2 | 84.9 | 100.0 | 12.7 | 94.2 | 81.4 | 131.0 | 14.1 | 92.9 | 78.9 |
| *26.5* | 237.0 | 23.9 | 84.9 | 61.0 | 210.0 | 26.7 | 81.4 | 54.8 | 284.0 | 30.5 | 78.9 | 48.4 |
| *22.4* | 43.7 | 4.4 | 61.0 | 56.6 | 41.2 | 5.2 | 54.8 | 49.5 | 53.1 | 5.7 | 48.4 | 42.7 |
| *19* | 47.3 | 4.8 | 56.6 | 51.8 | 40.2 | 5.1 | 49.5 | 44.4 | 68.5 | 7.3 | 42.7 | 35.3 |
| *16* | 39.8 | 4.0 | 51.8 | 47.8 | 28.9 | 3.7 | 44.4 | 40.7 | 48.7 | 5.2 | 35.3 | 30.1 |
| *13.2* | 41.9 | 4.2 | 47.8 | 43.6 | 33.6 | 4.3 | 40.7 | 36.5 | 29.9 | 3.2 | 30.1 | 26.9 |
| *12.5* | 18.8 | 1.9 | 43.6 | 41.7 | 17.5 | 2.2 | 36.5 | 34.3 | 17.3 | 1.9 | 26.9 | 25.1 |
| *11.2* | 17.2 | 1.7 | 41.7 | 39.9 | 13.7 | 1.7 | 34.3 | 32.5 | 9.6 | 1.0 | 25.1 | 24.0 |
| *9.5* | 29.1 | 2.9 | 39.9 | 37.0 | 23.5 | 3.0 | 32.5 | 29.5 | 22.8 | 2.4 | 24.0 | 21.6 |
| *8* | 31.5 | 3.2 | 37.0 | 33.8 | 27.0 | 3.4 | 29.5 | 26.1 | 19.4 | 2.1 | 21.6 | 19.5 |
| *6.7* | 26.8 | 2.7 | 33.8 | 31.1 | 22.0 | 2.8 | 26.1 | 23.3 | 16.3 | 1.8 | 19.5 | 17.7 |
| *5.6* | 24.2 | 2.4 | 31.1 | 28.7 | 19.4 | 2.5 | 23.3 | 20.8 | 15.4 | 1.7 | 17.7 | 16.1 |
| *4.75* | 23.9 | 2.4 | 28.7 | 26.2 | 19.9 | 2.5 | 20.8 | 18.3 | 15.4 | 1.7 | 16.1 | 14.4 |
| *3.35* | 42.6 | 4.3 | 26.2 | 21.9 | 27.2 | 3.5 | 18.3 | 14.8 | 21.3 | 2.3 | 14.4 | 12.1 |
| *2.8* | 24.2 | 2.4 | 21.9 | 19.5 | 13.4 | 1.7 | 14.8 | 13.2 | 11.4 | 1.2 | 12.1 | 10.9 |
| *2.36* | 20.1 | 2.0 | 19.5 | 17.5 | 10.9 | 1.4 | 13.2 | 11.8 | 7.7 | 0.8 | 10.9 | 10.1 |
| *1.7* | 38.0 | 3.8 | 17.5 | 13.6 | 13.5 | 1.7 | 11.8 | 10.1 | 16.0 | 1.7 | 10.1 | 8.4 |
| *1.18* | 40.9 | 4.1 | 13.6 | 9.5 | 21.2 | 2.7 | 10.1 | 7.4 | 15.7 | 1.7 | 8.4 | 6.7 |
| *1* | 9.7 | 1.0 | 9.5 | 8.5 | 6.7 | 0.8 | 7.4 | 6.5 | 5.6 | 0.6 | 6.7 | 6.1 |
| *0* | 84.3 | 8.5 | 8.5 | | 51.2 | 6.5 | 6.5 | | 56.8 | 6.1 | 6.1 | |
| **Totals** | **990** | **100** | **100** | | **787** | **100** | **100** | | **932** | **100** | **100** | |

# A-2 INDUCED CRUSHING RESULTS

Pit 1 – Crushing induced fractionation results

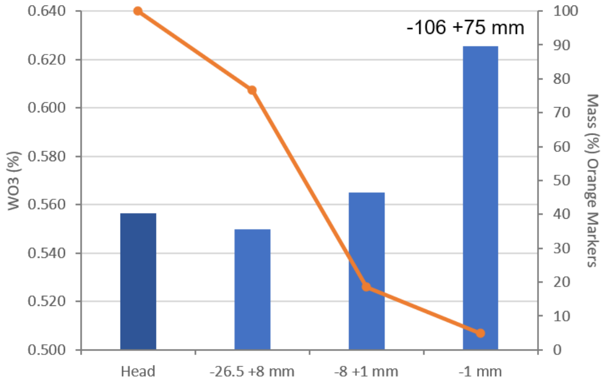


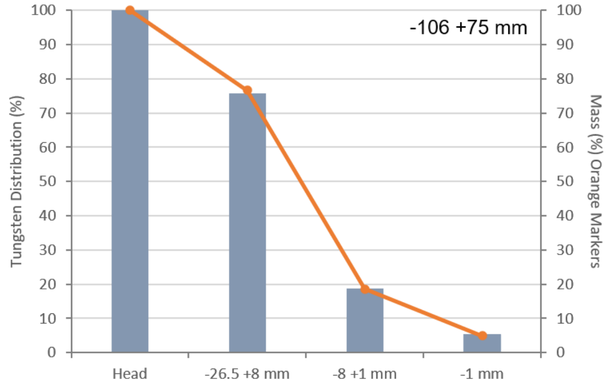
## Pit 2 – Crushing induced fractionation results

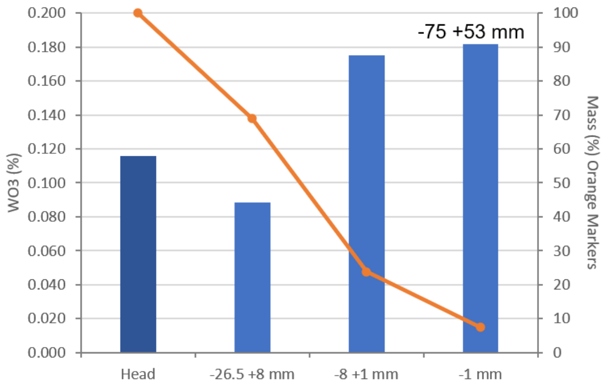


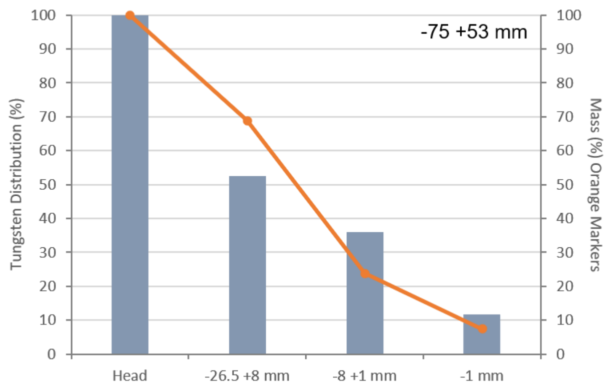
## Pit 3 – Crushing induced fractionation results

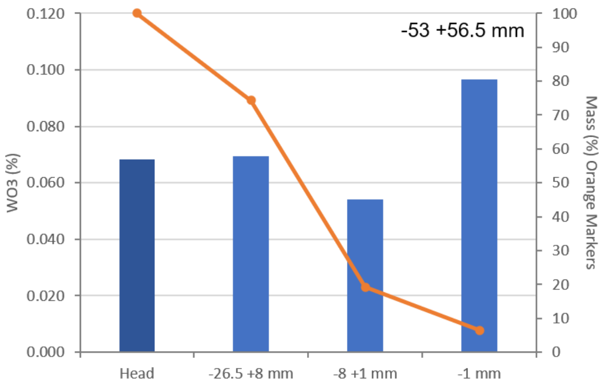
$WO_3$ grade and mass (%) | Tungsten distribution (%) and mass (%)

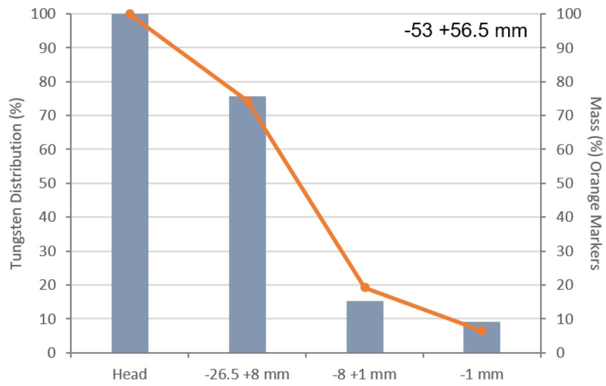


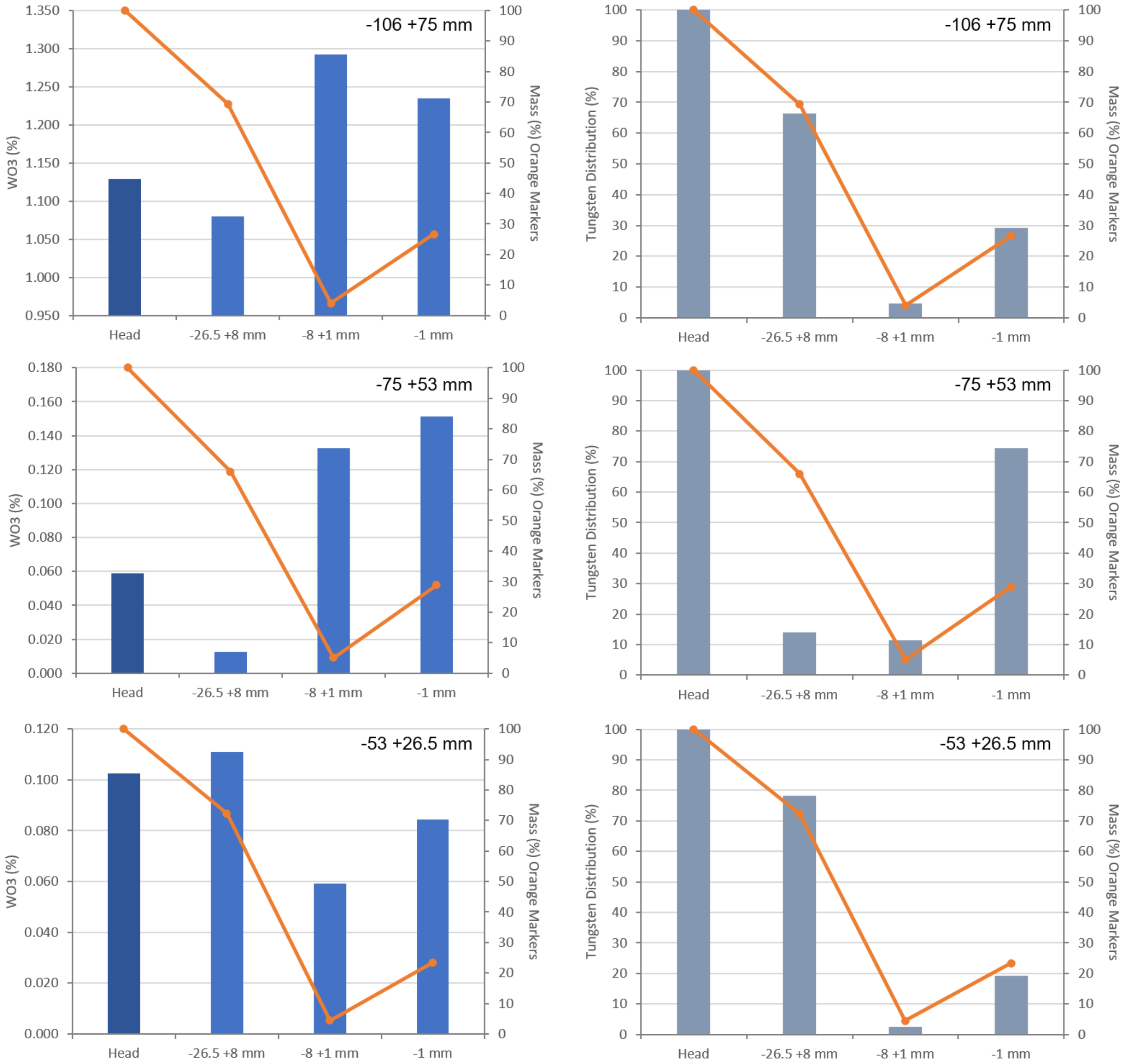



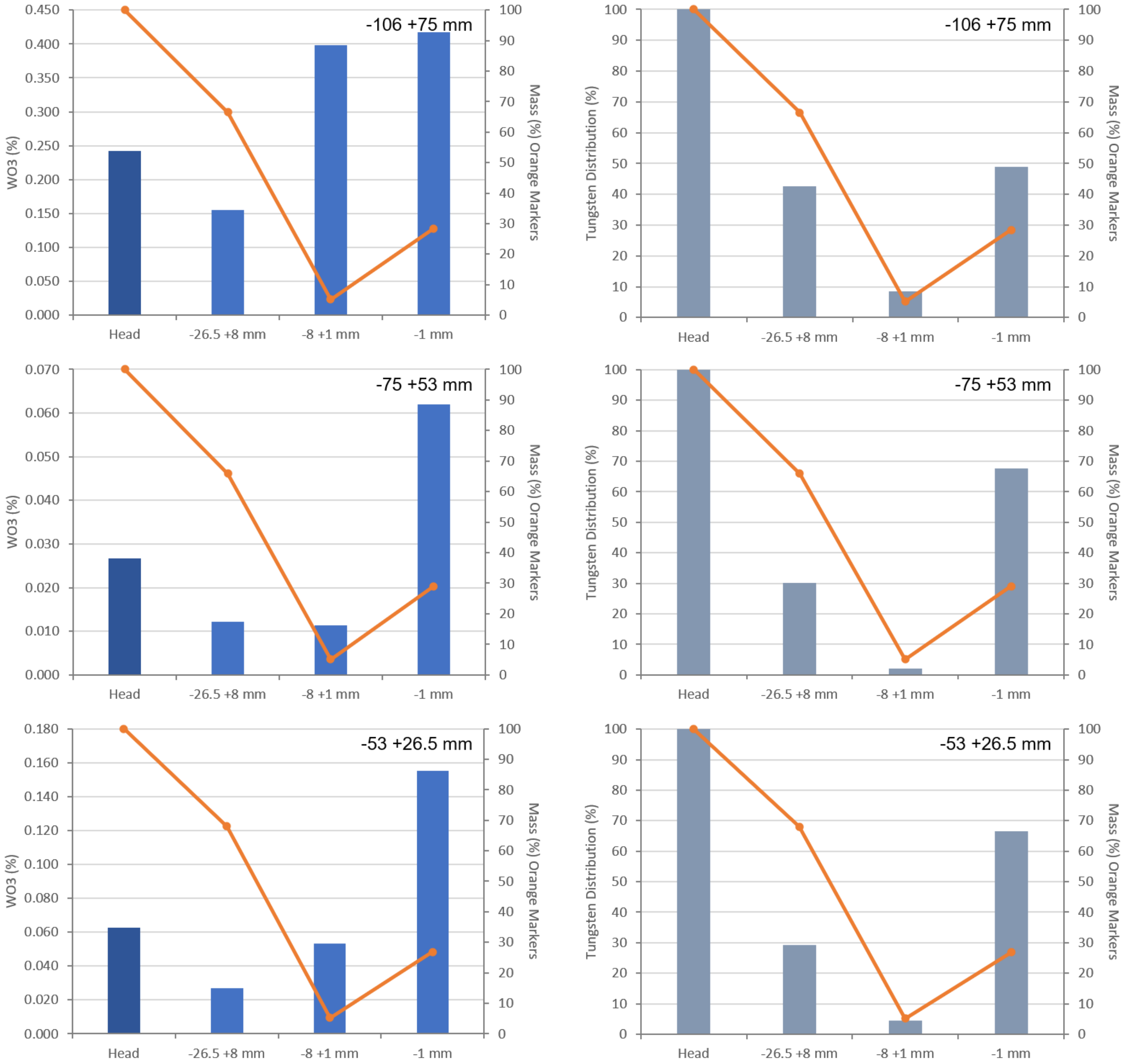
## Pit 4 – Crushing induced fractionation results

$WO_3$ grade and mass (%) | Tungsten distribution (%) and mass (%)

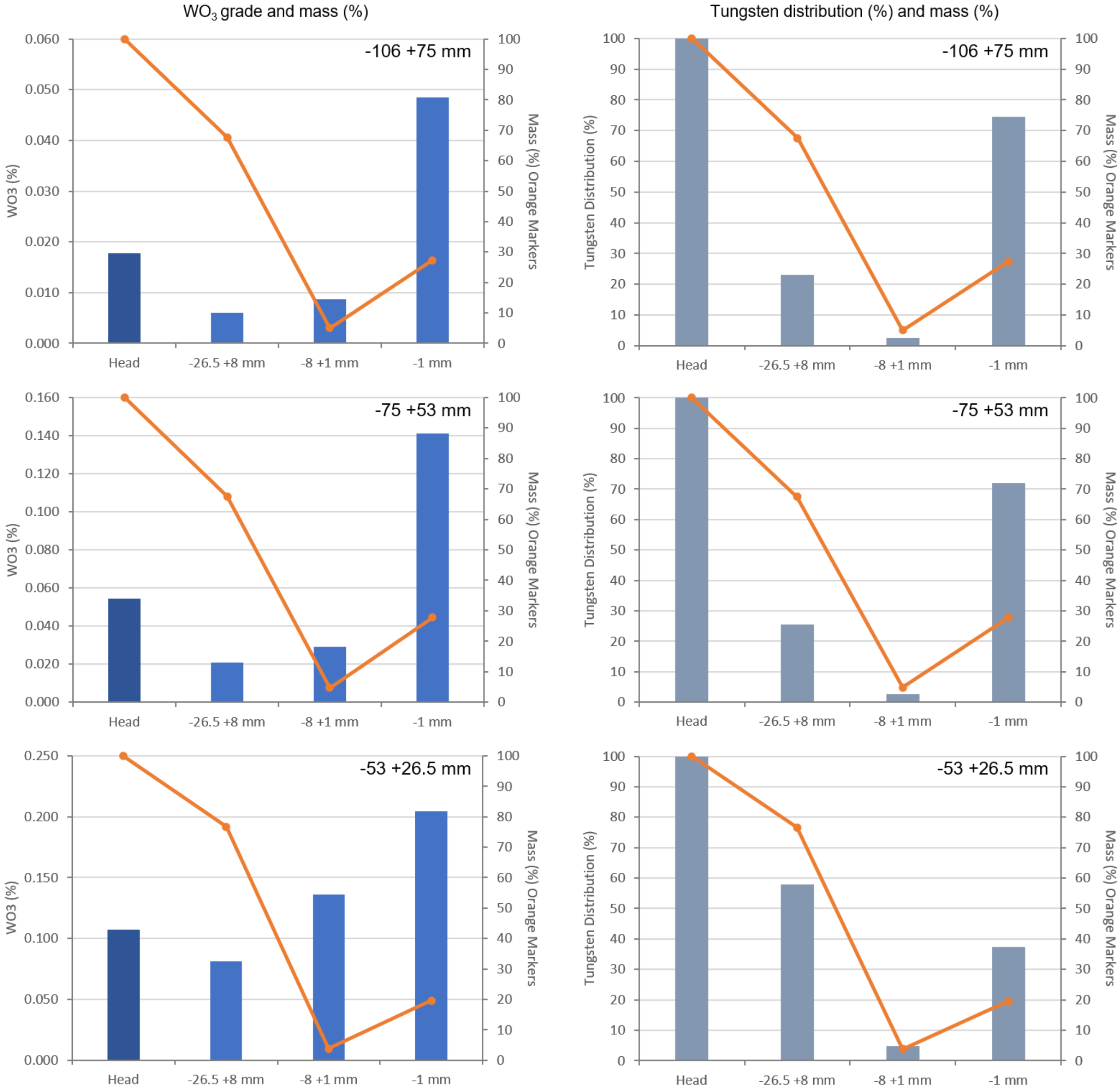


Pit 5 – Crushing induced fractionation results

$WO_3$ grade and mass (%) | Tungsten distribution (%) and mass (%)



## Pit 6 – Crushing induced fractionation results



# Appendix C 2021 Pit Drill Intercepts used in Resource Assessment

**EQ Resources Drilling Campaign 2021 Results continued**

| Hole # | East | North | RI | EOH | Dip | Azm (TN) | | From | To | Interval | $WO_3$ % | Zone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EQ001** | **22,793** | **26,176** | **389.4** | **309.1** | **-49** | **50** | | **164.73** | **169.00** | **4.27** | **1.27** | Iolanthe |
| | | | | | | | ***Incl.*** | ***166.47*** | ***166.57*** | ***0.10*** | ***50.07*** | Iolanthe |
| | | | | | | | | 185.07 | 191.13 | 6.06 | 0.54 | Bluff |
| | | | | | | | ***Incl.*** | **187.82** | **187.99** | ***0.17*** | ***17.40*** | Bluff |
| | | | | | | | | 202.02 | 208.74 | 6.72 | 0.53 | Bluff |
| | | | | | | | ***Incl.*** | ***202.02*** | ***202.78*** | ***0.76*** | ***3.87*** | Bluff |
| | | | | | | | | **221.06** | **221.41** | **0.35** | **2.13** | Wayback |
| | | | | | | | | 228.84 | 231.37 | 2.53 | 0.48 | Wayback |
| | | | | | | | | 296.51 | 305.63 | 9.12 | 0.48 | Johnson |
| | | | | | | | ***Incl.*** | ***296.51*** | ***297.75*** | ***1.24*** | ***2.64*** | Johnson |
| | | | | | | | ***Incl.*** | ***305.12*** | ***305.63*** | ***0.51*** | ***2.07*** | Johnson |
| **EQ002** | **22,793** | **26,175** | **389.5** | **389.5** | **-57** | **50** | | 207.20 | 211.55 | 4.35 | 0.26 | Bluff |
| | | | | | | | ***Incl.*** | ***207.20*** | ***207.62*** | ***0.42*** | ***1.95*** | Bluff |
| | | | | | | | | 262.50 | 263.13 | 0.63 | 0.50 | Wayback |
| | | | | | | | | 308.67 | 313.94 | *5.27* | 0.38 | Johnson |
| | | | | | | | ***Incl.*** | ***308.67*** | ***308.86*** | ***0.19*** | **1.92** | Johnson |
| | | | | | | | ***Incl.*** | ***312.77*** | ***313.94*** | ***1.17*** | **1.42** | Johnson |
| **EQ003** | **22,736** | **26,171** | **387.40** | **290.0** | **-50** | **50** | | 120.85 | 127.82 | 6.97 | 0.90 | Iolanthe |
| | | | | | | | ***Incl.*** | ***120.85*** | ***122.16*** | ***1.31*** | ***1.36*** | Iolanthe |
| | | | | | | | ***Incl.*** | ***126.32*** | ***127.82*** | ***1.50*** | ***2.88*** | Iolanthe |
| | | | | | | | | **139.79** | **140.17** | **0.38** | **1.26** | Iolanthe |
| | | | | | | | | 148.44 | 154.72 | 6.28 | 0.26 | Bluff |
| | | | | | | | ***Incl.*** | ***154.58*** | ***154.72*** | ***0.14*** | ***11.55*** | Bluff |
| | | | | | | | | 291.77 | 293.32 | 1.55 | 0.46 | Johnson |
| **EQ004** | **22704** | **26174.9** | **386.3** | **325** | **-50** | **50** | | **114.09** | **119.42** | **5.33** | **1.32** | Iolanthe |
| | | | | | | | ***Incl.*** | ***118.40*** | ***119.42*** | ***1.02*** | ***6.68*** | Iolanthe |
| | | | | | | | | 127.09 | 135.75 | 8.66 | 0.45 | Iolanthe |
| | | | | | | | ***Incl.*** | ***135.06*** | ***135.75*** | ***0.69*** | ***5.37*** | Iolanthe |
| | | | | | | | | **173.33** | **181.54** | **8.21** | **1.13** | Bluff |
| | | | | | | | ***Incl.*** | ***173.33*** | ***173.82*** | ***0.49*** | ***17.60*** | Bluff |
| | | | | | | | *Incl.* | *180.90* | *181.54* | *0.64* | *0.95* | Bluff |
| **EQ005** | **22657** | **26173.7** | **386.8** | **327.3** | **-58** | **50** | | 115.67 | 118.37 | 2.70 | 0.50 | Iolanthe |
| | | | | | | | ***Incl.*** | ***115.67*** | ***115.87*** | ***0.20*** | ***5.32*** | Iolanthe |
| | | | | | | | ***Incl.*** | ***118.30*** | ***118.37*** | ***0.07*** | ***4.13*** | Iolanthe |
| | | | | | | | | 141.81 | 145.47 | 3.66 | 0.26 | Iolanthe |
| | | | | | | | ***Incl.*** | ***145.31*** | ***145.47*** | ***0.16*** | ***6.02*** | Iolanthe |
| | | | | | | | | 154.24 | 156.98 | 2.74 | 0.35 | Bluff |
| | | | | | | | ***Incl.*** | ***154.56*** | ***154.71*** | ***0.15*** | ***5.85*** | Bluff |
| | | | | | | | | 217.46 | 218.73 | 1.27 | 0.28 | Bluff |
| | | | | | | | ***Incl.*** | ***217.90*** | ***218.11*** | ***0.21*** | ***1.43*** | Bluff |
| **EQ006** | **22,876** | **26,189** | **383.60** | **309.3** | **-48** | **50** | | **123.37** | **127.72** | ***4.35*** | **1.31** | Iolanthe |
| | | | | | | | ***Incl.*** | ***124.08*** | ***124.62*** | ***0.54*** | ***8.03*** | Iolanthe |
| | | | | | | | ***Incl.*** | ***127.26*** | ***127.72*** | ***0.46*** | ***2.71*** | Iolanthe |
| | | | | | | | | 131.00 | 135.12 | 4.12 | 0.53 | Iolanthe |
| | | | | | | | *Incl.* | *131.00* | *132.24* | *1.24* | *1.00* | Iolanthe |
| | | | | | | | | 150.30 | 152.41 | 2.11 | 0.56 | Bluff |
| | | | | | | | ***Incl.*** | ***152.36*** | ***152.41*** | ***0.05*** | ***20.05*** | Bluff |
| | | | | | | | | **162.30** | **163.65** | **1.35** | **2.37** | Bluff |
| | | | | | | | ***Incl.*** | ***162.30*** | ***162.41*** | ***0.11*** | ***1.82*** | Bluff |
| | | | | | | | ***Incl.*** | ***163.17*** | ***163.65*** | ***0.48*** | ***6.14*** | Bluff |
| | | | | | | | | 253.06 | 253.39 | 0.33 | 2.48 | Wayback |
| | | | | | | | | 267.31 | 270.19 | 2.88 | 0.38 | Johnson |
| | | | | | | | ***Incl.*** | ***267.31*** | ***267.50*** | ***0.19*** | ***3.83*** | Johnson |
| | | | | | | | | 278.28 | 281.98 | 3.70 | 0.78 | Johnson |
| | | | | | | | ***Incl.*** | ***281.77*** | ***281.98*** | ***0.21*** | ***12.93*** | Johnson |
| | | | | | | | | 287.17 | 290.44 | 3.27 | 0.33 | Johnson |
| | | | | | | | ***Incl.*** | ***287.17*** | ***287.32*** | ***0.15*** | ***7.14*** | Johnson |

**EQ Resources Drilling Campaign 2021 Results continued**

| Hole # | East | North | Rl | EOH | Dip | Azm (TN) | | From | To | Interval | $WO_3$ % | Zone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EQ007** | **23014** | **26328** | **364.2** | **48.0** | **-45** | **230** | | 28.35 | 30.48 | 2.13 | 0.57 | Iolanthe |
| | | | | | | | ***Incl.*** | ***28.35*** | ***28.50*** | ***0.15*** | ***7.97*** | Iolanthe |
| **EQ008** | **23014** | **26329** | **364.1** | **60.5** | **-65** | **230** | | 48.95 | 50.20 | 1.25 | 0.25 | Iolanthe |
| | | | | | | | ***Incl.*** | ***50.09*** | ***50.20*** | ***0.11*** | ***1.58*** | Iolanthe |
| **EQ009** | **23014** | **26331.0** | **364.2** | **171.5** | **-60** | **50** | | 43.60 | 45.78 | 2.18 | 0.44 | Wayback |
| | | | | | | | ***Incl.*** | ***45.26*** | ***45.55*** | ***0.29*** | ***2.84*** | Wayback |
| | | | | | | | | 80.39 | 83.22 | 2.83 | 0.67 | Johnson |
| | | | | | | | ***Incl.*** | ***80.39*** | ***80.50*** | ***0.11*** | ***5.47*** | Johnson |
| | | | | | | | ***Incl.*** | ***83.00*** | ***83.22*** | ***0.22*** | ***5.86*** | Johnson |
| | | | | | | | | 101.96 | 104.57 | 2.61 | 0.41 | Johnson |
| | | | | | | | ***Incl.*** | ***101.96*** | ***102.10*** | ***0.14*** | ***6.47*** | Johnson |
| | | | | | | | | 125.90 | 127.30 | 1.40 | 0.60 | Johnson |
| **EQ010** | **22657** | **26177** | **387** | **245** | **-45** | **50** | | 136.92 | 139.16 | 2.24 | 0.27 | Bluff |
| | | | | | | | ***Incl.*** | ***139.04*** | ***139.16*** | ***0.12*** | ***4.99*** | Bluff |
| | | | | | | | | 156.84 | 159.45 | 2.61 | 0.21 | Bluff |
| | | | | | | | Incl. | 158.37 | 159.45 | 1.08 | 0.50 | Bluff |
| | | | | | | | | 167.51 | 171.11 | 3.60 | 0.32 | Bluff |
| | | | | | | | ***Incl.*** | ***167.51*** | ***168.05*** | ***0.54*** | ***2.08*** | Bluff |
| | | | | | | | | 173.49 | 182.16 | 8.67 | 0.30 | Bluff |
| | | | | | | | ***Incl.*** | ***181.23*** | ***182.16*** | ***0.93*** | ***2.59*** | Bluff |
| **EQ011** | **22765** | **26173** | **389** | **285** | **-45** | **51** | | **118.48** | **119.06** | **0.58** | **2.26** | Iolanthe |
| | | | | | | | | 137.38 | 138.52 | 1.14 | 0.43 | Bluff |
| | | | | | | | | **141.55** | **141.70** | **0.15** | **6.36** | Bluff |
| | | | | | | | | **144.95** | **145.47** | **0.52** | **2.08** | Bluff |
| | | | | | | | | **176.67** | **176.93** | **0.26** | **3.31** | Bluff |
| | | | | | | | | **222.53** | **223.20** | **0.67** | **4.22** | Johnson |
| **EQ012** | **22624** | **26186** | **387.8** | **412.0** | **-45** | **50** | | 111.46 | 113.60 | **2.14** | **0.53** | Iolanthe |
| | | | | | | | ***Incl.*** | ***111.46*** | ***111.73*** | ***0.27*** | ***4.10*** | Iolanthe |
| | | | | | | | | 137.82 | 141.66 | 3.84 | 0.32 | Bluff |
| | | | | | | | ***Incl.*** | ***138.88*** | ***139.01*** | ***0.13*** | ***5.90*** | Bluff |
| | | | | | | | | ***141.50*** | ***141.66*** | ***0.16*** | ***2.53*** | Bluff |
| | | | | | | | | ***327.11*** | ***328.78*** | ***1.67*** | ***3.28*** | Dazzler |
| | | | | | | | ***Incl.*** | ***327.11*** | ***328.34*** | ***1.23*** | ***5.44*** | Dazzler |
| | | | | | | | | 346.41 | 349.59 | 3.18 | 0.67 | Dazzler |
| | | | | | | | ***Incl.*** | ***346.41*** | ***346.78*** | ***0.37*** | ***4.33*** | Dazzler |
| | | | | | | | | 382.08 | 385.21 | ***3.13*** | 1.93 | Dazzler |
| | | | | | | | ***Incl.*** | ***383.21*** | ***384.21*** | ***1.00*** | ***5.92*** | Dazzler |
| **EQ013** | **22911** | **26190** | **382.8** | **294.2** | **-45** | **48** | | 135.95 | 148.87 | 12.92 | 0.59 | bluff |
| | | | | | | | ***Incl.*** | ***135.95*** | ***136.65*** | ***0.70*** | ***1.02*** | bluff |
| | | | | | | | | ***140.46*** | ***140.61*** | ***0.15*** | ***3.95*** | bluff |
| | | | | | | | | ***148.39*** | ***148.87*** | ***0.48*** | ***12.40*** | bluff |
| | | | | | | | | 165.76 | 170.85 | 5.09 | 1.14 | bluff |
| | | | | | | | ***Incl.*** | ***165.76*** | ***166.64*** | ***0.88*** | ***3.42*** | bluff |
| | | | | | | | | ***170.67*** | ***170.85*** | ***0.18*** | ***15.55*** | bluff |
| | | | | | | | | 257.12 | 266.13 | 9.01 | 0.38 | Johnson |
| | | | | | | | ***Incl.*** | **257.12** | **257.94** | **0.82** | **2.49** | Johnson |
| | | | | | | | | ***265.77*** | ***266.13*** | ***0.36*** | ***3.43*** | Johnson |
| | | | | | | | | 277.00 | 284.18 | 7.18 | 1.42 | Johnson |
| | | | | | | | ***Incl.*** | ***277.00*** | ***277.30*** | ***0.30*** | ***3.61*** | Johnson |
| | | | | | | | | ***282.90*** | ***284.18*** | ***1.28*** | ***6.96*** | Johnson |

## EQ Resources Drilling Campaign 2021 Results continued

| Hole # | East | North | RI | EOH | Dip | Azm (TN) | | From | To | Interval | $WO_3$ % | Zone |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EQ014 | 22957 | 26204 | 382.7 | 300.4 | -45 | 45 | | 133.32 | 143.03 | 9.71 | 0.53 | Iolanthe |
| | | | | | | | ***Incl.*** | ***134.18*** | ***134.47*** | ***0.29*** | ***2.92*** | Iolanthe |
| | | | | | | | | ***139.20*** | ***139.44*** | ***0.24*** | ***13.90*** | Iolanthe |
| | | | | | | | | ***142.78*** | ***143.03*** | ***0.25*** | ***3.25*** | Iolanthe |
| | | | | | | | | 146.35 | 150.40 | 4.05 | 1.41 | Iolanthe |
| | | | | | | | ***Incl.*** | ***146.35*** | ***146.70*** | ***0.35*** | ***1.65*** | bluff |
| | | | | | | | | ***150.08*** | ***150.40*** | ***0.32*** | ***16.10*** | bluff |
| | | | | | | | | 159.74 | 165.04 | 5.30 | 0.66 | bluff |
| | | | | | | | ***Incl.*** | ***159.74*** | ***160.12*** | ***0.38*** | ***2.55*** | bluff |
| | | | | | | | | ***162.41*** | ***162.85*** | ***0.44*** | ***4.87*** | bluff |
| | | | | | | | | ***164.90*** | ***165.04*** | ***0.14*** | ***1.79*** | bluff |
| | | | | | | | | ***261.05*** | ***263.30*** | ***2.25*** | ***1.72*** | Johnson |
| | | | | | | | ***Incl.*** | ***261.05*** | ***261.40*** | ***0.35*** | ***8.02*** | Johnson |
| | | | | | | | | ***263.13*** | ***263.30*** | ***0.17*** | ***6.09*** | Johnson |
| EQ015 | 22841 | 26178 | 386.8 | 306.3 | -45 | 50 | | 138.79 | 147.90 | 9.11 | 1.88 | Iolanthe |
| | | | | | | | ***Incl.*** | ***139.87*** | ***140.91*** | ***1.04*** | ***2.35*** | Iolanthe |
| | | | | | | | | ***144.77*** | ***145.14*** | ***0.37*** | ***20.00*** | Iolanthe |
| | | | | | | | | 156.35 | 160.80 | 4.45 | 5.09 | Iolanthe |
| | | | | | | | ***Incl.*** | ***156.35*** | ***156.81*** | ***0.46*** | ***10.80*** | Bluff |
| | | | | | | | | ***156.81*** | ***157.11*** | ***0.30*** | ***1.27*** | Bluff |
| | | | | | | | | ***158.13*** | ***158.46*** | ***0.33*** | ***7.57*** | Bluff |
| | | | | | | | | ***159.74*** | ***160.80*** | ***1.06*** | ***13.85*** | Bluff |
| | | | | | | | | 199.29 | 209.99 | 10.70 | 0.93 | Bluff |
| | | | | | | | ***Incl.*** | ***199.29*** | ***199.86*** | ***0.57*** | ***14.15*** | Bluff |
| | | | | | | | | ***207.23*** | ***207.62*** | ***0.39*** | ***3.12*** | Bluff |
| | | | | | | | | ***209.88*** | ***209.99*** | ***0.11*** | ***5.63*** | Bluff |
| | | | | | | | | 245.85 | 252.88 | 7.03 | 0.33 | Johnson |
| | | | | | | | ***Incl.*** | ***245.85*** | ***246.35*** | ***0.50*** | ***1.15*** | Johnson |
| | | | | | | | | ***247.71*** | ***248.11*** | ***0.40*** | ***1.86*** | Johnson |
| | | | | | | | | ***252.64*** | ***252.88*** | ***0.24*** | ***4.04*** | Johnson |
| | | | | | | | | 263.74 | 268.90 | 5.16 | 1.18 | Johnson |
| | | | | | | | ***Incl.*** | ***263.74*** | ***264.00*** | ***0.26*** | ***1.24*** | Johnson |
| | | | | | | | | ***264.62*** | ***265.32*** | ***0.70*** | ***7.03*** | Johnson |
| | | | | | | | | ***268.57*** | ***268.90*** | ***0.33*** | ***2.47*** | Johnson |
| | | | | | | | | 282.51 | 290.45 | ***7.94*** | 0.26 | Johnson |
| | | | | | | | ***Incl.*** | ***282.51*** | ***283.15*** | ***0.64*** | ***2.97*** | Johnson |
| EQ016 | 23056 | 26321 | 380.4 | 48.4 | -45 | 230 | | No Significant Results | | | | |

- Intervals represent downhole depths, not true thickness with no applied upper cut
- Results are shown where weighted averages are greater than 2m @ 0.25% $WO_3$

Highlighted (bold) intervals represent where King-Veins (see Company's 16 October 2020 announcement) have been intersected above 1% WO3 grade.

# Appendix D Petrological Study Report

EQ RESOURCES

## EQ RESOURCES MT CARBINE PROJECT - PETROGRAPHIC REVIEW (PTEROSAUR PETROLOGY 2021)

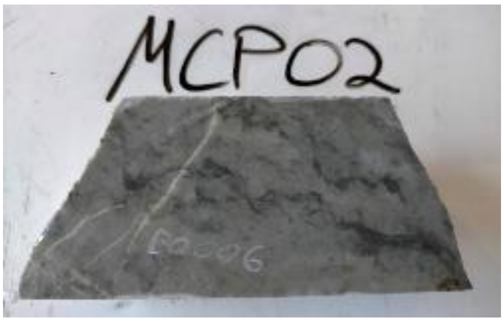
| SECTION | SAMPLE | CORE | HOLE ID | FROM m | TO m | Lithology | HOST ROCK MINERALS | VEINS / FRACTURE INFILL Event 1 | WALLROCK ALTERATION E1 | VEINS / FRACTURE INFILL Event 2 | WALLROCK ALTERATION E2 | VEINS / FRACTURE INFILL Event 3 | WALLROCK ALTERATION E3 | VEINS / FRACTURE INFILL Event 4 | WALLROCK ALTERATION E4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TS2109-4.1** | **MCP01** | HQ | EQ010 | 162.50 | 162.73 | Veined & altered **hornfelsed phyllite** | Ms-Qz-**Bt** | Qz | ?Chl | Sau-Tur-Po | Ser-Si-Chl-Tur-Po-(**Ccp**-Asp) | Qz-Cal | Cal-(Py) | | |
| **TS2109-4.2** | **MCP02** | HQ | EQ006 | 109.60 | 109.70 | Complex milled breccia of **dacite dyke(?)** | Qz-Pl-Kfs | 3x Breccia cement: Si-(FeOx) | (Py) | 1x Breccia cement: Sau-Ep-Tur | | Qz-Cal-(**Ccp-Po-Sp**) | (Cal-**Ccp-Po-Sp**) | Qz | |
| **TS2109-4.3** | **MCP03** | HQ | EQ012 | 37.30 | 37.50 | Complexly veined & altered **pelitic phyllite** | Ms-Qz | Qz-Si-(Ttn) | ?Chl | Breccia cement: Chl-Sau-Si | Chl-Tur? | Sau-Ep-Py-Po-**Ccp-Sp** | (Po-**Ccp-Sp**) | Py-Sd-Chl | |
| **TS2109-4.4** | **MCP04** | HQ | EQ012 | 40.90 | 41.18 | Brecciated & cemented **latite dyke(?)** | Qz-Pl-Kfs | Breccia cement: Si | | Breccia cement: Si-Sau-Chl-Py | Sau-Chl-Si-(Asp-**Ccp-Gn**?) | Cal-Py | Py | | |
| **TS2109-4.5** | **MCP05** | HQ | EQ012 | 96.12 | 96.24 | Tourmaline-fluorite altered **phyllite(?)** | ?Ms-(Qz)? | Qz-Ap-(Tur) | Tur-Fl-(?**Ccp**-Asp-Po) | Breccia cement: Si | | Sau-Cal-Py-(**Ccp-Sp**) | (**Ccp-Sp**-Asp-**Gn?**) | | |
| **TS2109-4.6** | **MCP06** | HQ | EQ013 | 137.80 | 138.20 | Brecciated altered **hornfelsed phyllite** | Ms-Qz-**And** | Qz | ?Chl-Tur | Sau-Ep-Chl-Si-(Ttn) | | Qz-Si-(Py-**Ccp-Sp)** | (Py-**Ccp-Sp,** Po-Sd**)** | | |
| **TS2109-4.7** | **MCP07** | *HQ?* | EQ013 | 208.32 | 208.55 | Veined & altered **hornfelsed phyllite** | Ms-Qz-**And** | Qz | ?Chl-Tur | Sau-Chl-(Qz-Po) | Po-(**Ccp-Sp**) | Sau-Qz-Py | Py | Py | |
| **TS2109-4.8** | **MCP08** | *HQ?* | EQ014 | 127.80 | 127.96 | Fractured & veined **psammitic phyllite** | Qz-Ms | Qz | ?Chl-Tur | Sau-Chl-(Ep-Qz-Po) | (Po-**Ccp-Sp**) | Cal-Qz | | Py-(Chl) + Py | |
| **TS2109-4.9** | **MCP09** | HQ | EQ014 | 166.81 | 167.12 | Skarn-altered **psammite** | Qz-Ms-(Cal?) | Qz | ?Chl | Grs-Ves-Czo-(Qz-Si) | Grs-Czo-Chl-(Po) | Cal-Ep-Qz-(Po-**Ccp-Sp**-Asp**)** | Cal-Ch-Qz-Ep-Ms-(Po) | | |
| **TS2109-4.10** | **MCP10** | **NQ** | EQ015 | 46.62 | 46.71 | Sheared, veined & altered **meta-basalt(?)** | Act-Sau | Qz-Chl | ?Chl | Act-Czo-Qz-Chl-Po-Py | Sau-Chl-Po-(**Ccp-Asp)** | Chl-Po-(Cal) | Chl-Po | Py | |
| **TS2109-4.11** | **MCP11** | **NQ** | EQ015 | 49.61 | 49.68 | Sheared, veined & altered **psammo-pelitic phyllite** | Ms-Qz | Qz | ?Chl-(Tur) | Sau-Chl-(Ttn) | Sau-Chl ? | Qz-Chl-Cal-Py-(**Ccp**) | Chl-Cal-Py-(Asp) | Py | |
| **TS2109-4.12a** | **MCP12** | **NQ** | EQ015 | 159.74 | 160.80 | Scheelite-sphalerite **veined albite** | Ab vein | **Sch-Sp**-Chl | Chl | Py-Cal-(Po-Asp-**Ccp**) | | Chl-Py | | | |
| **TS2109-4.12b** | **MCP12** | **NQ** | EQ015 | *159.74* | *160.80* | Sphalerite-scheelite **veined adularia** | Adl-Qz vein | **Sp-Sch** | (Ab?) | Cal-Chl-Py-Po-(**Ccp**) | | Cal-Py-Qz-Chl-(Asp-Mrc?) | | | |
| **TS2109-4.13** | **MCP13** | **NQ** | EQ012 | 306.25 | 306.40 | Veined & altered, **hornfelsed phyllite** | Qz-Ms-**Bt** | Qz | | Tur-Ttn-(Po-Sau) | Tur | Qz-Chl-Ep | (Ccp-Asp) | | |
| **TS2109-4.14** | **MCP14** | HQ | EQ010 | 189.48 | 189.64 | Scheelite veined & altered **phyllite** | Ms-Qz | Qz-**Ccp**-(**Sp**-Asp) | Chl? | Tur-Chl-Po-Sau | Tur-Chl-Po-(Sau) | **Sch**-Chl-Fl | Chl | | |
| **TS2109-4.15** | **MCP15** | **NQ** | EQ012 | 279.75 | 279.90 | Zeolite-calcite **veined quartz** | Qz-(Ap?) vein | Zeo? | | Cal-Qz-(Ms-**Sch?**) | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Abbrev.** | Mineral | (trace levels) | | | | **Sau** | Saussurite |
| **Ab** | Albite | **Ccp** | Chalcopyrite | **Kfs** | K-feldspar | **Sch** | Scheelite |
| **Act** | Actinolite | **Chl** | Chlorite | **Ms** | Muscovite | **Sd** | Siderite |
| **Adl** | Adularia | **Czo** | Clinozoisite | **Mrc** | Marcasite | **Ser** | Sericite |
| **And** | Andalusite | **Ep** | Epidote | **Pl** | Plagioclase | **Si** | Micro-silica (& cristobalite?) |
| **Ap** | Apatite | **FeOx** | Iron-oxide | **Po** | Pyrrhotite | **Sp** | Sphalerite |
| **Asp** | Arsenopyrite | **Fl** | Flourite | **Py** | Pyrite | **Ttn** | Titanite |
| **Bt** | Biotite | **Gn** | Galena | **Qz** | Quartz | **Tur** | Tourmaline |
| **Cal** | Calcite | **Grs** | Grossular garnet | **Rt** | Rutile | **Zeo** | Zeolite |

**Sample MCP01**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Chert with qz/scheelite/sulphides and black and green minerals | EQ010 | 162.5 | 162.73 |

**Sample MCP02**




| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Chert in hanging wall | EQ006 | 109.6 | 109.7 |

**Sample MCP03**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics/metasediment/chert mixture in hanging wall | EQ012 | 37.3 | 37.5 |

**Sample MCP04**

| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Felsite dyke containing spotty black mineral with halos | EQ012 | 40.94 | 41.18 |

**Sample MCP05**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Qz vein with dravite and fluorapatite | EQ012 | 96.12 | 96.24 |

**Sample MCP06**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics/metasediment In hanging wall | EQ013 | 137.8 | 138.2 |

**Sample MCP07**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment with spotty black mineral | EQ013 | 208.32 | 208.55 |

**Sample MCP08**

| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediments in footwall | EQ014 | 127.8 | 127.96 |

**Sample MCP09**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Potassic alteration | EQ014 | 166.81 | 167.12 |

**Sample MCP10**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metavolcanics in footwall | EQ015 | 46.62 | 46.71 |

**Sample MCP11**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment + chert in footwall | EQ015 | 49.61 | 49.68 |

**Sample MCP12**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Mineralised vein with altered k-feldspar | EQ015 | 159.74 | 160.8 |

**Sample MCP13**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment | EQ012 | 306.25 | 306.4 |

**Sample MCP14**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Metasediment + chert with scheelite | EQ010 | 189.48 | 189.64 |

**Sample MCP15**


| Rock Type | Hole ID | From | To |
|---|---|---|---|
| Grey/blue Qz vein with minor scheelite/fluorapatite | EQ012 | 279.75 | 279.9 |

RESOURCES

**Example of Petrological Study on Rock Types & Mineralisation**

Pterosaur Petrology

Geology, Mineralogy & Geochemistry

Earth Science Consulting Services to:
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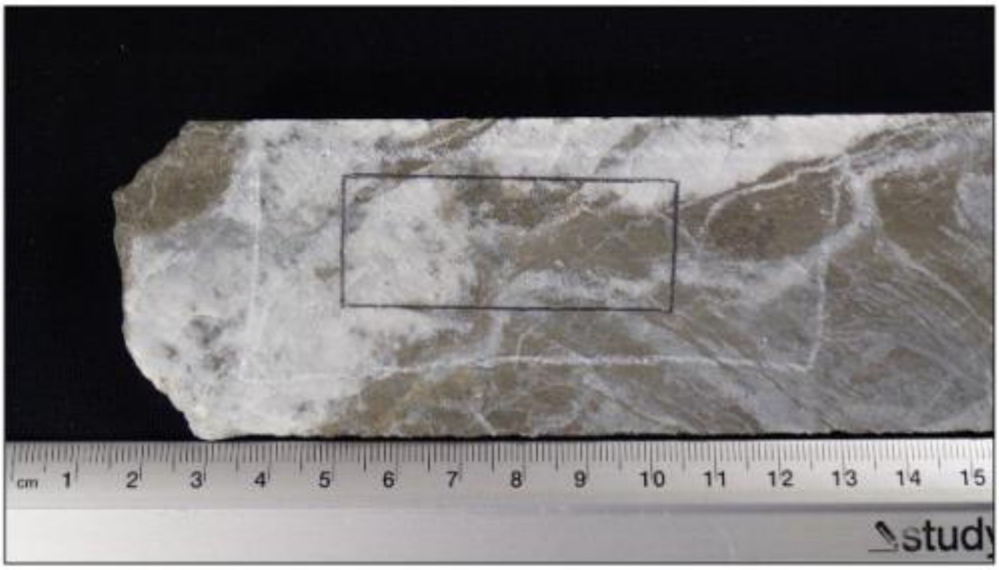
# PETROGRAPHIC ANALYSIS

## TS2109-4.5 Tourmaline-Fluorite Altered Phyllite (?)




***SAMPLE:*** ***MCP05*** *(EQ012 96.12-96.24m)*

***LOCATION:*** *Mt Carbine Tungsten Mine*

***PROJECT:*** *Resource Drilling*

***CLIENT:*** *EQ Resources Ltd*

***DATE:*** *25th October 2021*

***PETROGRAPHER:***

*Stephen WEGNER - BSc (Hons) Geology*

*Australian Institute of Geoscientists (AIG) Member # 3942*

*JCU Economic Geology Research Unit (EGRU) Member*

*CLIENT: EQ RESOURCES LTD* *25th October 2021* 1

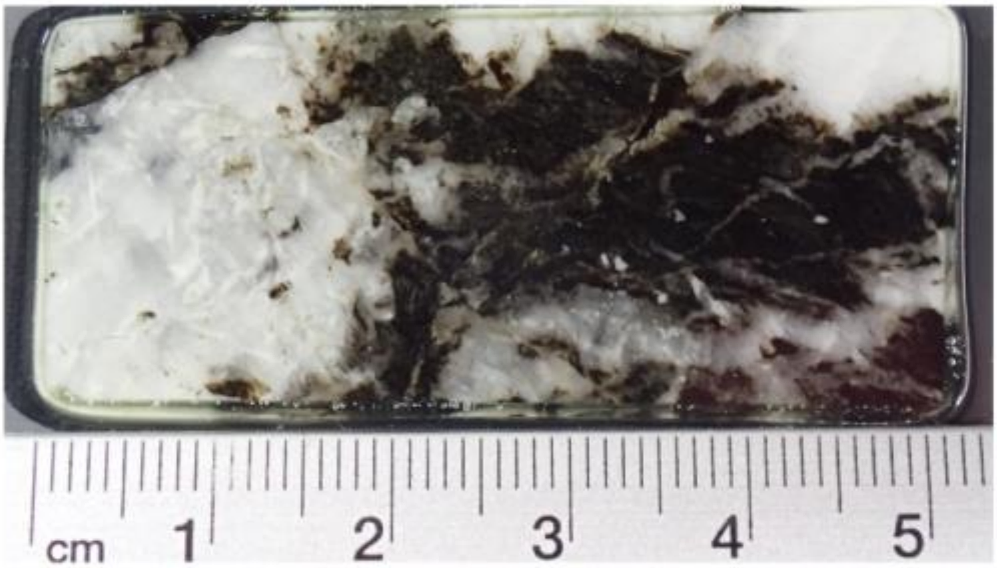
## SPECIMEN HISTORY & PURPOSE

A ~12cm length of cut HQ drill core (front page) was received from the client with request for a petrographic analysis within the white marked area, having regard to identifying the rock type and any hydrothermal alteration or indicators of tungsten mineralisation. The sample, MCP05 96.12-96.24m is reportedly from drill hole EQ012, intersecting units beneath the historic Mt Carbine tungsten mine. This sample is one of fifteen received from the client.

## SAMPLE DESCRIPTION & SELECTION

The drill specimen displays fresh rock dominated by complex quartz veining (and possibly brecciation) of a very fine grained Yellowish Gray (5Y 7/2) uncertain host rock. At least two events of cross-cutting quartz veins; notably 1-2mm veinlets relate to the main 40mm wide white translucent quartz vein. Drops of 1M HCl acid revealed trace specs of calcite associated with isolated specs of yellow sulphide (pyrite?) proximal or within late cross-cutting hairline fracture. A small number of grey-white specs of probable sulphide were observed in isolated patches within the main quartz vein. Uncertain white euhedral short prismatic crystals also observed in the main vein. A 4-watt wide-spectrum ultraviolet light failed to highlight any relevant minerals.

A polished thin section was produced from a cut block (image below) selected from within the white outlined area provided by the client. [Note: red reflection from camera in bottom right corner]




## MICROSCOPIC DESCRIPTION

The following mineral proportions are estimates using modal analysis charts.

**Note**: Although mineral grains can be resolved down to 0.001mm in thin section under transmitted light, identification of minerals smaller than the rock section depth of 0.03mm are subject to interference and diminished optical techniques from other crystals in the light path. Identification of mineral grains with maximum dimension <0.03mm can be subjective.

**VEIN MINERALS 100%** (Pre-alteration)

**80% Quartz 16 mm Anhedral**
Coarse anhedral vein quartz with sutured boundaries and notably high strain (undulose extinction). Grains encapsulate former host rock fragments along with euhedral apatite and tourmaline crystals from the same fluid event. The quartz grains display a moderate density of fluid inclusion trails.

**10% Microcrystalline quartz <0.02 mm Anhedral**
Not strictly veins, but cementing of brittle fracture and related local fine brecciation of host quartz up to 1mm wide, and includes occasionally tourmaline and apatite fragments. Microcrystalline quartz grain boundaries are highly irregular and chert-like.

**5% Apatite 3.6 mm Euhedral**
Large individual euhedral crystals of clear, high relief, low birefringence apatite within large vein quartz crystals as part of the same fluid event. The crystals appear to contain a higher density of fluid inclusions than host vein quartz. A couple of crystals display open small fractures that are infilled with sulphides; chalcopyrite, unknown soft grey and pink phases, and trace sphalerite.

**3% Tourmaline 0.05 (1.8) mm Euhedral**
Fresh golden-brown to clear pleochroic euhedral crystals with long (1.8mm) prismatic forms developed as isolated crystals in the quartz vein. These large crystals grade in size down to fine crystals (0.05mm) replacing former angular fragments of probable host rock. The distinction between free vein crystallisation and replacement tourmaline is hazy at the margins.

**1% Saussurite/epidote <0.001 (0.03) mm Anhedral**
Diffuse, discontinuous, saussurite micro-veins <0.01mm wide within the tourmaline-fluorite altered host. Similar trace saussurite pass along and truncate late stage breccia fracture indicating late phase fluids related to sulphide development.

**1% Chalcopyrite 0.1 mm Anhedral**
Relatively high proportion of small chalcopyrite grains within fluorite developed in and around tourmaline-replaced host clasts. Isolated anhedral grains located along internal grain boundaries of coarse vein quartz, and within fine breccia of late fracture.

**<1% Arsenopyrite 0.7 mm Subhedral to euhedral**
Isolated crystals of white fresh arsenopyrite with occasional diamond forms located primarily within coarse vein quartz. Not strictly connected to structures, the arsenopyrite is generally proximal to chalcopyrite infill of microfracture within nearby apatite.

**<1% Sphalerite 0.04 mm Anhedral**
Isolated honey-brown to red translucent medium grey grains often connected to chalcopyrite.

**<1% Calcite 0.08 mm Anhedral**
Isolated trace examples of minor discontinuous late cement/replacement of fines in breccia matrix along late fracture associated with sulphides. Calcite also appears to develop at the expense of coarse quartz at the breccia margins.

**<1% Unknown grey (galena?) 0.15 mm Anhedral**
Limited examples of uncertain grains that are opaque (no bireflectance or internal reflections) medium to low hardness, light bluish light grey reflectance and partly altered by a very fine patchy pinkish-silver probable pyrrhotite (or vice-versa). Both associated with development of chalcopyrite and particularly arsenopyrite. Possibly galena.

**<1% Unknown pink (pyrrhotite?) 0.1 mm Granular**
Uncertain very fine grained, pinkish-silver (?) probable sulphide replacing unknown blue-grey phase (cuprite?), associated with arsenopyrite and chalcopyrite. Possibly very fine pyrrhotite.

**WALLROCK ALTERATION MINERALS 100%**

**85% Tourmaline 0.05 (1.8) mm Euhedral**
Golden-brown to clear pleochroic euhedral crystals with long (1.8mm) prismatic forms ranging down to mostly fine crystals (0.05mm) replacing former angular fragments of probable host rock. The intense fine replacement tourmaline often has fine interstitial fluorite, lesser chlorite, and trace sulphide. Isolated small clusters of small to medium size tourmaline in the quartz vein likely represent tiny former fragments of host rock. Isolated large crystals in the coarse quartz appear to be independent of alteration, indicating the alteration event is synchronous with the quartz vein.

**13% Fluorite 0.05 (1.2) mm Anhedral**
Mostly interstitial clear fluorite to fine tourmaline replacement of former host rock clasts. Larger irregular anhedral grains appear to grow at the expense of coarse vein quartz. The fluorite is truncated and locally finely brecciated by late stage fracture. Mostly anisotropic, some grains display low grey birefringence colours.

**2% Chlorite 0.1 mm Subhedral**
Radial micaceous subhedral grains, possibly replacement but mostly infill of late void cavities after tourmaline-fluorite replacement of former host rock clast. Crystals display very weak pale green to clear pleochroism indicating compositions leaning towards magnesium end member.

**<1% Pyrrhotite 0.25 mm Anhedral poikilitic**
Rare single example of pale pinkish grey poikilitic pyrrhotite with inclusions of fine tourmaline, central to former host rock clast.

**<1% Rutile 0.15 mm Subhedral infill**
Rare single example of subhedral rutile partial infill / replacement (?) of iron stained mica (former biotite?) at the junction of coarse vein quartz grains; along with fluorite containing trace chalcopyrite, and unknown pinkish phase.

## GENERAL PETROGRAPHIC OBSERVATIONS & INTERPRETATIONS

This section presents quartz veined angular fragments of unknown host rock (~15mm) encapsulated by coarse grained vein quartz (~16mm sutured subgrains). The unknown host is completely replaced by fine euhedral golden-brown tourmaline (0.05-1.8mm) with interstitial clear fluorite (Micrographs 1&2). Larger anhedral fluorite crystals (<1.6mm) appear to be interlocked with host vein quartz. The quartz vein also hosts large euhedral apatite crystals up to 3.6mm, and occasional trace euhedral arsenopyrite crystals up to 0.7mm (Micrographs 3&4).

A number of parallel micro-fractures with localised angular fine breccia clasts, of host quartz and tourmaline, truncate the rock. The micro-breccias are tightly packed but in places cemented by fine microcrystalline quartz (<0.02mm) with irregular cherty grain boundaries.

The rock is further truncated by isolated brittle fractures, roughly orthogonal to the chert-cemented fractures. The late fracture also develops localised fine brecciation that contain substantial fragments and fines of tourmaline. The interstitial cement/replacement phase is not clearly chert, but is overprinted by a cloudy submicroscopic phase of probable saussurite. Within and proximal to this late fracture are development of chalcopyrite and sphalerite. Nearby euhedral arsenopyrite may or may not be associated with the chalcopyrite event.

A trace uncertain blue-grey phase is observed interstitial to fine tourmaline and associated discontinuous micro-veins proximal to arsenopyrite and chalcopyrite. This uncertain bluish-phase is isotropic and moderately altered by pinkish uncertain disseminated phase (Micrographs 4&5). The blue is possibly galena, and the pink possibly pyrrhotite but the relationship is unclear. An isolated single rare grain of poikilitic pyrrhotite is observed encapsulating tourmaline elsewhere in the slide (Micrograph 2). Other phases interstitial to tourmaline include very fine micaceous and radial infill by chlorite (0.005mm).

The textures and forms of the unknown host rock in hand specimen are very similar to other samples of strongly altered phyllite (3m above in the same drill hole).

## PARAGENETIC HISTORY

1. Probable phyllite host rock veined by wide coarse-grained white quartz with numerous related veinlets separating angular clasts. Associated with the main quartz vein are euhedral apatite and lesser tourmaline. Synchronous with the quartz vein is intense tourmaline-fluorite-(chlorite) complete replacement of the host rock.

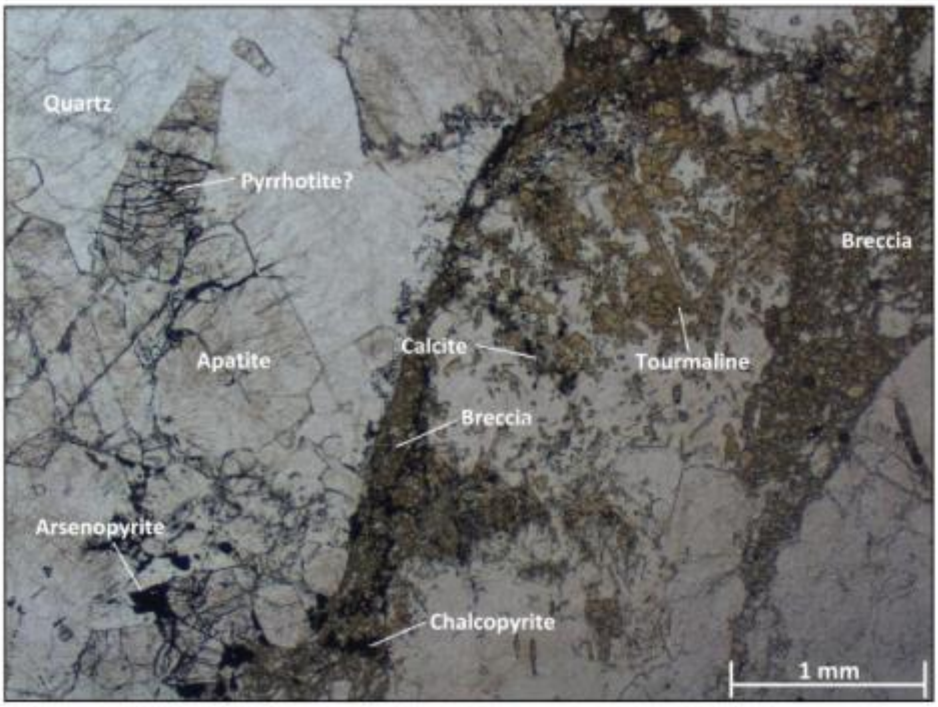
2. Microfracture, subparallel to the main quartz vein, graduates locally to fine breccia of the quartz (and granulation of apatite-tourmaline intersected). This fine breccia is cemented / matrix-replaced with microcrystalline quartz.

3. Isolated discontinuous micro-fractures (roughly orthogonal to the earlier set) display isolated localised brecciation that is patchily replaced/cemented by saussurite-calcite-sulphide (pyrite, chalcopyrite and trace sphalerite). These sulphides, along with arsenopyrite and trace galena/pyrrhotite (?) are also developed in wall rock cracked apatite, tourmaline, and silicified earlier breccia, proximal to this later fracture / breccia event.

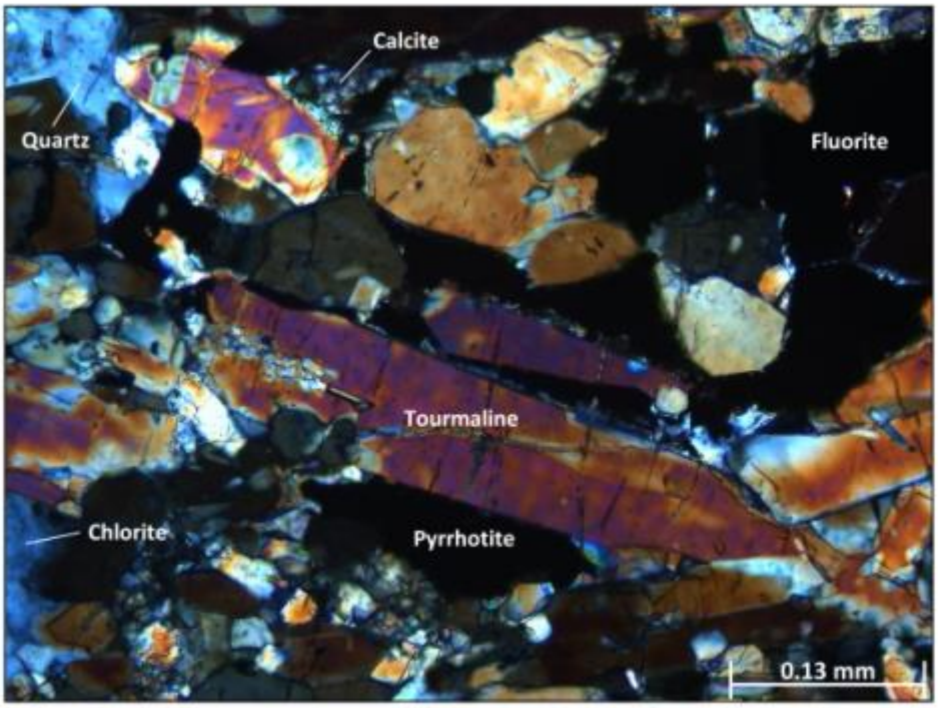
The relatively high levels of isolated sulphide grains within the fluorite (notably chalcopyrite-pyrite) appear to be related to nearby pyrite infilled microfracture through the tourmaline (final fracture event).

## CLASSIFICATION

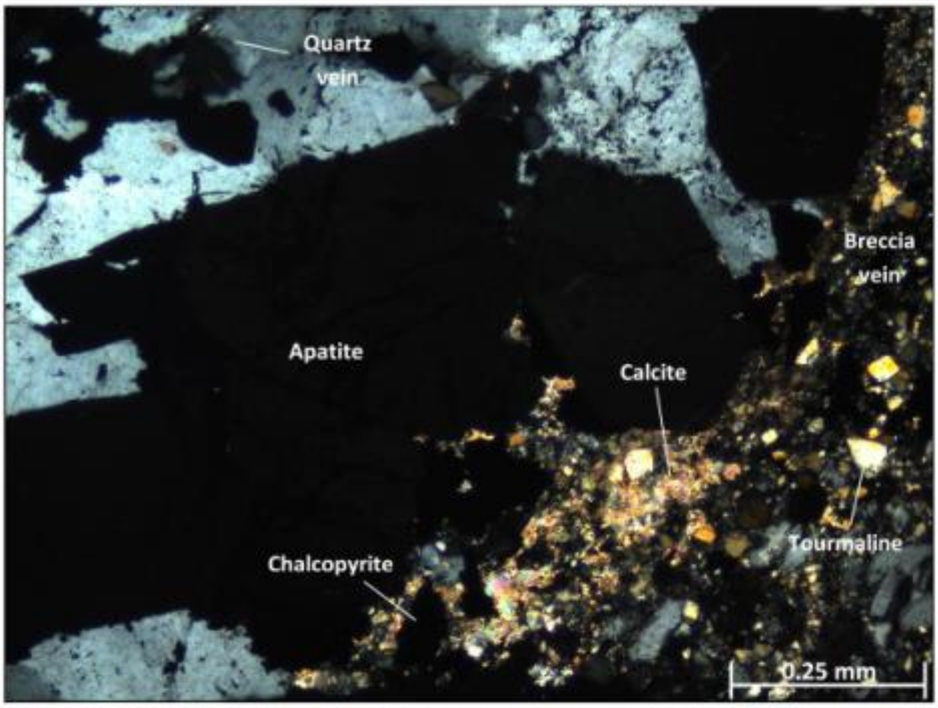
Fresh, quartz-apatite-tourmaline veined
**PHYLLITE**
completely altered to tourmaline-fluorite, then later twice fractured and mineralised with minor sulphides



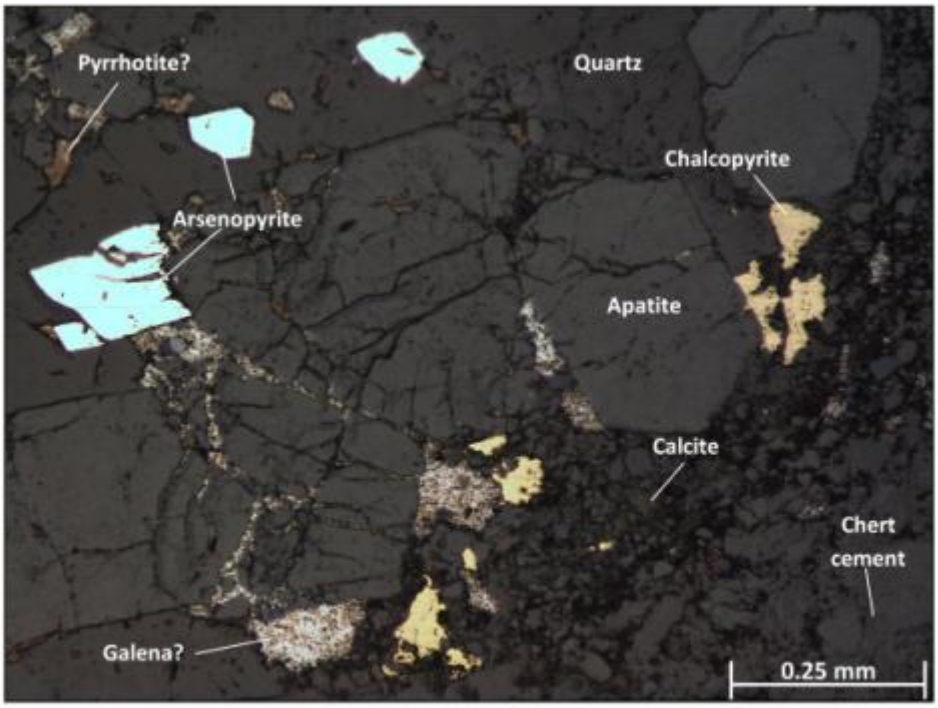

**Micrograph 1**. TS2109-4.5 Plane polarized light [25x Mag. F.O.V. 4.8mm]
Tourmaline-rich portion of quartz vein within breccia line of early fracture. Fine breccia is replaced/cemented by chert and lesser chalcopyrite-calcite. Proximal pyrrhotite (?) arsenopyrite possibly related to breccia event.



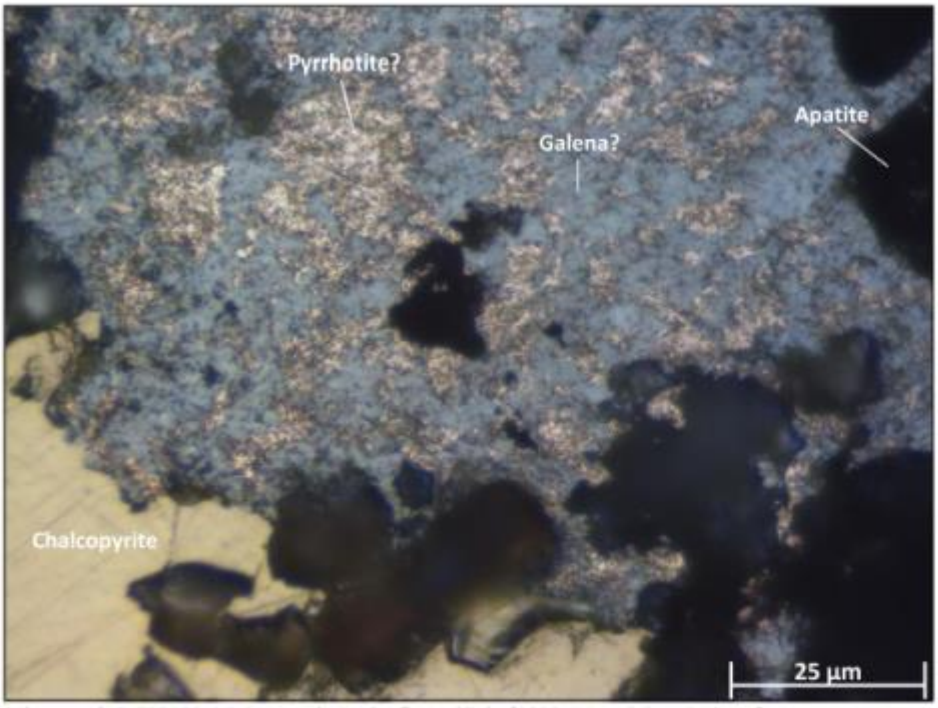

**Micrograph 2**. TS2109-4.5 Cross polarized light [200x Mag. F.O.V. 0.6mm]
Tourmaline-fluorite-quartz replacement of unknown host with minor interstitial chlorite-calcite and rare poikilitic pyrrhotite. No remains of former rock.




**Micrograph 3**. TS2109-4.5 Cross polarized light [100x Mag. F.O.V. 1.2mm] 1 of 2
Fragments of tourmaline, quartz and fine fluorite in vein-like fine breccia cutting through coarse-grained highly strained quartz and apatite. Breccia matrix cemented by chalcopyrite-calcite-chert.




**Micrograph 4**. TS2109-4.5 Cross polarized reflected light [100x Mag. F.O.V. 1.2mm] 2 of 2
Euhedral arsenopyrite and uncertain pinkish and grey sulphides emanating from brecciated fracture. Calcite and chalcopyrite cement breccia along with very fine cherty quartz.




**Micrograph 5**. TS2109-4.5 Cross polarized reflected light [1000x Mag. F.O.V. 0.12mm]
Uncertain blue-grey isotropic sulphide (galena?) in contact with chalcopyrite. Grey phase is partly replaced by disseminated pinkish-silver very fine grained probable pyrrhotite.

# Appendix E QAQC Results

| Hole_ID | Sample No | Blank Type | WO3% |
|---|---|---|---|
| EQ001 | 100033 | Blank Core | 0.005044 |
| EQ001 | 100063 | Blank Core | 0.001261 |
| EQ001 | 100083 | Blank Core | 0.001261 |
| EQ001 | 100103 | Blank Core | 0 |
| EQ002 | 100137 | Blank Core | 0.001261 |
| EQ002 | 100157 | Blank Core | 0 |
| EQ002 | 100177 | Blank Core | 0.002522 |
| EQ003 | 100379 | Blank Core | 0.002 |
| EQ003 | 100399 | Blank Core | 0.002 |
| EQ003 | 100419 | Blank Core | 0.002 |
| EQ003 | 100439 | Blank Core | 0.001 |
| EQ003 | 100459 | Blank Core | <0.001 |
| EQ003 | 100479 | Blank Core | 0.001 |
| EQ003 | 100499 | Blank Core | 0.001 |
| EQ004 | 100526 | Blank Core | 0.003 |
| EQ004 | 100546 | Blank Core | 0.003 |
| EQ004 | 100566 | Blank Core | <0.001 |
| EQ004 | 100586 | Blank Core | 0.004 |
| EQ004 | 100606 | Blank Core | <0.001 |
| EQ004 | 100626 | Blank Core | 0.002 |
| EQ005 | 100663 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100683 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100703 | Blank 1058 0.001% WO3 | 0.004 |
| EQ005 | 100723 | Blank Core | 0.004 |
| EQ005 | 100743 | Blank 1058 0.001% WO3 | 0.001 |
| EQ005 | 100763 | Blank 1058 0.001% WO3 | 0.003 |
| EQ006 | 100211 | Blank Core | 0.001261 |
| EQ006 | 100231 | Blank Core | 0.003783 |
| EQ006 | 100251 | Blank Core | 0.002522 |
| EQ006 | 100271 | Blank Core | 0.001261 |
| EQ006 | 100291 | Blank Core | 0.001261 |
| EQ006 | 100311 | Blank Core | 0.003783 |
| EQ006 | 100331 | Blank Core | 0.005044 |
| EQ006 | 100351 | Blank Core | 0.003783 |
| EQ007 | 100798 | Blank Core | 0.02 |
| EQ007 | 100818 | Blank Core | 0.009 |
| EQ008 | 100853 | Blank Core | 0.008 |
| EQ009 | 100897 | Blank 1083 0.003% WO3 | 0.001 |
| EQ009 | 100907 | Blank 1083 0.003% WO3 | 0.005 |
| EQ009 | 100927 | Blank 1083 0.003% WO3 | 0.003 |
| EQ009 | 100947 | Blank 1083 0.003% WO3 | 0.005 |
| EQ009 | 100967 | Blank 1083 0.003% WO3 | 0.001 |
| EQ010 | 100995 | Blank 1083 0.003% WO3 | 0.002 |
| EQ010 | 101015 | Blank Core | 0.003 |
| EQ010 | 101035 | Blank Core | 0.003 |
| EQ010 | 101091 | Blank Core | <0.001 |
| EQ011 | 101122 | Blank 1031 0.002% WO3 | 0.001 |
| EQ011 | 101132 | Blank 1031 0.002% WO3 | 0.007 |
| EQ011 | 101152 | Blank 1031 0.002% WO3 | 0.002 |
| EQ011 | 101172 | Blank 1031 0.002% WO3 | 0.001 |
| EQ012 | 101207 | Blank 1031 0.002% WO3 | 0.009 |
| EQ012 | 101227 | Blank 1031 0.002% WO3 | 0.003 |
| EQ012 | 101247 | Blank 1031 0.002% WO3 | 0.004 |
| EQ012 | 101267 | Blank 1031 0.002% WO3 | 0.004 |
| EQ012 | 101287 | Blank Core | 0.002 |
| EQ012 | 101307 | Blank 1031 0.002% WO3 | 0.002 |
| EQ012 | 101056 | Blank Core | 0.024 |
| EQ013 | 101339 | Blank Core | 0.001 |
| EQ013 | 101359 | Blank Core | 0.002 |
| EQ013 | 101379 | Blank Core | <0.001 |
| EQ014 | 101406 | Blank Core | <0.001 |
| EQ014 | 101426 | Blank Core | <0.001 |
| EQ014 | 101446 | Blank Core | 0.002 |
| EQ015 | 101472 | Blank Core | 0.002 |
| EQ015 | 101492 | Blank Core | <0.001 |
| EQ015 | 101512 | Blank Core | 0.002 |
| EQ015 | 101532 | Blank Core | <0.001 |

| Hole_ID | Sample No | Previous sample No | Previous grade (ME-XRF15b) | WO3% (ME-XRF15b) | error |
|---|---|---|---|---|---|
| EQ001 | 100023 | 1014 | 0.688 | 0.692 | 0.004 |
| EQ001 | 100043 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ001 | 100053 | 1047 | 2.850 | 2.875 | 0.025 |
| EQ001 | 100073 | 1052 | 0.046 | 0.043 | -0.003 |
| EQ001 | 100093 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ001 | 100113 | 1052 | 0.046 | 0.044 | -0.002 |
| EQ002 | 100127 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ002 | 100147 | 1026 | 0.366 | 0.361 | -0.005 |
| EQ002 | 100167 | 1026 | 0.366 | 0.364 | -0.002 |
| EQ002 | 100187 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ003 | 100369 | 1003 | 4.320 | 4.300 | -0.020 |
| EQ003 | 100389 | 1043 | 0.206 | 0.204 | -0.002 |
| EQ003 | 100409 | 1026 | 0.366 | 0.366 | 0.000 |
| EQ003 | 100429 | 1026 | 0.366 | 0.372 | 0.006 |
| EQ003 | 100449 | 1043 | 0.206 | 0.205 | -0.001 |
| EQ003 | 100469 | 1026 | 0.366 | 0.367 | 0.001 |
| EQ003 | 100489 | 1026 | 0.366 | 0.372 | 0.006 |
| EQ004 | 100516 | 1003 | 4.320 | 4.320 | 0.000 |
| EQ004 | 100536 | 1026 | 0.366 | 0.362 | -0.004 |
| EQ004 | 100556 | 1026 | 0.366 | 0.370 | 0.004 |
| EQ004 | 100576 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ004 | 100596 | 1026 | 0.366 | 0.369 | 0.003 |
| EQ004 | 100616 | 1026 | 0.366 | 0.363 | -0.003 |
| EQ004 | 100636 | 1034 | 0.444 | 0.431 | -0.013 |
| EQ005 | 100653 | 1024 | 0.128 | 0.126 | -0.002 |
| EQ005 | 100673 | 1024 | 0.128 | 0.130 | 0.002 |
| EQ005 | 100693 | 1024 | 0.128 | 0.126 | -0.002 |
| EQ005 | 100713 | 1024 | 0.128 | 0.128 | 0.000 |
| EQ005 | 100733 | 1023 | 1.595 | 1.595 | 0.000 |
| EQ005 | 100753 | 1024 | 0.128 | 0.124 | -0.004 |
| EQ005 | 100773 | 1023 | 1.595 | 1.585 | -0.010 |
| EQ006 | 100201 | 1003 | 4.320 | 4.338 | 0.018 |
| EQ006 | 100221 | 1026 | 0.366 | 0.366 | 0.000 |
| EQ006 | 100241 | 1026 | 0.366 | 0.357 | -0.009 |
| EQ006 | 100261 | 1026 | 0.366 | 0.362 | -0.004 |
| EQ006 | 100281 | 1026 | 0.366 | 0.357 | -0.009 |
| EQ006 | 100301 | 1043 | 0.206 | 0.207 | 0.001 |
| EQ006 | 100321 | 1026 | 0.366 | 0.358 | -0.008 |
| EQ006 | 100341 | 1003 | 4.320 | 4.275 | -0.045 |
| EQ007 | 100788 | 1024 | 0.128 | 0.122 | -0.006 |
| EQ007 | 100808 | 1122 | 0.108 | 0.099 | -0.009 |
| EQ007 | 100828 | 1122 | 0.108 | 0.102 | -0.006 |
| EQ008 | 100843 | 1122 | 0.108 | 0.100 | -0.008 |
| EQ008 | 100863 | 1099 | 0.110 | 0.105 | -0.005 |
| EQ009 | 100877 | 1023 | 1.595 | 1.585 | -0.010 |
| EQ009 | 100887 | 1017 | 1.885 | 1.880 | -0.005 |
| EQ009 | 100917 | 1099 | 0.110 | 0.102 | -0.008 |
| EQ009 | 100937 | 1099 | 0.110 | 0.102 | -0.008 |
| EQ009 | 100957 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ010 | 100985 | 1072 | 0.146 | 0.144 | -0.002 |
| EQ010 | 101005 | 1023 | 1.595 | 1.570 | -0.025 |
| EQ010 | 101025 | 1072 | 0.146 | 0.140 | -0.006 |
| EQ010 | 101081 | 1074 | 0.251 | 0.243 | -0.008 |
| EQ011 | 101102 | 1009 | 0.855 | 0.837 | -0.018 |
| EQ011 | 101112 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ011 | 101142 | 1016 | 0.047 | 0.050 | 0.003 |
| EQ011 | 101162 | 1016 | 0.047 | 0.050 | 0.003 |
| EQ011 | 101182 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101197 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101217 | 1016 | 0.047 | 0.048 | 0.001 |
| EQ012 | 101237 | 1038 | 0.031 | 0.030 | -0.001 |
| EQ012 | 101257 | 1016 | 0.047 | 0.052 | 0.005 |
| EQ012 | 101277 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ012 | 101297 | 1038 | 0.031 | 0.033 | 0.002 |
| EQ012 | 101317 | 1038 | 0.031 | 0.033 | 0.002 |
| EQ012 | 101046 | 1023 | 1.595 | 1.575 | -0.020 |
| EQ012 | 101066 | 1074 | 0.251 | 0.244 | -0.007 |
| EQ013 | 101329 | 1038 | 0.031 | 0.038 | 0.007 |
| EQ013 | 101349 | 1038 | 0.031 | 0.031 | 0.000 |
| EQ013 | 101369 | 1006 | 3.090 | 3.060 | -0.030 |
| EQ014 | 101396 | 100186 | 1.419 | 1.420 | 0.001 |
| EQ014 | 101416 | 100138 | 0.453 | 0.468 | 0.015 |
| EQ014 | 101436 | 100138 | 0.453 | 0.457 | 0.004 |
| EQ015 | 101462 | 100138 | 0.453 | 0.455 | 0.002 |
| EQ015 | 101482 | 100186 | 1.419 | 1.420 | 0.001 |
| EQ015 | 101502 | 100138 | 0.453 | 0.456 | 0.003 |
| EQ015 | 101522 | 100138 | 0.453 | 0.453 | 0.000 |
| EQ015 | 101542 | 100138 | 0.453 | 0.452 | -0.001 |
| EQ016 | 101555 | 100138 | 0.453 | 0.456 | 0.003 |

# Appendix F QAQC Survey

## UAV SURVEY REPORT

| | |
|---|---|
| Client: | Speciality Metals International |
| Project: | Mt Carbine Mine |
| Area: | **Full Mine Lease Area** |
| Date Flown: | **27/10/2020** |
| Time Flown: Local time at mid-flight | 1250 |

Airmap3D A Division of seamsurveys

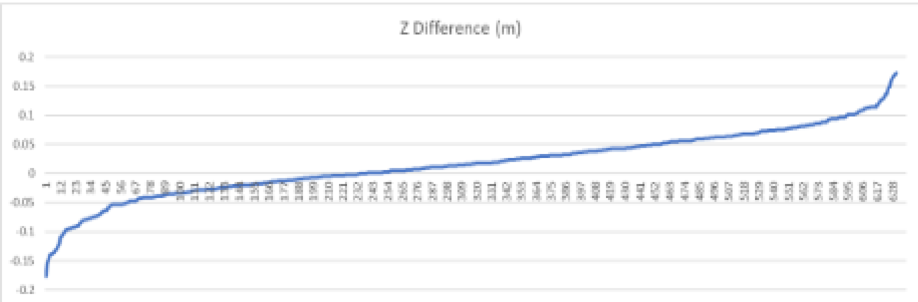
### Data supplied to client:

| DATA FILES | |
|---|---|
| **Description** | **File Name** |
| Vulcan Ready Surface Model | 201027 Mt Carbine - Surface.00t |
| Generic XYZ Surface Model | 201027 Mt Carbine - Surface.txt |

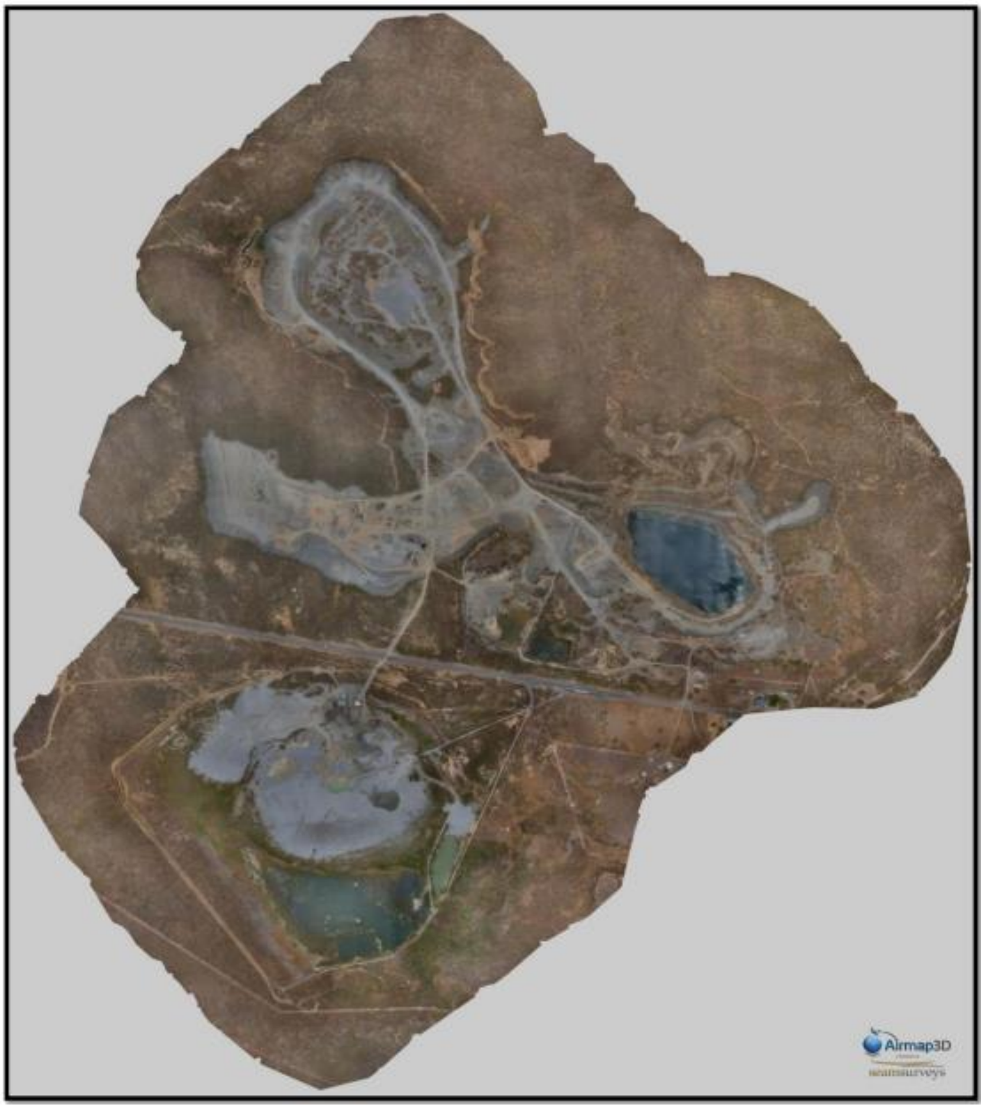
| IMAGE / DOCUMENT FILES | |
|---|---|
| **Description** | **File Name** |
| A0 General Overview Imagery | 201027 Mt Carbine - A0 Overview.jpg |
| 10cm Georeferenced Imagery (geotiff) | 201027 Mt Carbine - 10cm MGA94.tif |
| 10cm Georeferenced Imagery (ecw) | 201027 Mt Carbine - 10cm MGA94.ecw |
| QA and general information report | 201027 UAV Report - Mt Carbine.pdf |

### QA Results

| *Descriptive Statistics (m)* | |
|---|---|
| **Mean** | **0.017** |
| Standard Error | 0.002 |
| Median | 0.015 |
| Mode | 0.001 |
| **Standard Deviation** | **0.055** |
| Sample Variance | 0.003 |
| Kurtosis | 0.393 |
| Skewness | -0.210 |
| Range | 0.349 |
| Minimum | -0.176 |
| Maximum | 0.173 |
| Sum | 10.601 |
| **Count** | **631** |




The above figures have been derived by comparing independently observed RTK GPS points against the resulting 3D photogrammetry model.
The above statistics are a comparison of the vertical (z value) component only as historically this will represent the largest error.



## Survey Stations & Local Grid Conversion

Our ref: 35317-2-1
Your ref:

28th July 2021

Mt Carbine Quarrying Operations Pty Ltd.
6888 Mulligan Highway,
MT CARBINE, QLD 4871

Via email: abainbridge@eqresources.com.au

Dear Tony/Dean

**SURVEY REPORT
FOR LOCATION OF BOREHOLES
AND COORDINATE REFERENCE POINTS
AT MT CARBINE QUARRY**

On the 23rd of July Brazier Motti undertook a detail survey of boreholes, trig stations and building locations at the Mt Carbine Quarry.

The survey was carried out using Trimble RTK GNSS, the primary control marks were adopted from published permanent survey control mark coordinates and confirmed using RTK GNSS.

The Survey marks used are:

PSM 108841
E: 300806.478 (MGA2020)
N:8171662.415 (MGA 2020)
RL:359.955 (AHD)
Horizontal Position Uncertainty of .009m

PSM 107246
E: 300514.372 (MGA2020)
N:8171747.722 (MGA 2020)
RL:362.675 (AHD)
Horizontal Position Uncertainty of .015m

The accuracy of the survey using RTK GPS is ±20mm horizontal position and ±30mm vertical position.

The survey located 16 boreholes, 5 trig stations and various buildings using MGA2020 coordinates. The MGA2020 and Local mine grid coordinates of the boreholes and trig stations have been listed in the Table below.

| Mine grid coordinates | | | MGA2020 Coordinates | | | |
|---|---|---|---|---|---|---|
| Point# | Easting | Northing | Easting | Northing | Elevation | Description |
| 1 | 23046.505 | 25981.417 | 300514.372 | 8171747.722 | 362.675 | PSM/107246 |
| 2 | 23297.833 | 26152.991 | 300806.478 | 8171662.415 | 359.955 | PSM/108841 |
| Z1002 | 22653.742 | 26234.484 | 300460.626 | 8172211.852 | 384.789 | TRIG 5 |
| Z1003 | 22578.077 | 26234.299 | 300412.457 | 8172270.204 | 385.907 | TRIG 7 |
| Z1004 | 22624.095 | 26185.785 | 300404.177 | 8172203.851 | 387.839 | BH/EQ12 |
| Z1005 | 22656.842 | 26177.017 | 300418.187 | 8172172.981 | 386.880 | BH/EQ10 |
| Z1006 | 22657.446 | 26173.679 | 300415.991 | 8172170.395 | 386.836 | BH/EQ5 |
| Z1007 | 22704.388 | 26174.923 | 300446.748 | 8172134.911 | 386.265 | BH/EQ4 |
| Z1008 | 22735.677 | 26170.491 | 300463.183 | 8172107.920 | 387.446 | BH/EQ3 |
| Z1009 | 22765.358 | 26173.378 | 300484.254 | 8172086.817 | 388.697 | BH/EQ11 |
| Z1010 | 22793.295 | 26175.821 | 300503.874 | 8172066.780 | 389.439 | BH/EQ1 |
| Z1011 | 22793.418 | 26175.394 | 300503.622 | 8172066.414 | 389.476 | BH/EQ2 |
| Z1012 | 22841.076 | 26177.612 | 300535.586 | 8172030.995 | 386.779 | BH/EQ15 |
| Z1013 | 22876.196 | 26188.593 | 300566.363 | 8172010.826 | 383.632 | BH/EQ6 |
| Z1014 | 22910.780 | 26189.687 | 300589.160 | 8171984.796 | 382.757 | BH/EQ13 |
| Z1015 | 22956.998 | 26203.604 | 300629.250 | 8171957.916 | 382.717 | BH/EQ14 |
| Z1016 | 23055.566 | 26321.271 | 300782.739 | 8171956.436 | 380.383 | BH/EQ16 |
| Z1017 | 23013.849 | 26330.958 | 300763.746 | 8171994.821 | 364.151 | BH/EQ9 |
| Z1018 | 23014.278 | 26329.307 | 300762.742 | 8171993.441 | 364.092 | BH/EQ8 |
| Z1019 | 23014.294 | 26328.151 | 300761.860 | 8171992.695 | 364.188 | BH/EQ7 |
| Z1021 | 22900.226 | 26472.194 | 300800.764 | 8172172.268 | 380.492 | OMEGA |
| Z1022 | 22780.542 | 26508.637 | 300752.957 | 8172287.883 | 399.317 | ALPHA |
| Z1023 | 22623.397 | 26379.772 | 300553.634 | 8172327.520 | 398.768 | BETA |

How to transform MGA2020 coordinates to Local grid coordinates:

1) The block shift from MGA2020 to MGA94 is E: -0.992 and N: -1.468.
2) Then translate from the MGA94 points to the mine coordinates by adjusting E: -278042.398 N: -8145975.2
3) Then rotate around point CB064 ( 22536.230E 26485.000N) by -50°36′00″

Yours faithfully,

Neil Murphy
*Project Manager*
**Brazier Motti Pty Ltd**

resourcing the new economy for a better tomorrow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