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<b>Operator</b>	TNT Mines Limited
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## **ABSTRACT**

Sampling and assaying of drill holes LDD002 and LDD003, drilled in the previous tenure year, was completed. The drill program was aimed to test the medium depths below the outcropping Kookaburra and Johnson mineralised quartz vein systems, and to intersect the major Lutwyche system approximately halfway between outcropping surface mineralisation and the 300-400m depth at which it was historically extensively explored and developed.

Assay results show that the program succeeded in intercepting several high-grade veins at moderate depths. LDD002 intercepted the Kookaburra and Johnsons Pay veins and LDD003 intersected the Lutwyche vein system. All intercepts were within or close to the modelled positions of the veins, based on historical drilling and sampling. Best results included 0.30m @ 1.47% Sn and 1.50m @ 0.71% Sn in LDD002 and 0.20m @ 4.10% Sn and 0.50m @ 0.96% Sn. WO<sub>3</sub> levels were not significant.

A review of historical reports and data resulted in identification of the Rifle Range Prospect as a priority target. The Rifle Range Prospect is a significant ~1,000m long belt of quartz float and veined quartzite that lies more or less parallel to the Lutwyche and Kookaburra vein systems, about 400 metres to the north-east. Significant zinc, arsenic and copper soil anomalies extended for about 700 metres along strike, although no metal-bearing veins are exposed at surface. The Company plans to drill test the system in late 2018.

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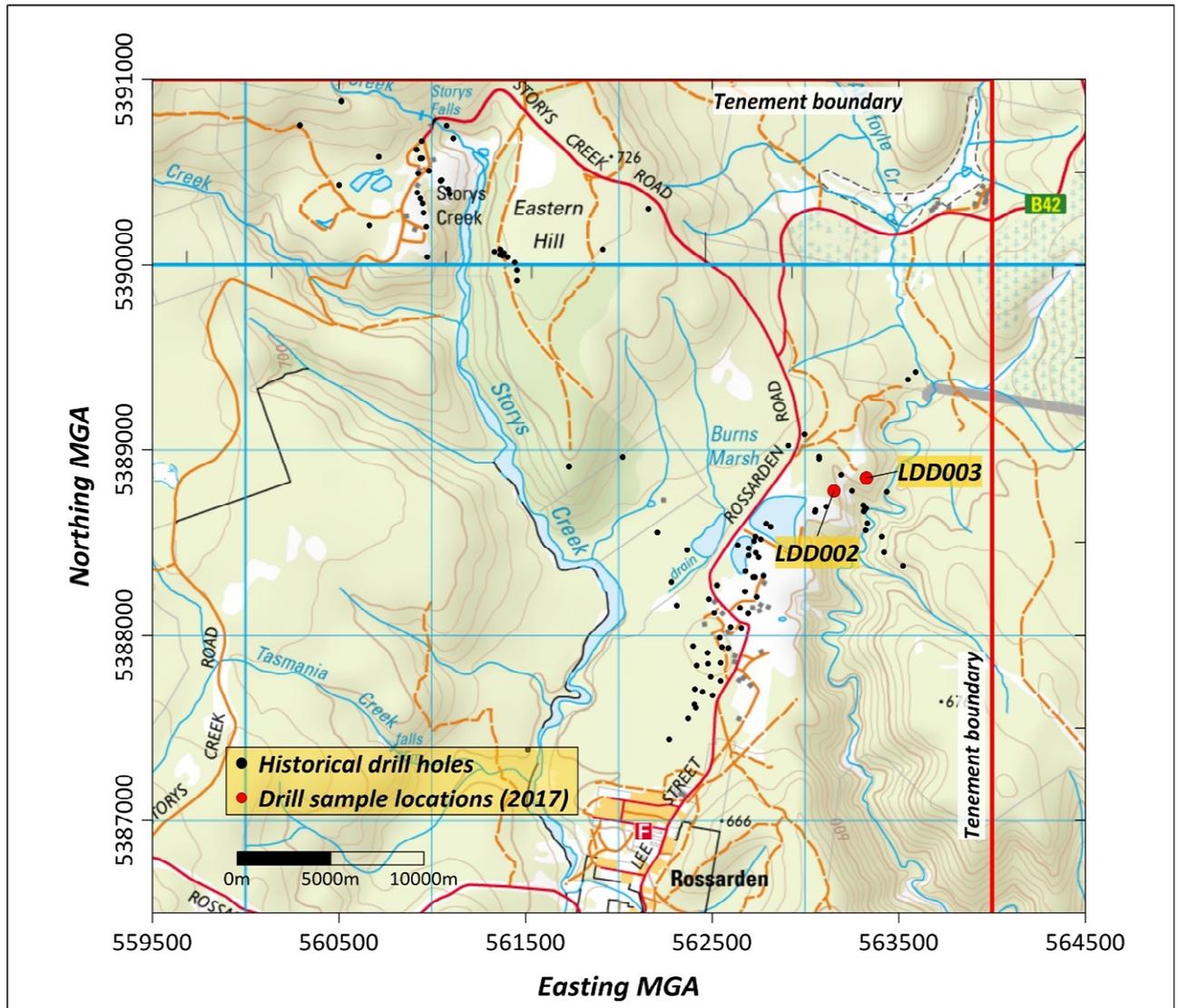
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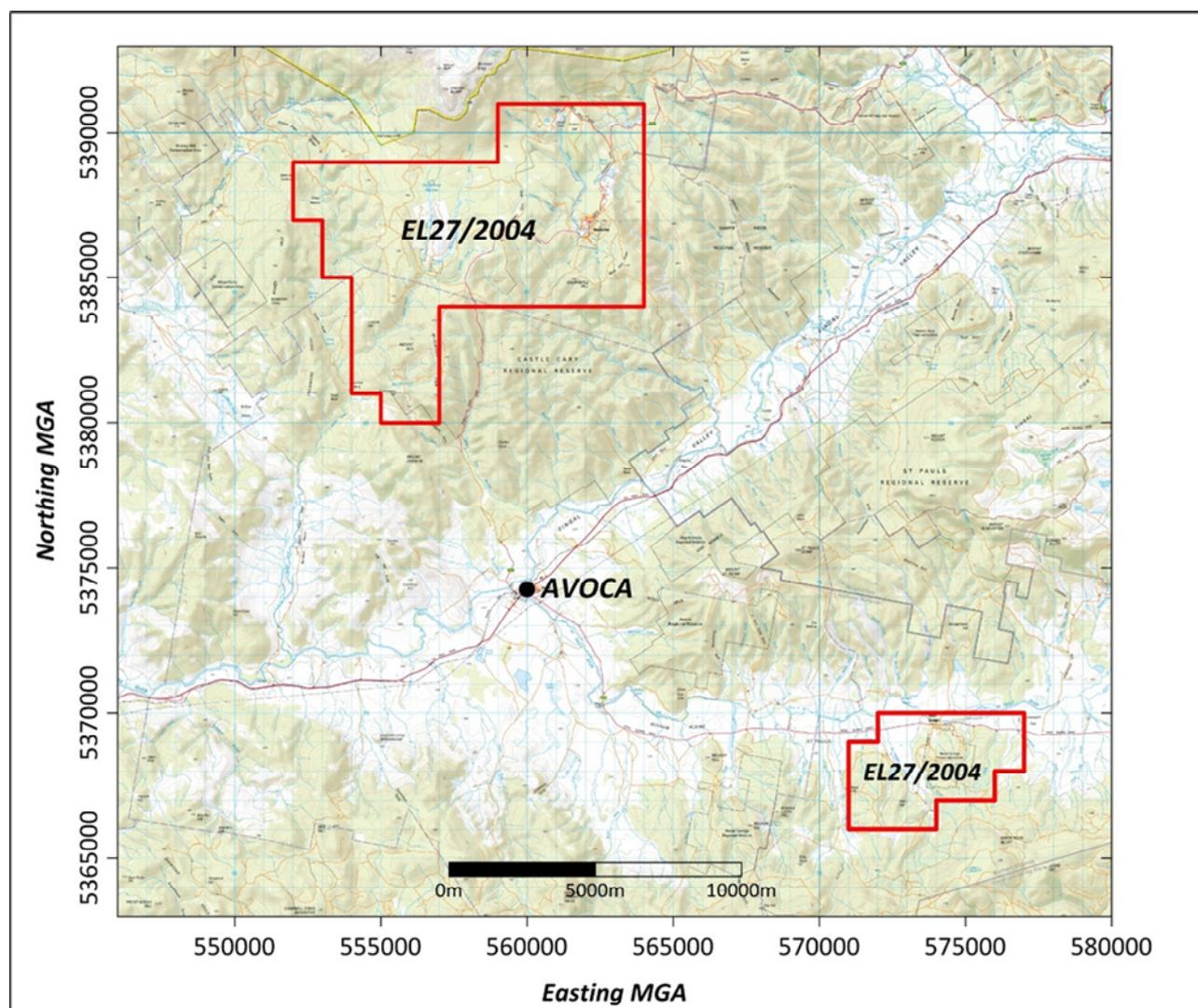
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## 1.0 SUMMARY ACTIVITY MAP



## 2.0 INTRODUCTION

### 2.1 Exploration rationale



**Figure 1: Location plan of EL27/2004**

The licence was originally acquired as part of a program to acquire all the significant hard-rock tin and tungsten assets in northeast Tasmania that may be suitable for open pit development. EL27/2004 also contains the only significant uranium prospects in Tasmania.

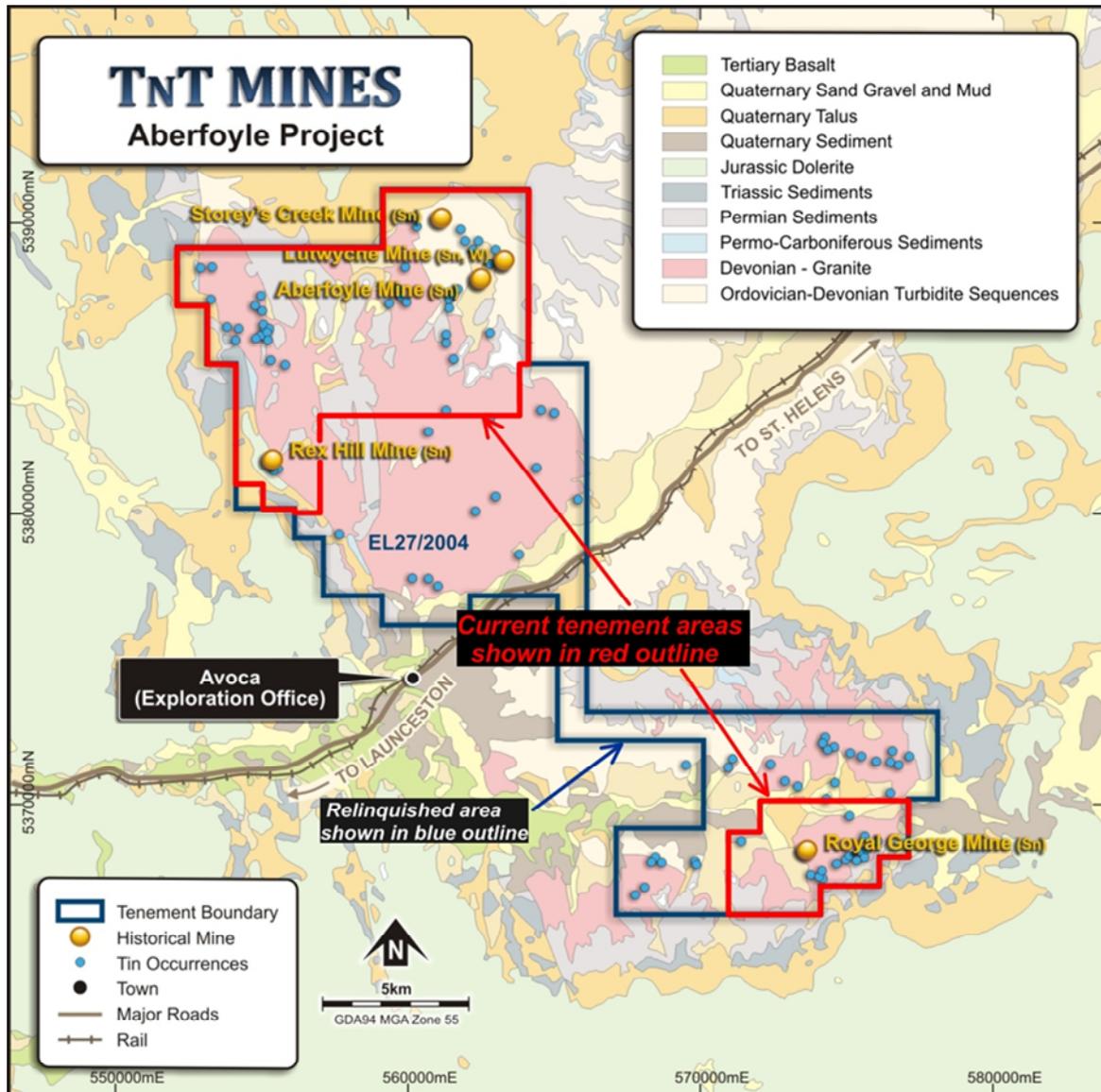
Hard rock tin and tungsten in north-east Tasmania is associated with the presence of altered alkali-feldspar granites and aplites, and deposits occur both within the granites (endogranitic types) and within the Mathinna Group sediments lying above or adjacent to the intrusive granites (exogranitic types).

Endogranitic types can be broadly put into two categories: flat or relatively flat-lying greisens of relatively low grade e.g. the Anchor deposit (0.2% Sn) which are amenable to open pitting; and steeply dipping greisen/quartz greisen lodes with higher grades e.g. Royal George (0.65% Sn) and Rex Hill (grade up to 1.4%).

The exogranitic types occur as sheeted veins or fracture stock works with the Mathinna Group slates and quartzites. The ideal situation for development of this style of mineralisation is above a cupola

of altered aplite, where mineralising fluids are focussed into fault fissures formed during forcible doming caused by the intrusion of the aplite. They have potential for economic tonnages at moderate to good grades, e.g. Aberfoyle, Storeys Creek and Lutwyche.

The Aberfoyle mine operated between 1916 and 1982 and produced 2.1 million tonnes of ore at 0.91% Sn and 0.28% WO<sub>3</sub>. The Storeys Creek mine operated between 1892 and 1982 during which time it produced 1.1 million tonnes of ore at 1.09% WO<sub>3</sub> and 0.20% Sn.



**Figure 2: Geology and historical mines - EL27/2004**

### 2.1.1 Geology overview

A Silurian/Devonian sedimentary succession (the Mathinna Group) has been folded and intruded by Devonian granites. After uplift and peneplanation during Carboniferous times it was unconformably overlain by Permian/Triassic sediments followed by intrusion of a 300m thick Jurassic dolerite sill. A further period of erosion then removed the post-Carboniferous stratigraphy from the area of the mines leaving the Ben Lomond massif comprised of dolerite. The Mathinna Group has only been subjected to low grade regional metamorphism. Contact metamorphic effects close to the granite are generally minor with the development of some biotite spotting within 60m of it (Figure 2).

### 2.1.2 Aberfoyle-Lutwyche Mine area geology

At Aberfoyle the sediments are tightly folded along axes striking NW with near vertical dips and a gentle plunge. Cleavage is insignificant, but bedding plane and axial plane faults are common and are important in the control of ore deposition.

The mineralisation occurs in northerly trending fissure veins with steep westerly dips, occupying a zone about 60m wide in the folded slates and siltstones. The vein swarm lies directly over an aplite cupola, intersected by the main shaft, and which is interpreted to be genetically connected with the mineralisation. The workings extend over a strike of 400m but recent drilling by Minemakers has intersected mineralised veins over a strike length of at least 800m. There are nine veins in five groups of which the 26-vein system and the western veins are the most important. The vein system is shown on the cross section of the mine presented in Figure 5. Underground, five major folds and 19 lesser folds were recorded that form a complex small-scale anticlinorium with a north westerly trend. The fold axes plunge at about 25° to the southeast and the axial planes dip at 85° to the southwest. This vein system extends 180m south of the Brandon Shaft as an intense swarm of narrow mineralised veins that may be amenable to open pit mining (McGushin & Keyes 1981).

There are two main groups of faults striking north and northwest. The north striking faults are the most important and are known as the Aberfoyle No. 1 Fault System. It has been traced from the surface down through all levels of the mine. The total throw on these faults varies from 37m at the north end of the mine to 12m at the south end. The northwest to southeast faults form a small but important zone of strike faults which trends parallel to the fold axes of the Mathinna sediments (plunging gently southeast) and dip steeply to the southwest.

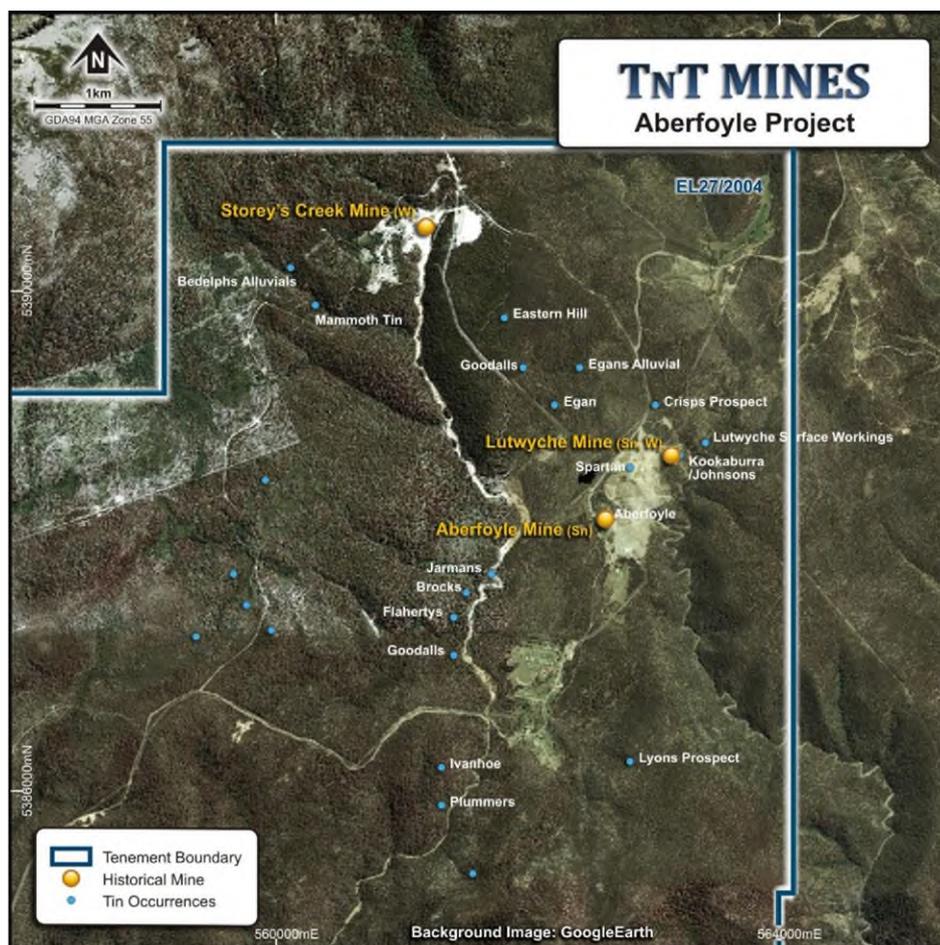


Figure 3: Northern prospects – EL27/2004

At the Lutwyche prospect two sets of tin bearing veins up to 100mm wide are reported with one group striking between 320° and 340° and dipping at 70° to the southwest and the other striking between 40° and 65° and dipping 70°- 85° to the southeast. The Lutwyche zone of fracturing and quartz veining can be traced 750m southeast of the Aberfoyle Rivulet before it becomes covered with Permian rubble, and intense quartz veining is reported 2.4km along strike to the ESE. The mineralisation at Lutwyche is open both at depth and closer to surface. An exploration target of 1.0-1.2Mt at 0.9 to 1.1% combined tin and tungsten seems reasonable for extended zone of mineralisation intensively tested by Aberfoyle.

Tin veins are also reported from the Kookaburra Prospect between Lutwyche and Aberfoyle. At Brock's Show, about 1km NW of the town of Rossarden, narrow tin veins and cassiterite deposited in joints were mined to a depth of 15m and produced about eight tonnes of tin.

### *2.1.3 Storeys Creek Mine area geology*

The Storey's Creek Mine is based on a NNW trending sheeted vein system that forms a zone 30-50m thick and 300m long, dipping 25°- 30° southwest. While there are two main veins these are part of a group of veins with varying dips and strikes. The large veins were stoped out by earlier miners. In addition to these large veins there were other smaller veins which were too small to be mined. TNT Mines plans to assess the ground in the vicinity of the mine to determine if the fine veins form an economically mineable deposit.

The wolframite (Fe,Mn)WO<sub>4</sub> and cassiterite (SnO<sub>2</sub>) mineralisation occur in quartz veins hosted by Silurian/Devonian sandy shales of the Mathinna Group. In the vicinity of the mines these sediments are described as highly siliceous massive competent sub-greywackes. The Mathinna Beds are closely folded along north westerly axes and pitch to the southeast at about 20° at Storey's Creek. These sediments have been intruded by numerous steeply dipping basic dykes up to 1m wide at right angles to the bedding. These dykes were emplaced prior to the mineralisation and are highly altered. Three abnormally flat dykes at 45° to the normal strike, known as "caunter" dykes, were subsequently refractured along their walls to allow deposition of rich veining.

A Devonian granite batholith, the Ben Lomond Granite, outcrops over an area of 130km<sup>2</sup> in the environs of the tin mines and its emplacement generated the mineralizing fluids which deposited the veins in suitable fractures in the sediments. At the surface at Storey's Creek the granite outcrops about a kilometre west of the mine. It is a coarse grained porphyritic leucogranite similar to some of the granites forming the Blue Tier Plateau in this region. The granite has a finer grained contaminated margin indicating that it has absorbed some country rock along the contacts which cut across the bedding. In places the upper contact granite bulges and some of these are topped by aplite cupolas. Such a cupola is present beneath the Storey's Creek Mine at a depth of 180m and the bulges are interpreted to have developed where the mineralizing fluids left the granite.

At Storey's Creek Mine two main veins were worked. The No.1 vein strikes at 350° and dips west at 20° and the No.2 vein strikes at 335° and dips west at 37°. The veins are 40m apart at the adit level but the two merge at a depth of 70m below adit level where they are 5.5m thick. North and south of the intersection they diverge with No.1 being 1.0m to 1.3m thick and No.2 being 0.7m to 2.5m thick. The section of the mine shown in Figure 6 gives a simplified view. The veins are somewhat irregular along strike and branch and join in places and there is also a sheeted vein system of narrow veins. In addition to the main vein system, five narrow tin-rich caunter veins run into the footwall for up to 70m, three of which are along caunter dykes. The grade of the mineralisation varies with the distance from the cupola and generally economic mineralisation is only found between 30m and 330m above a cupola. At Storey's Creek the cupola is about 180m below surface.

The wolframite and cassiterite were usually deposited early on the walls of the veins and the mineralisation extends from the surface to the full depth of the mine (200m below surface), a length of 400-450m down the dip of the veins but is not wholly regularly distributed. The veins were worked over a strike length of about 700m.

In the northern central part of the mine, large patches of late stage sulphide mineralisation occur replacing the veins at their intersection with a set of transverse joints or faults. The sulphides include galena and sphalerite with some stannite, and, because galena contaminates the tin concentrates, these patches of sulphides were usually left as pillars.

#### *2.1.4 Royal George Mine area geology*

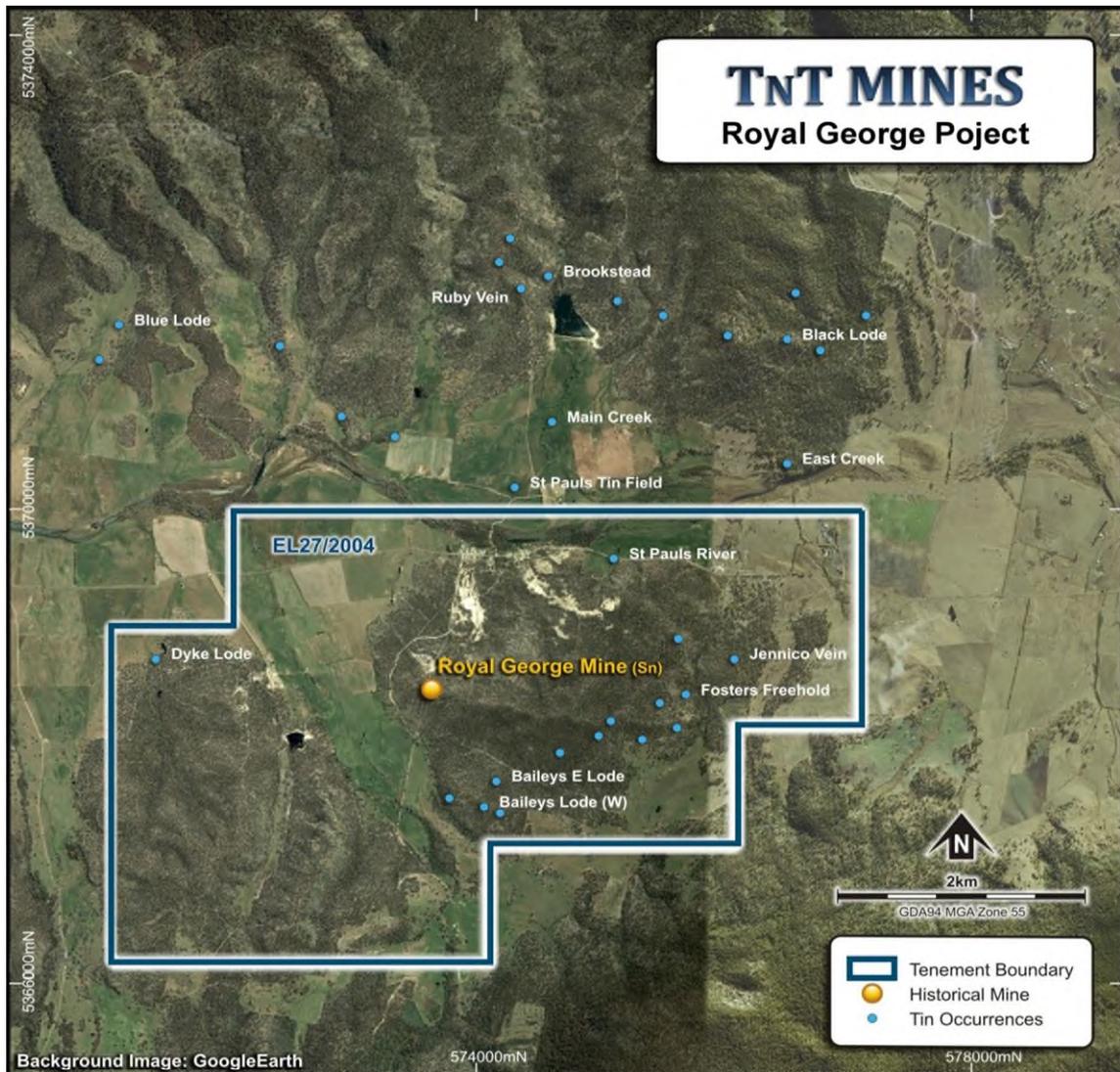
The country rock in the area of the Royal George Mine consists of granitic rocks which intrude Silurian to Devonian sandstones and siltstones of the Mathinna Beds. The main granite is coarse grained with porphyritic feldspar and biotite in a groundmass of quartz, feldspar, and biotite, with accessory tourmaline. This granite also exhibits other phases in some localities such as pegmatites, graphic granite, aplitic dykes, etc. Extremely hard fine grained granite is also present but shows no particular relationship to the mineralisation which is present in both types of granite. The granites are assigned a Devonian age and are considered to be variants of the Ben Lomond granite.

At Royal George, tin mineralisation has been introduced into the granitic rocks over a strike length of 250m. The deposit is formed by a steeply dipping zone of lodes striking at 310° to 320° and dipping 75° to 82° to the southwest. The lodes are variably spaced and the group narrows to the north. They are variously described as joints or fracture planes with some showing good slickensides. The zone of mineralisation plunges shallowly to the north. A surface plan showing the old open pit and the location of the drill hole collars is presented as Figures 7 and 8

Pneumatolytic fluids have travelled up the lodes altering the granite to greisen and introducing tin and base metal sulphides into the wall rock. This mineralisation penetrates the walls of the lodes to varying extents, typically up to 1.5m wide, and the mineralised group of lodes may be up to 20m wide but not continuously mineralised over this width. Between 5-20% disseminated pyrite, sphalerite, arsenopyrite and chalcopyrite are present in the strongly mineralised greisen bands. Sulphides average 3% within the host granite for 30m each side of the main zone of mineralisation. The cassiterite is described as fine grained and rarely visible but coarser cassiterite is reported in the higher-grade zones below the old stoping.

#### *2.1.5 Rex Hill and Gipps Creek area Mine area geology*

Lying 9km SW of Aberfoyle is the old Rex Hill Mine which was discovered prior to 1890 and had its main period of production from 1893-1909. The mineralisation is present in greisenised granite containing a high-grade quartz vein on a lode. At the surface the mineralisation was identified as silver-lead but as this was mined it was found to be essentially tin accompanied by base metal sulphides. The ore was pipe-like at the surface but became dyke-like at the No.3 Level (90m below surface). Details of production are sketchy but in total 20,000t of ore may have been processed with an average head grade of 2.5% Sn and grades up to 5% Sn. Recovered grades were reported at 1.3% to 1.4% Sn in 1904 but the base metal sulphides made treatment difficult and at that time were of no commercial value.



**Figure 4: Royal George prospects**

## 2.2 Tenure and ownership

The licence is located around the towns of Avoca, Royal George and Rossarden in the Fingal valley, approximately 30km south-east of Launceston (Figures 1 and 2). Avoca is the main centre and is accessed via the Esk Main Road Hwy, off the Midlands Highway. Access through the tenement is via sealed and unsealed public roads and four-wheel drive tracks. The tenement can be found on the St Pauls (1:100,000) LTIS map sheets.

Topographically the area is of variable. The tenement is dissected by the broad valleys of the South Esk and St Pauls rivers. Undulating grazing and cropping land to the south rises to the forested foothills of the dolerite massif of Snow Hill while to the north there is a sharp rise to the peneplaned St Clair surface at 600-800 metres. The area is mostly forested with some grassy country. The surface is deeply dissected to the south by several creeks including Storeys Creek, Aberfoyle Rivulet and Castle Carey Rivulet and to the north rises through dolerite scree to the 1500m Ben Lomond massif which lies just to the north of the tenement. In general, vehicular access is good with various unsealed vehicle 4WD tracks accessing the numerous old workings.

The original licence covered an area of 212 km<sup>2</sup>. A reduction was made in 2012 and the current licence area is 96 km<sup>2</sup>. The licence is wholly-owned and managed by TNT Mines Limited.

E27/2004 was granted to Allstrong Investments Pty Ltd on 27 November 2004. Minemakers Limited ("Minemakers"), via its wholly owned subsidiary, Minemakers Australia NL, purchased Allstrong outright on the 23<sup>rd</sup> November 2006. Allstrong subsequently underwent a change of name to Minemakers TTT Pty Ltd on the 18<sup>th</sup> May 2007. On the 15<sup>th</sup> April 2011, Minemakers TTT Pty Ltd changed its name to TNT Mines Limited. On the 19<sup>th</sup> July 2011, TNT Mines Limited demerged from the Minemakers group to become a separate public unlisted company. In October 2013, ASX-listed Niuminco Group Limited gained control of TNT Mines and the company is now run from their Sydney office.

A Silurian/Devonian sedimentary succession (the Mathinna Group) has been folded and intruded by Devonian granites. After uplift and peneplanation during Carboniferous times it was unconformably overlain by Permian/Triassic sediments followed by intrusion of a 300m thick Jurassic dolerite sill. A further period of erosion then removed the post-Carboniferous stratigraphy from the area of the mines leaving the Ben Lomond massif comprised of dolerite. The Mathinna Group has only been subjected to low grade regional metamorphism. Contact metamorphic effects close to the granite are generally minor with the development of some biotite spotting within 60m of it (Figure 2).

## **3.0 REVIEW OF PREVIOUS WORK**

### **3.1 Prior to the current licence**

#### *3.1.1 Aberfoyle-Lutwyche Mine area exploration and mining*

Low grade tin bearing veins exposed at the surface at Aberfoyle were discovered in 1916 but little work took place until 1926 when a prospecting syndicate was formed to investigate the veins at depth. Aberfoyle Tin NL took over late in 1926 and sank two shafts. One was vertical to a depth of 18m and the other was an underlay shaft following a 0.5m thick vein down to the 18m level.

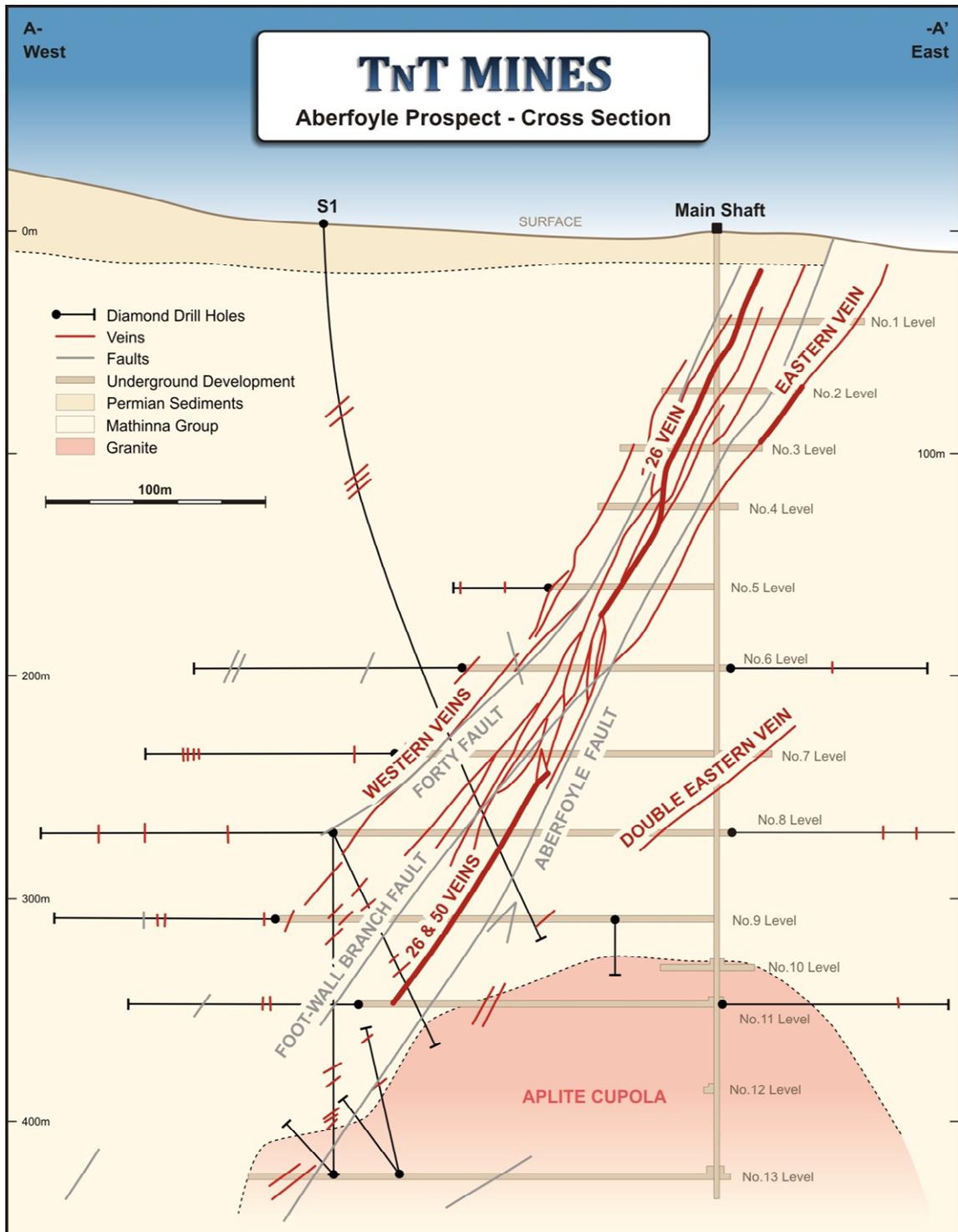
In 1928, surface exploration was abandoned and an adit was driven from the west bank of the Aberfoyle Rivulet. It was designed to intersect the tin bearing veins 56m below the surface workings. This adit was driven for 320m and exposed a group of veins between 274m and 318m. Although modest in size they encouraged further development and production from the mine commenced in 1931 and expanded from 1934 when the main shaft was sunk to 70m and No. 2 Level opened up.

Following extensive working, the Aberfoyle and Storey's Creek Mines were sold to Rossarden Mines Ltd in May 1981. By the time the Aberfoyle Mine closed in 1982 the Spiers (or Main) Shaft was 420m deep with fourteen levels spaced 30-35m apart. This shaft entered an aplite cupola at a depth of 318m. Total production is recorded as 2.1Mt at 0.91% tin (Sn), 0.28% tungsten oxide (WO<sub>3</sub>).

The Lutwyche mineralisation is located in an area containing tin veining to the northeast of Aberfoyle and was estimated to have produced about a tonne of tin concentrate. It was accessed by horizontal development from the No.13 Level of the Spiers Shaft at the Aberfoyle Mine. Before closure in 1982 a shaft was raise-bored to surface, but it was probably never fully commissioned.

Most of the exploration at Aberfoyle was concentrated on the mining leases and not reported on in detail. Exploration Licence EL28/1978 was originally granted to Aberfoyle Exploration Pty Ltd in April 1979 and passed to Rossarden Mines Ltd when they purchased the mine in 1981. The exploration licence was surrendered in 1982 and the work undertaken reported in Summons 1983.

In 1989, based on underground sampling, other old Aberfoyle records, and limited drill hole data, Juka Mine Management (Juka) made some estimates of potential mineralisation in open pits to depths of 70m (No.2 Level), 110m (No.4 Level), and 150m (No. 5 Level) covering the main Aberfoyle lodes. This work was commissioned by Stacpoole Enterprises Pty Ltd. (Ref. Roberts & Teh 1989 also McGushin & Keyes 1980). The database for this study was insufficient to establish resources but formed the basis for planning additional work. The study was based on the estimation of the quartz content of the mineralised zone which previous work on the mine had shown was closely related to the tin grade. This enables workable estimation of the tin content of low-grade mineralisation by visual assessment of the quartz content with which the cassiterite is usually associated.



**Figure 5: Cross section of Aberfoyle Mine**

At Aberfoyle, Minemakers estimated that a proposed pit to 110m was a possible option and that the exploration target was a body of mineralisation between 4Mt and 5Mt and that target grades of 0.15% to 0.25% Sn and 0.02% to 0.03% WO<sub>3</sub> may be achievable. Possible open pit outlines are illustrated in Figures 9 and 10. Further drilling is required to provide more data before feasibility studies can be carried out.

### 3.1.2 Storeys Creek area exploration and mining

Alluvial cassiterite and mineralised veins were discovered at Gipps Creek, 6.5km to the west, in 1872 and soon after alluvial cassiterite was reported at Storey's Creek. The veins at Storey's Creek were worked for tin from 1891 until 1900 when tungsten became marketable. The mining was by small parties until 1913 when the Storey's Creek Tin Mining Syndicate took over the mine. This syndicate operated until 1928 when it became unprofitable. During this period up to 12,000t/y of ore were raised grading between 0.75% and 1.75% tin and 0.75% to 2.0% tungsten. After a period of successful tributing the mine was taken over in 1937 by the Storey's Creek Tin Mining Company.

Once the tungsten mineral wolframite became marketable at the turn of the century the production of tungsten was greater than the production of tin. Total estimated production is 1.1Mt of ore at 1.09% tungsten oxide ( $WO_3$ ) and 0.18% tin (Sn). Up until 1962 recoveries were estimated at 6,300t of tungsten oxide and 1,118t of tin metal. Mining was being phased out in 1979 with the extraction of pillars and the mine was closed in 1982.

The Aberfoyle Mine also operated until 1982 and Storey's Creek and other prospects in the area were held by Aberfoyle Tin NL at that time. Some minor exploration of the prospects was carried out by it but the Storey's Creek Mine was not identified as an exploration target.

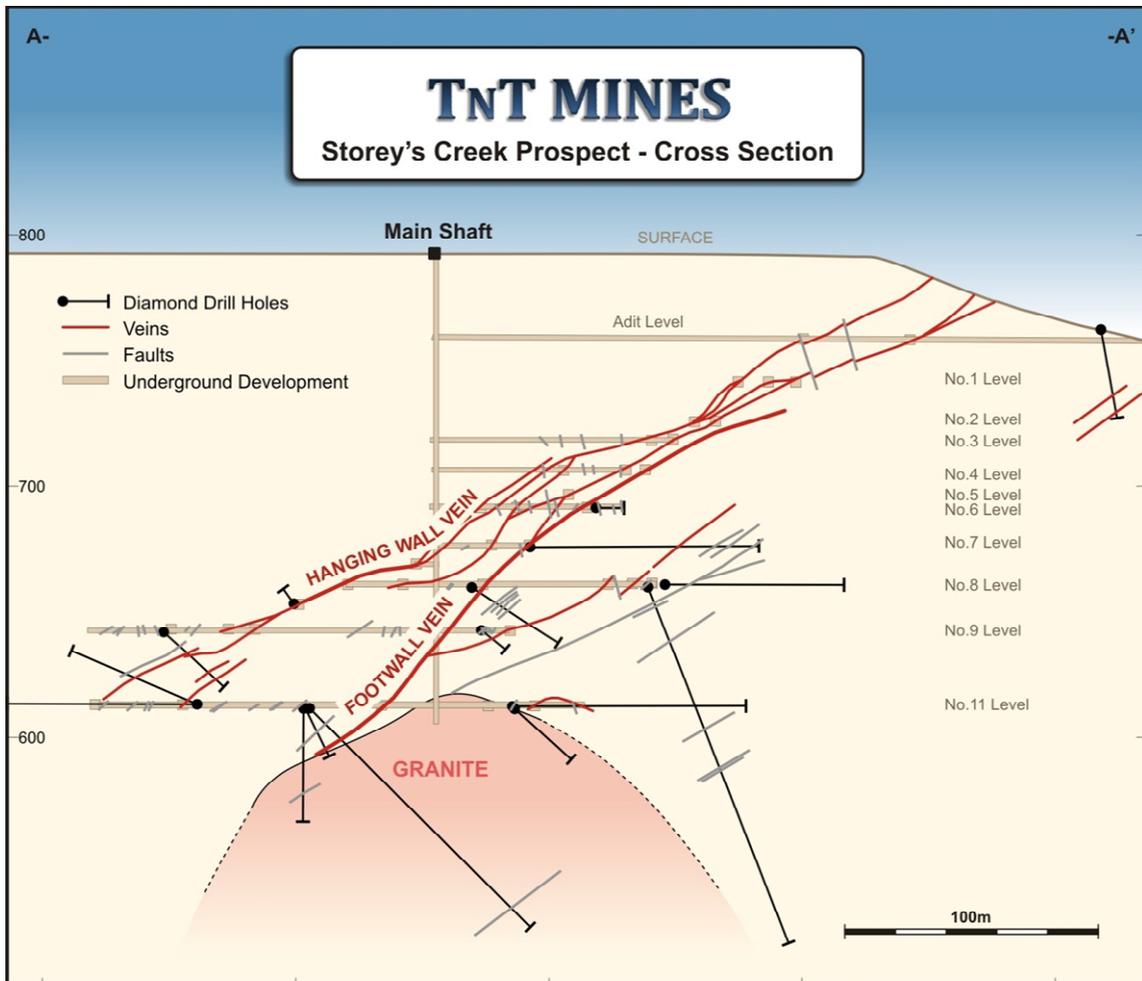


Figure 6: Cross section of Storeys Creek Mine

### 3.1.3 Royal George area exploration and mining

The mineralisation was discovered in the 1880s and was initially grouped with a number of mineralised outcrops in the St Paul's River valley (Figure 4). Only minor production took place until the Royal George Mine operated from 1911 until 1922 with production of 170,000t at 0.65% Sn

containing 1,105t of tin metal. The ore was mainly mined from two underground levels and to the surface with open stopes (Figure 7). Available data on drill holes is presented in Table 1. The question marks against the tin grades indicate that there was no remaining sample for CRA to re-assay at a later date. Problems with assaying for tin present as cassiterite do occur fairly frequently and CRA was checking for poor assaying. These drill hole intersections and subsequent intersections are plotted on the long section of the mine presented on Figure 8.

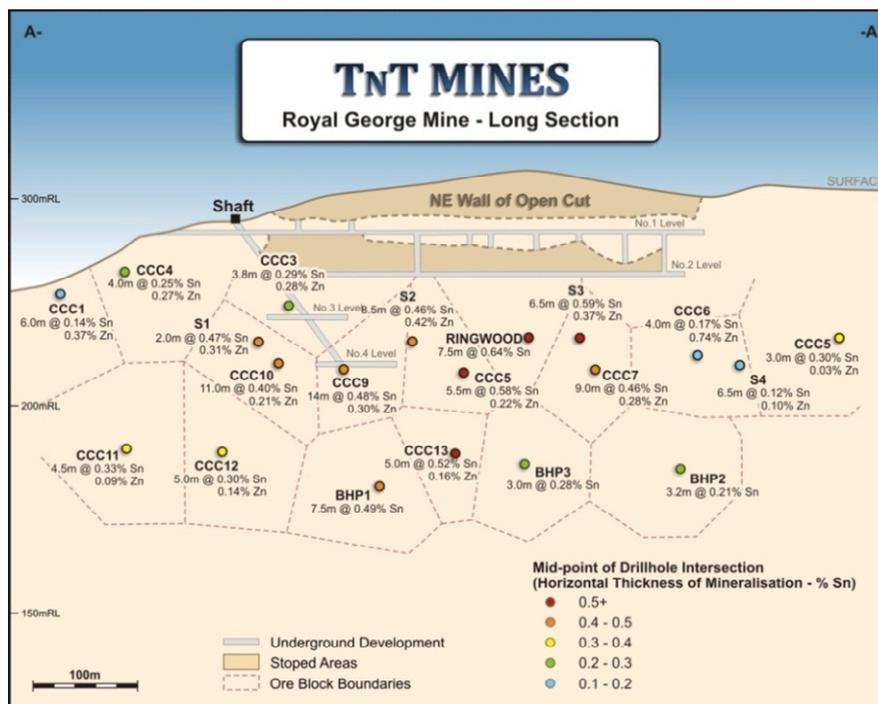
In 1965 the Cornwall Coal Company (CCC) pegged several Mineral Leases (21 year tenure) and conducted exploration until 1971 with the assistance of the Tasmanian Mines Department. From August 1966 to February 1967 Government Geologist G. Urquhart carried out surface and underground mapping and completed logging and sampling of DC holes 66CC.1 to 66CC.7 The programme was then taken over by A.J. Noldart who logged and sampled holes 66CC.8 and 66CC.9 and supervised the drilling, logging, and sampling, of holes 66CC.9, 67CC.11 to 13. He also deepened the inclined shaft to the No.3 and No.4 Levels where some channel sampling was carried out. Most of this drilling was EX size (21.5mm core diameter) and this small core size is reported to have led to recovery and sampling problems and anyway is not considered to be a suitable size for this style of mineralisation by Featherstone. Two deeper levels (No.3 & No.4 Levels) were later established in 1968 by the Cornwall Coal Co. from an inclined shaft to a maximum depth of 80m below surface.

Royal George Drilling									
Hole No.	Comment	EHO	Easting MGA(m)	Northing MGA(m)	Elevation (m)	From (m)	To (m)	Interval (m)	Grade % Tin
55/1	-43.5° to 045°	112.8			312.7	90.2	98.5	8.3	0.64 ?
BHP57/1	AX -60° to 045°	187.2	574013	5369585	308.2	147.1	155.8	8.7	0.29
					Inc.	147.1	153.9	6.8	0.33
BHP57/2	AX -60° to 045°	190.1	574013	5369585	306.0	135.3	140.5	5.2	0.21 ?
					&	182.9	184.7	1.8	0.32
BHP57/3	AX -60° to 045°	155.5	574013	5390215	309.1	139.0	144.5	5.5	0.17
					Inc.	139.0	142.0	3.0	0.29
66CC.1	EX -60° to 57°	43.8	573525	5368655	273.5	19.4	26.2	6.8	0.14
66CC.2	EX U/G -0° to 240°	26.8	573583	5368565	264.6	-	-	-	-
66CC.3	EX U/G -42° to 221°	28.9	573600	5368575	263.4	18.3	25.9	7.6	0.29
66CC.4	EX -60° to 057°	38.1	573536	5368624	278.3	13.7	18.3	4.6	0.25
66CC.5	EX -61° to 059°	81.7	573691	5368311	294	69.8	73.3	3.5	0.30
66CC.6	EX -60.5° to 036°	94.5	563647	5368358	295.6	80.2	84.5	4.3	0.18
					&	88.5	92.3	3.8	0.21
66CC.7	EX -60° to 049°	109.6	573615	5368408	298.2	87.4	102.1	14.7	0.39
					Inc.	88.7	99.4	10.7	0.46
66CC.8	EX -60° to 059°	109.7	573585	5368461	299.9	83.1	88.8	5.7	0.24
					&	93.8	106.3	12.5	0.38
66CC.9	EX -60° to 060°	109.4	573554	5368513	295.2	79.9	104.3	24.4	0.41
					Inc.	82.0	97.5	15.5	0.49
67CC.10	EX -60° to 060°	106.7	573539	5368539	291	84.1	88.4	4.27	0.40
					&	98.1	101.2	3.1	0.19
67CC.11	EX -60° to 058.5°	135	573478	5368587	278.4	111.9	117.3	5.3	0.33
67CC.12	EX -60° to 059°	155.4	573500	5368546	284.8	121.6	126.8	5.2	0.30
					&	131.9	135.3	3.5	0.21
67CC.13	EX -60° to 060°	153.9	573557	5368450	294.1	119.8	126.7	6.9	0.22
					Inc.	124.7	126.7	2.0	0.49
					&	132.9	138.2	5.3	0.52
79RGC.1	NQ -58° to 059°	266.4	573472	5368461	283	221	223	2	0.11
89S1	HQ -50° to 057°	127.4	573532	5368544	288.1	73.4	75.8	2.4	0.47
89S2	HQ -52° to 056°	127.4	573573	5368484	296.8	78.4	89.9	11.5	0.46
89S3	HQ -53° to 060°	120.0	563613	5368412	297.9	77.5	85.7	8.2	0.59
89S4	HQ -56° to 058°	148.5	573654	5368344	294.1	85.3	94.1	8.8	0.12

**Table 1: Royal George – diamond drilling results**



**Figure 7: Plan view of Royal George Mine and drilling**



**Figure 8: Long section of Royal George Mine with ore blocks and drill intercepts**

In 1977, CRAE became interested in the deposit and entered into a joint venture with CCC in 1979 over the Royal George MLs and the surrounding EL7/1978. During 1979, CRAE work comprised re-sampling and re-assaying of all old drill core and sample pulps, checking and correcting old data, compiling new data including a 3D model, and drilling of one hole to test the mineralisation at depth. Metallurgical testing of a 1,200kg bulk sample from the No.4 Level was also carried out. Re-assaying gave tin values 10-50% higher than the original Mines Dept. assays. Assaying for a number of other elements was undertaken but only silver, zinc, and copper, were considered significant. Based on the CRAE data in 1979 a feasible exploration target is an estimate of a body of mineralisation between 0.5-0.7Mt at between 0.35-0.45% tin.

The CRAE work highlighted problems with the estimation of the tin grades which is considered by Featherstone to be primarily due to the small size of drill core resulting in small samples. CRAE also considered that the core sizes were inadequate and their work suggested that good sampling could increase grades.

In 1988 Spectrum Resources Australia Pty Ltd (Spectrum) was granted EL5/1988 of 4km<sup>2</sup> and subsequently EL27/1989 of 5km<sup>2</sup> over the Royal George workings. In 1989, Spectrum drilled four DC holes to confirm the presence of mineralisation below the stoped-out areas of the mine. Acknowledging previous problems due to small cores Spectrum drilled four HQ sized holes (63.5mm diameter core) through the mineralised zones during 1989 (89S1-4). Spectrum considered the results did support previous estimates of the mineralisation, but the tin price was too low at that time to warrant mounting an operation.

## **3.2 During the life of the licence**

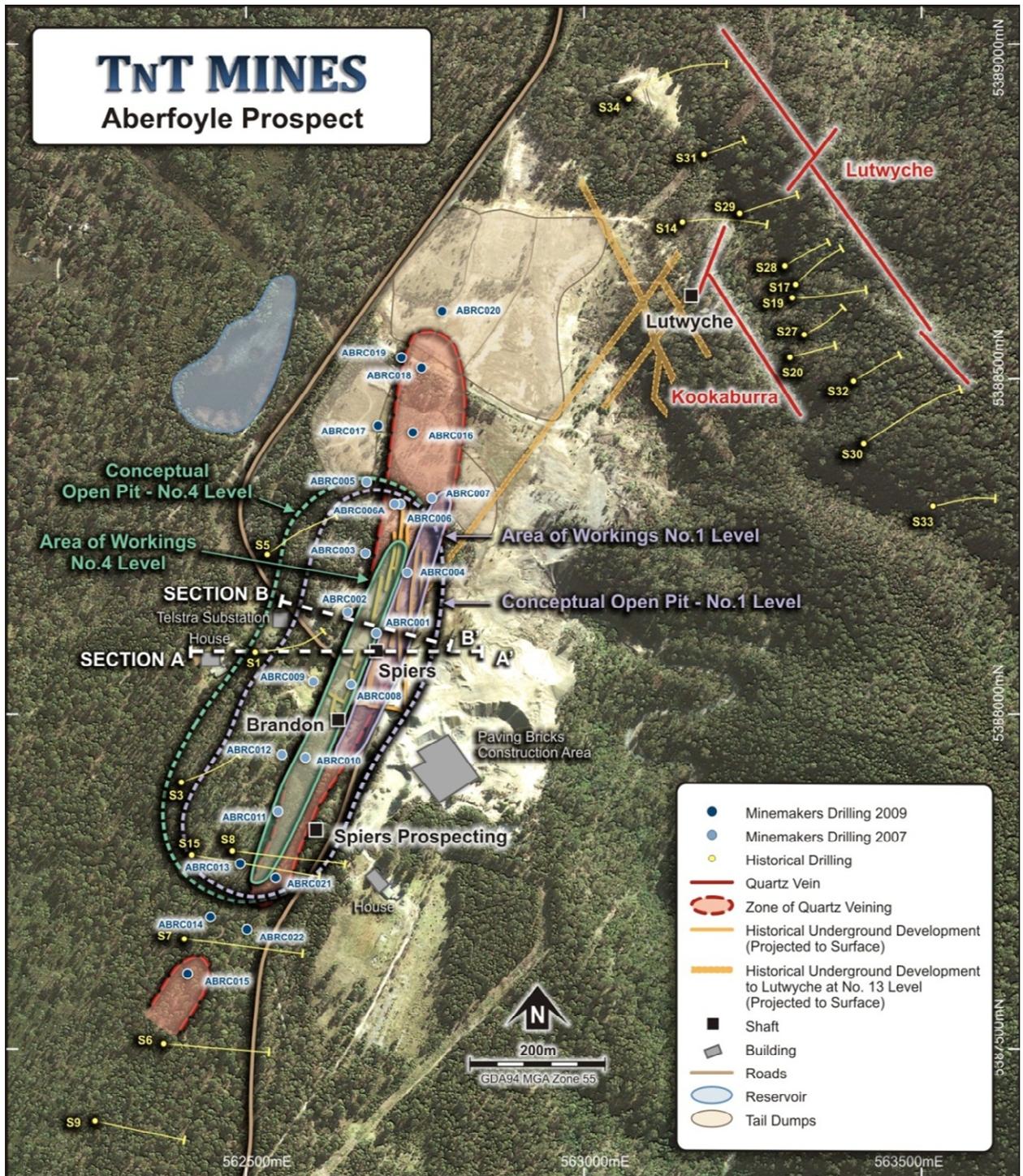
### *3.2.1 Aberfoyle-Lutwyche*

Under an MOU, Minemakers joined Austria's Wolfram Bergbau (WB) in an appraisal of the tungsten potential of all of the Company's Tasmanian tungsten projects. Subject to satisfactory tungsten grades being obtained from the Aberfoyle and Storey's Creek drill programmes, Wolfram Bergbau started to carry out initial metallurgical test-work programmes at its Mittersill laboratory in Austria on tailings from both the Storey's Creek and Aberfoyle Mines commencing in February 2007. At the time the MOU was terminated the metallurgist who was conducting the investigation of the Tasmanian tailings moved to another company. Unfortunately, no useful results had been obtained when the studies were abandoned.

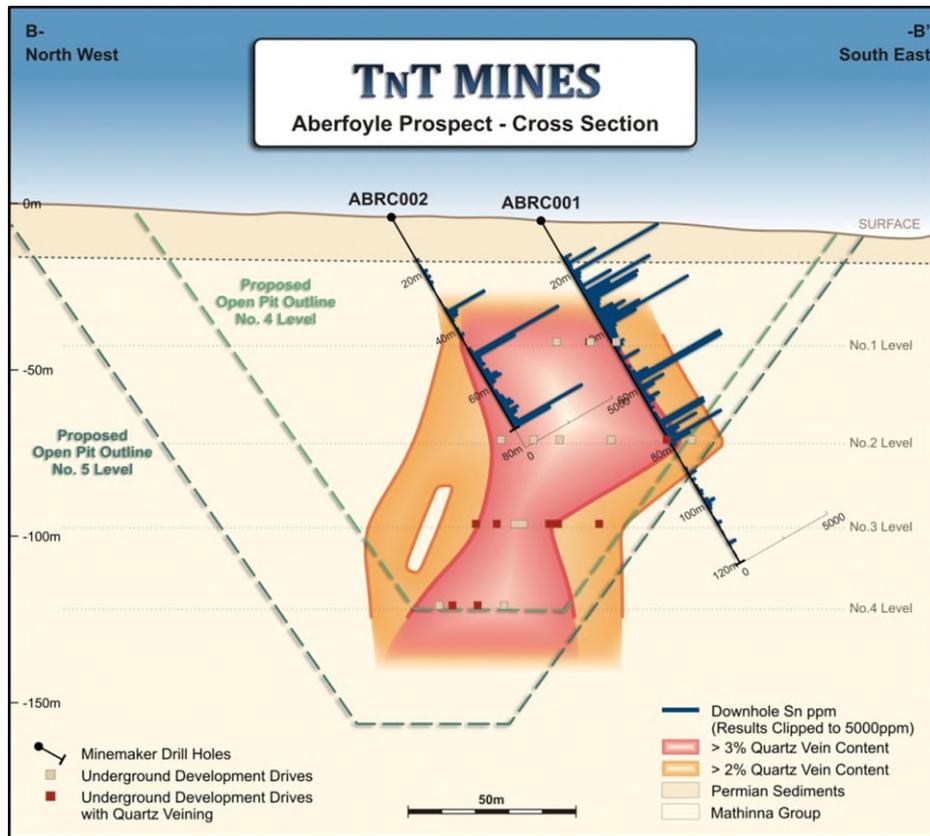
An RC drilling programme of 13 holes for a total of 1,243m was completed at Aberfoyle on 29 March 2007. This programme was conducted by Minemakers with WB providing AUD\$120,000 towards the cost of the drilling and assaying at Aberfoyle. These holes are shown on Figure 9. Wolfram Bergbau pulled out of the MOU with Minemakers in March 2008.

A second RC drilling programme at Aberfoyle of 8 holes for a total of 1,223m was completed in May 2009. These holes were along strike from the previously drilled RC holes extending 300m to the north and 400m to the south of the earlier drilling programme. Most of these holes intersected modest tin bearing veins so the full extent of the mineralisation has not yet been defined. These holes are plotted on Figure 9.

The results of the assaying and analysis of the samples from these drill holes were published in Minemakers' Annual Report for 2009 on Exploration Licence EL27/2004 (Russell Fulton et al 2009). Although no paired holes were drilled to compare RC and DC drill results at Aberfoyle, the author considered it worthwhile to plot a cross section through a pair of RC holes to enable the pattern of the veining to be visually revealed (Figure 10). The results confirm that the tin mineralisation is very nuggetty in character which indicates that sample sizes should be as large as practicable and the density of drilling and sampling needs to be higher than that applied when sampling mineralisation with a more even tenor.



**Figure 9: Plan view of Aberfoyle-Lutwyche with drilling and potential pit outlines**



**Figure 10: Aberfoyle cross section with pit outline and recent drill intercepts**

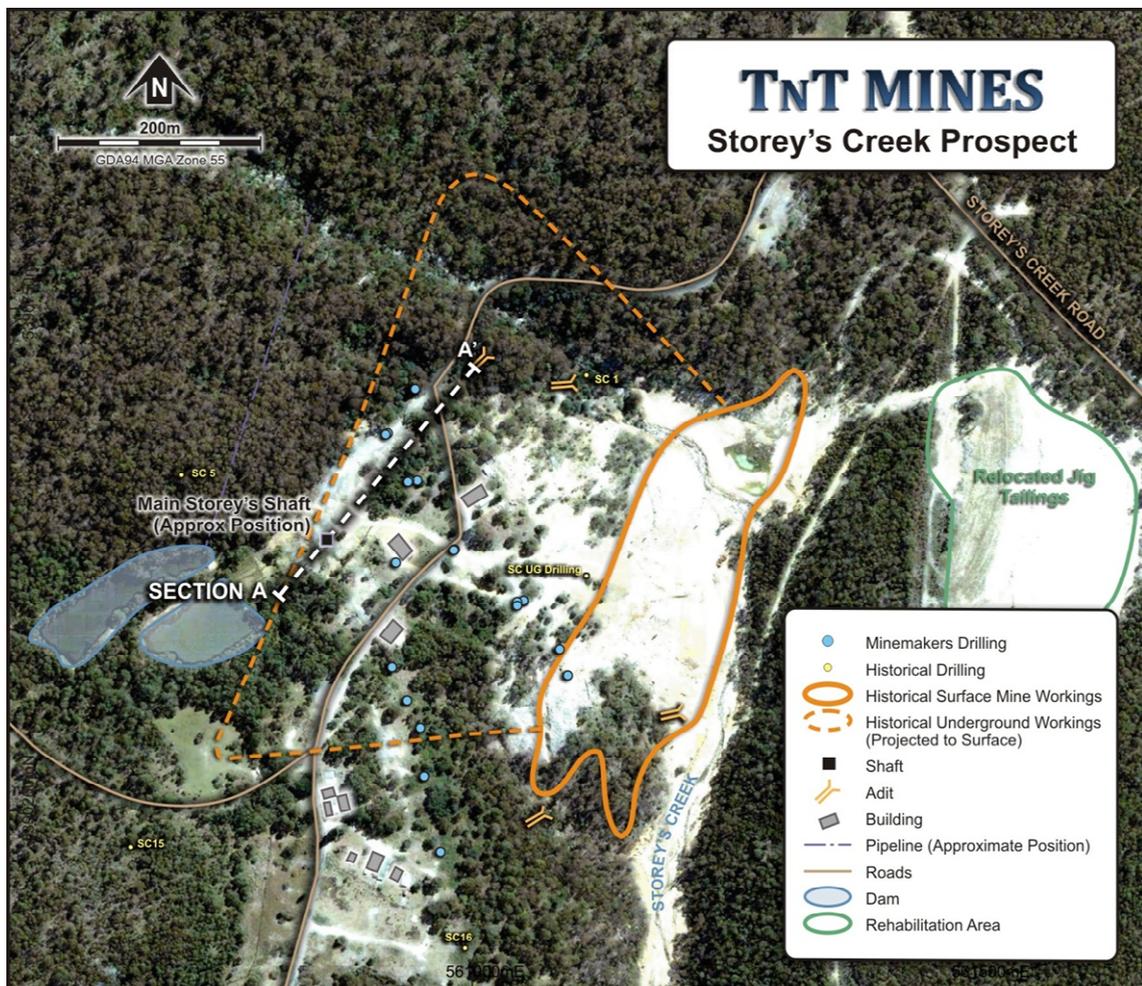
### 3.2.2 Storeys Creek

In July and August 2007, a 17-hole RC air blast percussion drilling programme for a total of 2,027m was undertaken at Storey's Creek (Figure 11).

Previous drilling at Storey's Creek employed diamond core (DC) drilling and 18 holes with EX core (21.5mm in diameter) are stored at MRT. AX core (32.5mm in diameter) was also popular. The drill core is usually sampled for assaying by cutting it in half and Featherstone consider that the size of the sample produced is not large enough to give reliable grades for this style of mineralisation. RC drilling with holes typically 110mm to 130mm in diameter produces a considerably larger sample and usually gives more reliable results but the nuggetty distribution of mineralisation can still cause problems. RC holes are also cheaper and quicker to drill so more holes can be drilled for the same budget giving a better assessment.

Analysis of the results of RC drilling indicates that the tungsten mineralisation tends to occur in a limited number of veins within broader bands of mineralisation. As Storey's Creek was a tungsten mine which also produced tin, the miners selectively mined the tungsten bearing zones leaving some tin and other base metals in the ground.

Between 30 January and 15 February 2009 two diamond core (DC) holes were drilled at Storey's Creek. Hole SCDC001 (EOH 149.5m) was drilled parallel to RC hole SCRC006 and was PG3 size (83.1mm in diameter) to 58.4m and HQ3 size (61.1mm in diameter) to EOH. Hole SCDC002 (EOH 100.7m) was drilled parallel to RC hole SCRC034 and was PQ3 size (83.1mm diameter) to EOH. Core recovery was excellent throughout and both holes intercepted the anticipated zones of tungsten, tin and base metal mineralisation. These holes were drilled to compare results from DC and RC drilling. The drill core from this drilling was placed into storage at Avoca and a close examination of the core, including cutting and assaying, was carried out during the summer months of 2009-2010.



**Figure 11: Plan view of Storeys Creek with recent drill collar locations**

Assaying and Analysis

Several different techniques were employed by Minemakers in analysing samples.

The analytical schemes used were:

Pressed powder pill analysis by XRF for Sn & W.

Lithium metaborate fusion and analysis of glass by XRF for Sn >500 ppm, W >500 ppm

Aqua regia digest and analysis by ICP-AES for Ag, Al, As, B, Ba, Be, Bi, Ca, Cd, Co, Cr, Cu, Fe, Ga, Hg, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sb, Sc, Sr, Th, Ti, Tl, U, V, W, Zn.

Four certified reference standards were included in the submitted samples to aid quality control of assaying/analysis.

Review of the Assay Data from the Twin Hole Drilling

At Storey's Creek a diamond core hole and a percussion air blast hole were drilled side by side with the collars about seven metres apart. Assay values for the metals tungsten, tin, zinc, copper, and lead, were plotted as a histogram on the sides of the holes drawn on a cross section of them. These histograms provide a clear indication of the degree of correlation between the two holes of the grades of each of the metals in particular veins.

The tungsten mineralisation is mainly restricted to about four veins and the veins correlate very well between the two holes. The tungsten mineralisation is typically accompanied by tin but there are a number of tin veins without any tungsten.

The tin mineralised veins are more numerous than the tungsten. Correlation of veins between the holes is good for tin and tungsten. Better tin grades tend to occur with better tungsten grades. The higher tin grades in the diamond core drill hole may indicate a problem with the air blast technique but the tungsten, zinc and lead results do not show a bias to the same extent between the two holes. It is possible that dilution of the mineralisation could take place when an RC hole is intersecting veins and further drilling of this mineralisation should attempt to determine if this is taking place.

The copper mineralisation is fairly sparse and may show some correlation with tungsten, but more study is required. Grades of around 100ppm Zn occur throughout the holes and there appears to be some association with copper. Low grade lead mineralisation is present throughout the two holes, but higher values do not correlate well between holes or with other metals.

The mineralisation at Storey's Creek and Aberfoyle occurs in rocks overlying cupolas on the surface of the underlying granite pluton. It is interpreted that this is a genetically related feature of the mineralisation and that the identification of other cupolas on the surface of the granite is a very worthwhile exploration technique. This exploration model is reported on in the section of this report on the Aberfoyle Mine.

### *3.2.3 Gravity Survey Analysis for the Aplite Cupola Geological Model*

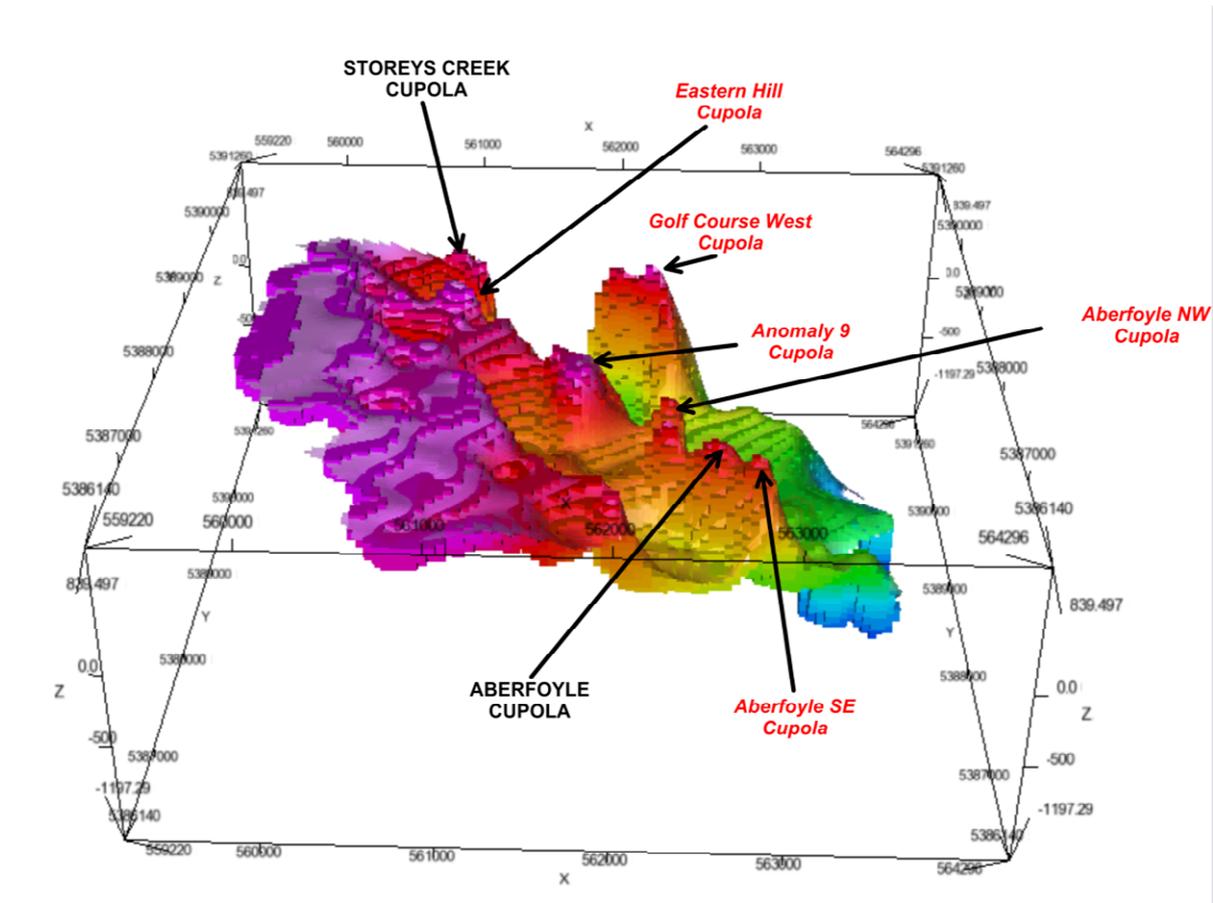
The Rossarden District in the northern portion of EL27/2004 contains two significant deposits and numerous small shows and it is therefore considered that this area has potential for hosting economically sized deposits that do not outcrop on the present land surface and therefore have not been discovered. Minemakers consequently developed an exploration strategy that will hopefully identify targets for more detailed geophysical work or for drilling.

Geological investigations of the tin-tungsten mineral deposits at Storeys Creek and Aberfoyle/Lutwyche suggest that the deposits are genetically related to the Devonian age Ben Lomond Granite pluton that underlies much of the area. The proposed geological model is of vein deposits formed above aplite cupolas developed on the surface of the granite pluton. This geological model is illustrated by the cross section of the Aberfoyle Mine in Figure 5. To explore for as yet undiscovered deposits, it is therefore necessary to locate cupolas of aplite at depth below the surface. Since aplite rock is typically less dense than the adjoining rocks a sensitive gravity survey may be able to reveal the location of cupolas.

Gravity and seismic surveys over parts of the area were carried out by Cominco in 1971-2 (MRT Ref.72\_0857). Further gravity surveying was undertaken by Mineral Resources of Tasmania 1974 (MRT Ref. UR1974\_14). The gravity data are available from MRT.

Minemakers therefore commissioned GroundProbe Geophysics Pty Ltd (GroundProbe, an associate of Geoforce Pty Ltd) to undertake modelling of the available gravity data over the Aberfoyle – Storey's Creek area. GroundProbe produced a report by Kate Godber in August 2010.

The modelling interpreted by GroundProbe suggests that the topography of the granite pluton is much more complicated than expected. This could be due to variations in the gravity being caused by other geological features than cupolas. GroundProbe have identified five anomalies that they consider worthy of further investigation. They are referred to as Storey's s Creek SE, Aberfoyle SE, Golf Course West, Eastern Hill North, and Anomaly Nine. The Golf Course West anomaly requires additional gravity data to improve the reliability of the modelling. The anomalies at Storey's Creek and Aberfoyle are taken care of by additional work around these old mines. This leaves three anomalies recommended for further work.



**Figure 12: 3D sub-surface granite modelling from gravity data**

### 3.2.4 3D modelling project

In 2011, a significant effort was placed into continuing the work of data entry and digitizing of old plans and sections. There is a plethora of pre-metric data and four separate mine grids associated with the Storeys Creek, Aberfoyle, Lutwyche and other minor workings. TNT Mines employed a person to digitize plans and enter historical drill data into a database, particularly in respect of the Lutwyche prospect. In particular, the conversion of old grids to MGA was a very time consuming.

### 3.2.5 Gipps Creek soil sampling

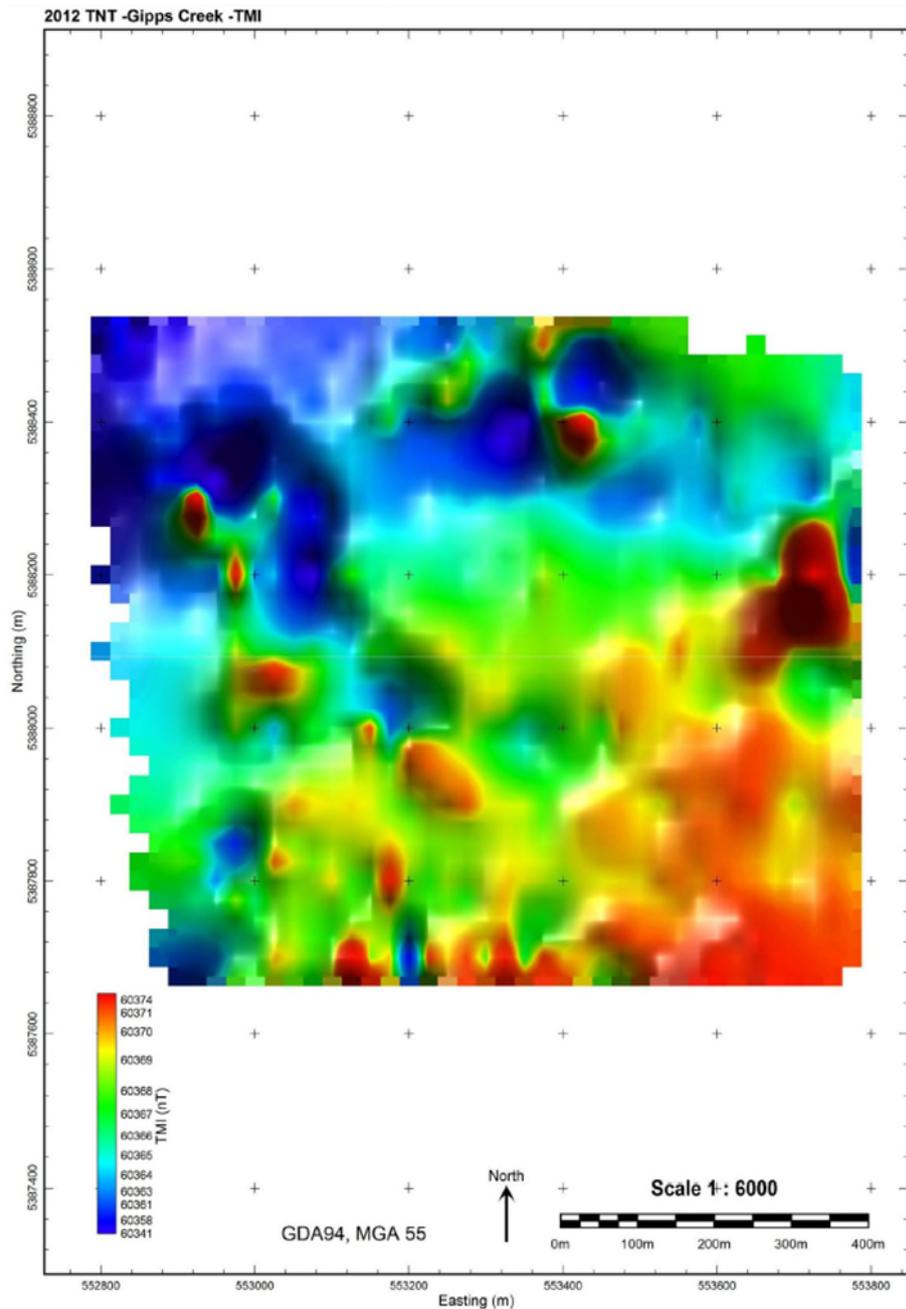
The Gipps Creek area is the location of multiple historical tungsten workings that have not been subject to significant modern exploration. The exploration target is large (5-10Mt), low-grade greisen amenable to open pit mining. Four narrow diameter holes were drilled in the 1970s and intersected low grade greisen mineralisation but the recommended follow up never took place.

A soil program was designed to test for the presence of an area of broad low-grade mineralisation that might be amenable to open pit extraction. The survey uncovered numerous prospecting trenches and adits and a large area of alluvial within Gipps Creek. The soil sampling program was carried out between 04/06/2012 and 03/07/2012. A total of 651 "B/C" horizon soil samples were collected on a two-part 100x25m E-W grid. The soil sample locations are shown in Figure 13. The major grid was designed to cover the area of old tungsten prospects adjacent to Gipps Creek and the smaller grid was designed to test tungsten prospectivity at the Triabunna tungsten prospect to along strike to the south.









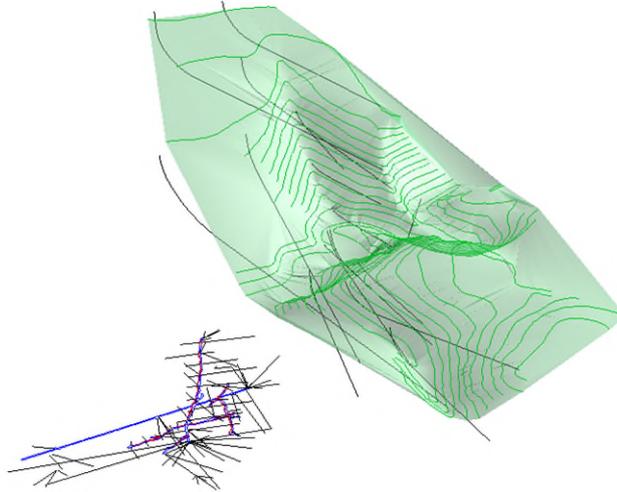
**Figure 16: TMI image – Gipps Creek ground magnetics survey**

### 3.2.8 Data compilation and modelling - Lutwyche

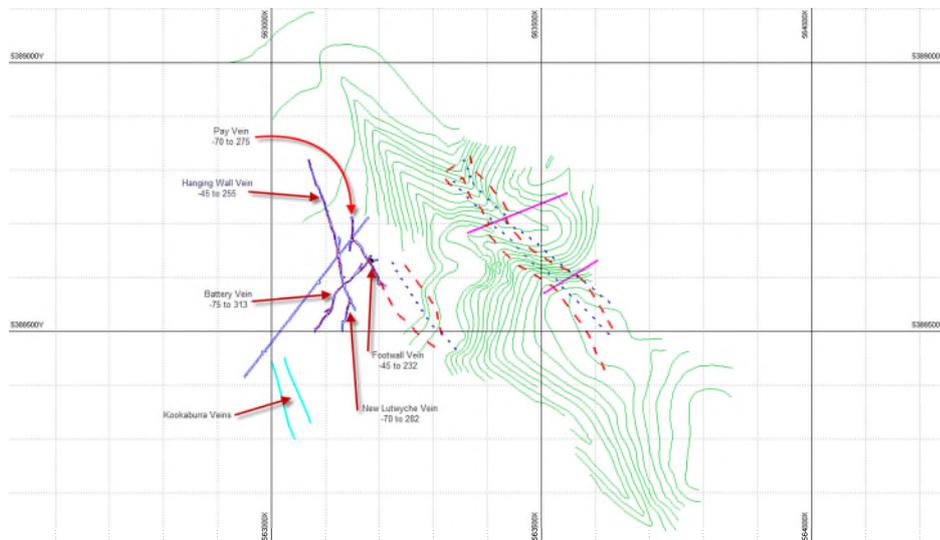
In 2012, basic drill hole and underground development data for the Lutwyche deposit was digitized. Approximately 200 assay data records from drilling have been entered. A considerable amount of historical grade estimation was made visually along development drives and this data has yet to be digitized. Lithology and structure logs have not been completely digitized yet.

The Lutwyche vein system is an essentially unmined deposit (1.1Mt @ 0.45%WO<sub>3</sub> and 0.45% Sn), similar in size to the Storeys Creek mine (1.1Mt @ 1.09%WO<sub>3</sub> and 0.20% Sn) but at lower grades. Delineation of the deposit is incomplete however and the system may be larger with higher grades.

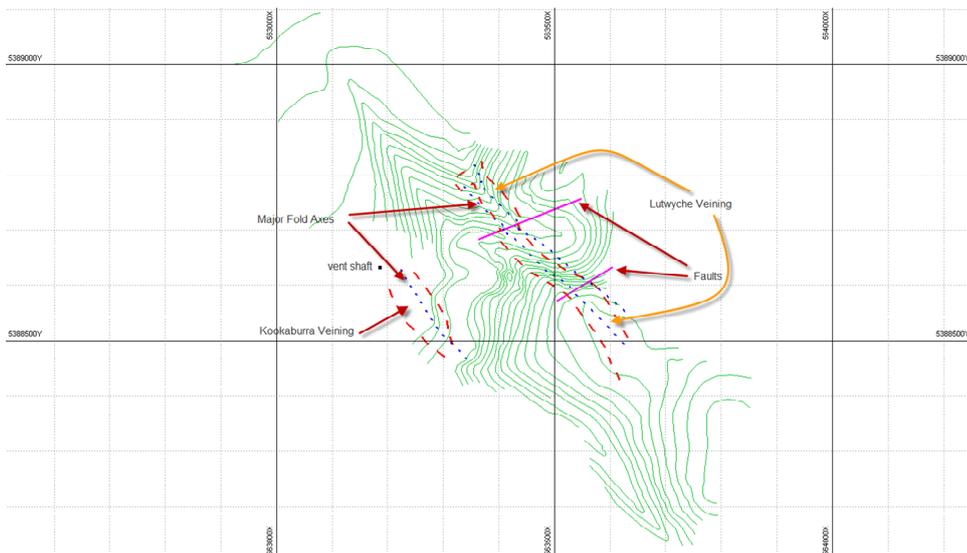
The digitization of data is incomplete and there is sufficient data to generate a complete model. Some screen shots of modelling to date are shown below.



**Figure 17: Lutwyche surface and underground drill traces – oblique view to NW**



**Figure 18: Lutwyche underground development and surface veining – plan view**



**Figure 19: Lutwyche surface veining – plan view**

### *3.2.9 Metallurgy*

A 2-kilogram grab sample of material containing cassiterite and wolframite mineralisation was taken from around the Storeys Creek surface stoping area and sent to Toulouse in France for testing using pulse disintegration at Robert Friedland's laboratory (iCube Research). The pulse disintegration process is a proprietary one under development. Two experiments (100 pulses/sec and 250 pulses/sec for 10 seconds) liberated all grains. The aim is to develop a method of bypassing the expensive process of crushing and grinding. In this experiment, the separation of cassiterite was ideal for subsequent gravity separation in spirals. Further sampling and test work are planned. No report is available on the work at this time.

### *3.2.10 Engineering Overview*

In 2013 – 14 GR Engineering Services was engaged to overview the economic potential for a stand-alone operation treating known resources and reasonably reliable exploration targets at and around the old mines in the Rossarden district. The study provided first order estimates of capital and operating costs, and recommendations for future work required as the basis for a more definitive future study.

TNT Mines' management considered that the GR operating cost estimates, and for a tin price of around USD15,000 per tonne and for a reasonable recovery, would likely require a minimum feed grade of about 0.15% Sn equivalent, with upside allowance needed for underground resources and transport from more distal deposits. This report largely set the agenda for consequent studies during the year.

### *3.2.11 Cashflow Modelling Studies*

Against a background of moderate to weak tin prices, in 2013 – 14 TNT Mines undertook a study of the economics of feeding a single plant, to be sited at Rossarden and with material from all of its deposits in north-east Tasmania, including that at Great Pyramid RL2/2009, which is wholly owned by TNT Mines.

The overall aim was to prioritise subsequent work programmes so as to maximise the potential for economic development and within the economic framework in which the junior exploration sector currently has to work.

### *3.2.12 Lutwyche Modelling*

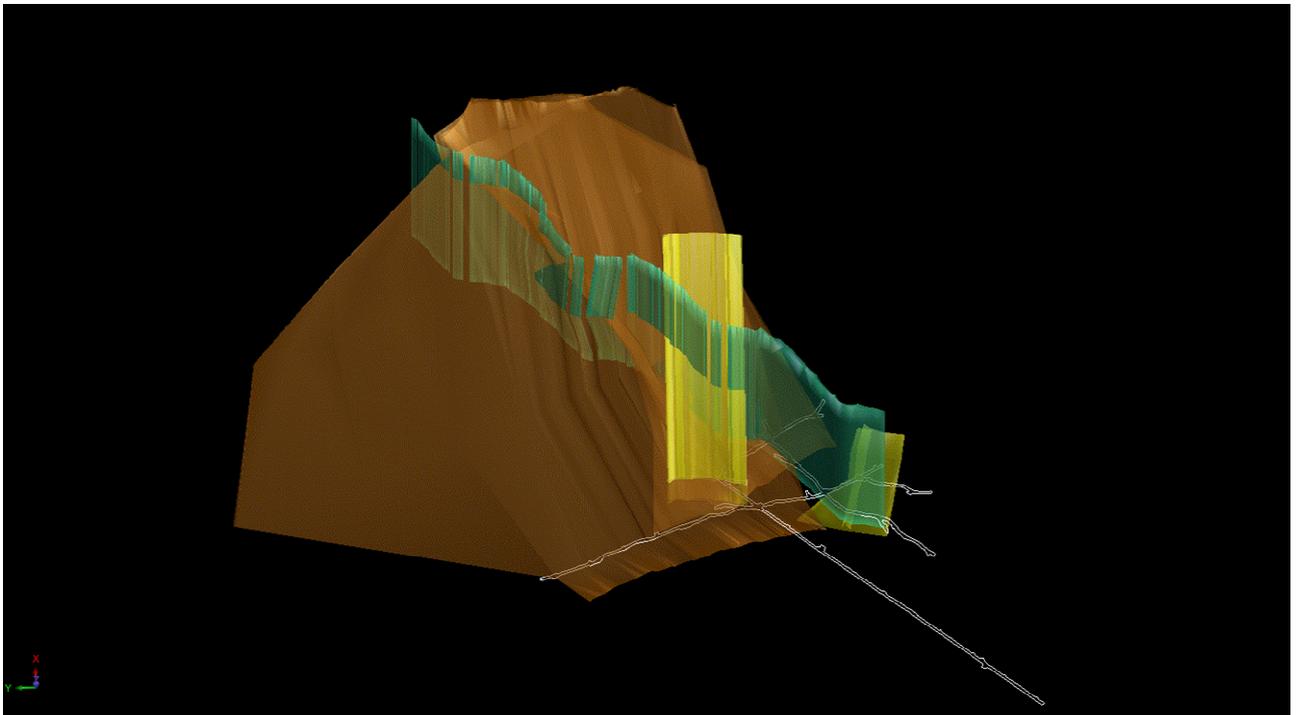
Lutwyche is a major target, with reasonably well-known vein systems upon which considerable vertical and horizontal development has been undertaken historically.

Independent consultant Vincent Algar was commissioned to provide 3-D models of the historical data and to recommend follow-up drilling programmes. The principal recommendations and conclusions from his work were as follows:

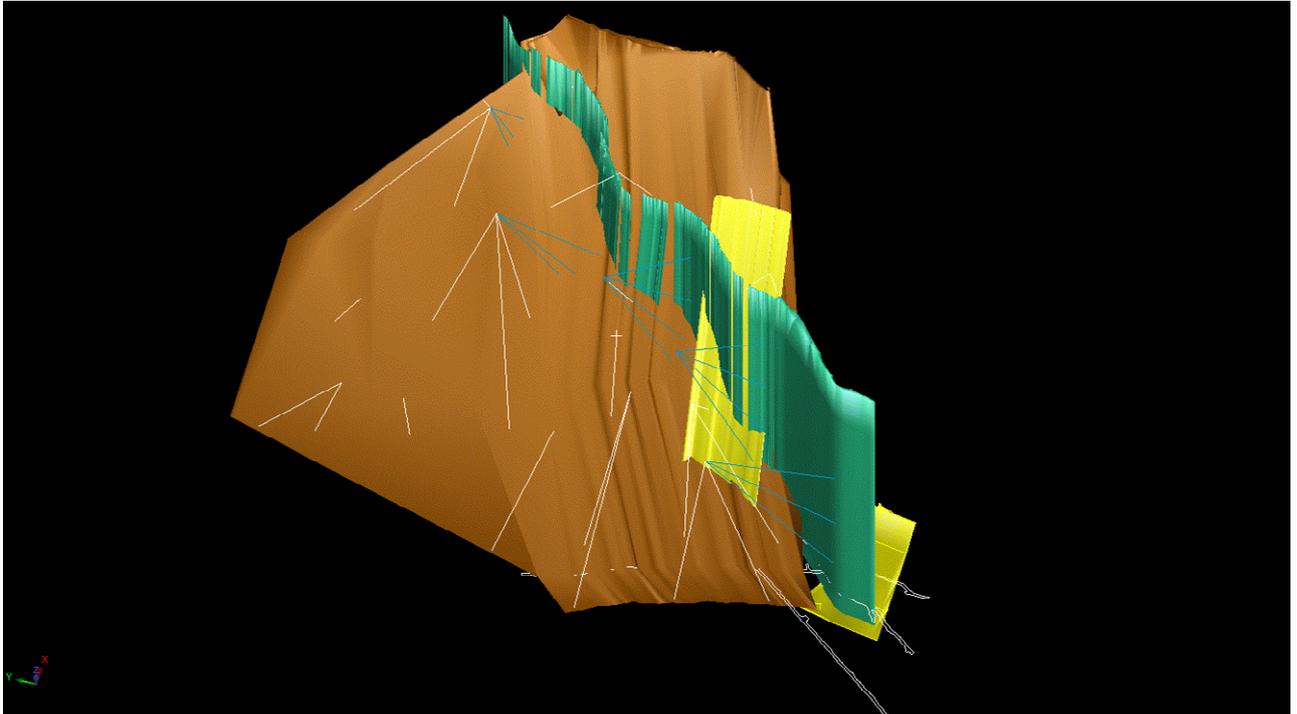
- Available data was used to model the Lutwyche vein system. Figure 20 shows the modelling and Figure 21 the traces of the proposed drilling superimposed upon that modelling.
- The drilling was designed to intersect the major Hangingwall and Footwall Veins, and a segment of it has different drill orientations to intersect the Battery and Pay veins.
- The present database is very widely spaced and generally quite dated. Algar reported he was able to make sense of it by modelling the veins using the underground mapping and the sparse drilling, but that more intersections with complete sampling are required. He noted that the extensive nature of veining in the Aberfoyle deposit, the widths of veining noted in

surface mapping and underground mapping at Lutwyche supported the view that there may be a fully intact replica of Aberfoyle present there.

- The proposed drilling represented an ideal and it was contemplated that all drilling would be from surface, intersecting the vein sets at 75 m centres. The program was recommended to be undertaken in two stages, to allow the earlier definition of any near surface resources.
- The first stage would comprise shallow holes into the major veins (seven holes for 1030 m into the Hangingwall and Footwall vein systems) and with three further holes totalling 351m into the Battery and Pay Veins. The overall objective of Stage One will be to test the location, width and tenor of the Lutwyche lodes near surface. It would be combined with surface mapping and surveying to allow resource estimation and design of an open pit, from which a subsequent underground mine could be developed from the decline in its floor.
- The second stage would comprise deeper holes down to the old 13 Level development, and would consist of 19 holes for 6590 m into the Hangingwall and Footwall Veins, and a further 14 holes for 4599 m into the Battery and Pay Veins



**Figure 20: Lutwyche vein models**



**Figure 21: Lutwyche vein models and recommended drill tracs**

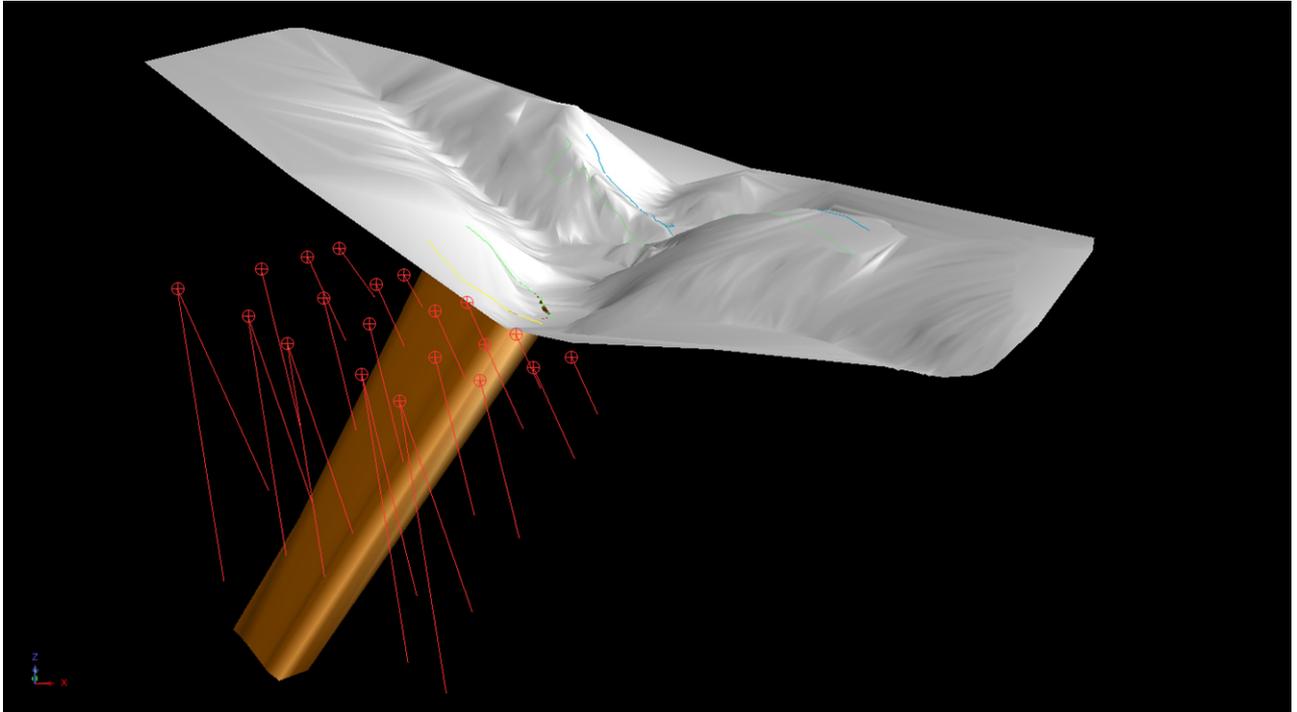
### *3.2.13 Kookaburra Target*

Algar next modelled the known data for the Kookaburra system and proposed an extensive drill program for consideration by TNT Mines. Modelling results are presented in Figure 22.

The drilling was aimed to test the likely position of the Kookaburra veins near surface and then at depth; and also, to test for North and South strike extensions to the veins. Surface ground checking of historic mapped vein positions and also elevation differences is still required, and this will likely result in some adjustments to the program before it is commenced.

TNT Mines management reviewed the Algar report and considered that, in view of current tin prices and poor general investor in the exploration sector, a more sequential and measured approach is probably preferable. In contrast to Lutwyche, there is currently no confirmation that the Kookaburra vein system extends to great depth, notwithstanding that it has to be connected to the granite source below in some form. Hence the immediate target for an economic Kookaburra deposit should be for an open cut operation which would aim to mine the known outcropping mineralisation and any that may exist at fairly shallow depths below it.

It was agreed that there is potential for there to be strike extensions of the Kookaburra system under cover. It is currently known to be much shorter than is Lutwyche at surface, and additional drilling should be directed towards testing for those extensions.



**Figure 22: Kookaburra vein system – modelling and proposed drilling**

#### *3.2.14 Royal George*

An extensive review of the Royal George database was next undertaken by Algar, culminating in a JORC 2012 – compliant resource estimate, and which was presented as Appendix 5 in the 2013/14 Annual Report

#### *3.2.15 Aberfoyle Project Overview Study*

Algar summarised his 2014 studies for the development of a project centred upon Rossarden but including potential feed material from Royal George and Pyramid Hill in a report entitled: “Aberfoyle Project, Exploration Potential, 3-D Modelling and Database Review. It was presented as Appendix 6 in the 2013/14 Annual Report.

#### *3.2.16 2014/15 Tenure Year*

A weakening tin and tungsten price throughout most of the year rendered development of the project uneconomic, based on the independent GR Engineering study studies completed the previous year.

TNT Mines relied upon loans from its majority shareholder, Niuminco Group Limited, to continue to provide working capital throughout the year. Extensive efforts were made by directors to seek conventional or unconventional funding to enable the project to be advanced, or to attract joint-venture partners, but generally to little avail. Work done during the year is as follows.

##### *3.2.16.1 Studies Review*

The extensive suite of studies undertaken in 2013/14, in combination with the earlier data generated by TNT Mines/Minemakers and previous investigators are continually being reviewed with the aim of finding attractive aspects to pursue or to drive access to appropriate and necessary funding. This effort continues. The company intends to take advantage of any substantial and prolonged upturn in world tin and tungsten prices and is encouraged, at the time of writing, by a nascent recovery for tin.

An example is the attempts to involve the European Union in a plan to retreat the old tailings to recover both tin and tungsten, and this would reasonably lead to the consequent attempt to reopen fresh mining operations to feed the plant that would be built to treat those tailings. The EU funded FAME project was successfully attracted to the Moina Skarn project which, at the time, was under option to TNT Mines.

#### *3.2.16.2 Minor Element Search.*

The Rossarden mineralisation is strongly associated with zinc and recovery and removal of that elements in any future operation will be desirable so as to minimise potential for metal discharge into the South Esk River catchments, as has happened consequent upon the mining and processing in the past. As gallium and indium can be closely associated with zinc, a review of all available geochemical information in our database was made to determine whether the contained level of those elements might provide potential for a valuable by product which could contribute to overall project economics. On the data at hand this seems unlikely.

#### *3.2.16.3 Lithium Search.*

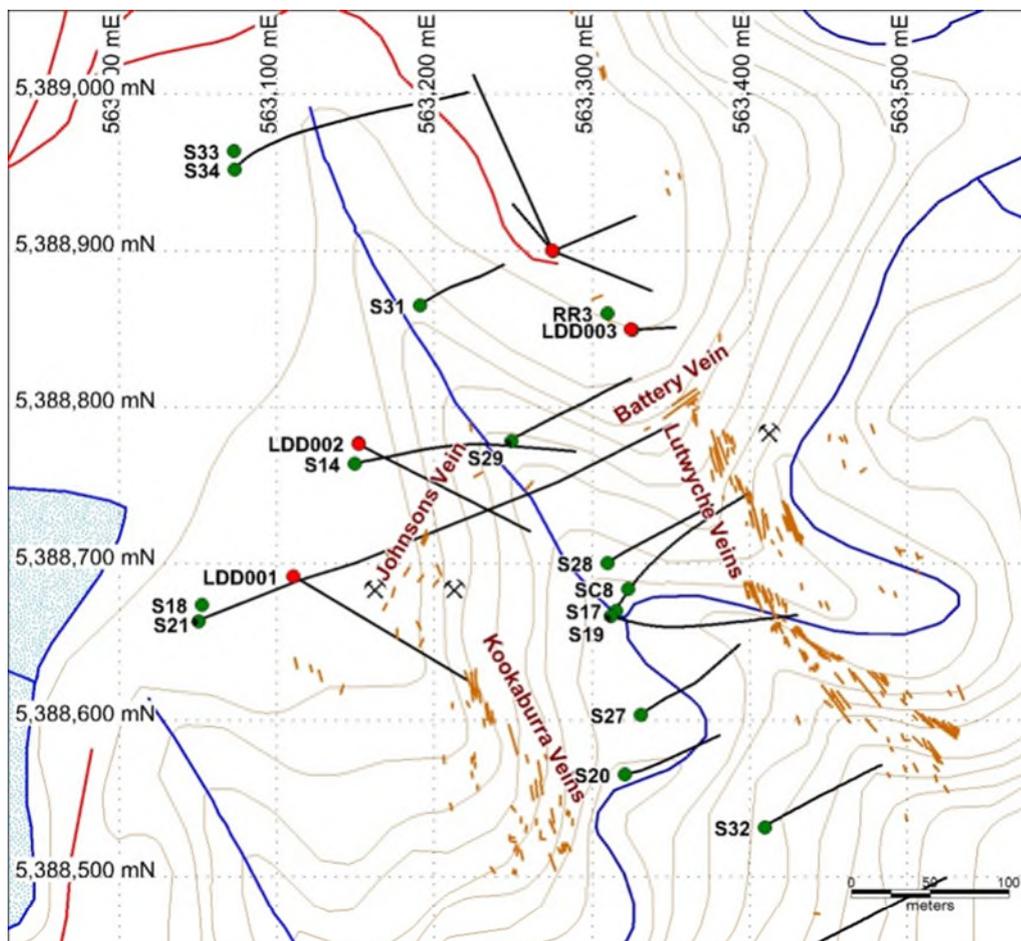
The Royal George greisen has a lithium mica component and this element is currently in considerable demand for lithium hydride batteries. While the relevant database is not large, it seems on results at hand that average lithium component in material likely to be subject to a future open cut mine will not be economically recoverable.

#### *3.2.17 2016/17 Tenure Year*

A three-hole drill program was carried out. The aim was to test the medium depths below the outcropping Kookaburra and Johnson mineralised quartz vein systems, and to intersect the major Lutwyche system approximately halfway between outcropping surface mineralisation and the 300-400m depth at which it was historically extensively explored and developed.

Three holes were completed (LDD001, LDD002 and LDD003; Figure 23 & Table 2), totalling 486m. Due to a lack of funding, results for LDD001 only were reported with logging and sampling of LDD002 and LDD003 to follow in the next reporting year.

LDD001 and LDD002 were designed to test the Johnson's and Kookaburra cassiterite-wolfram bearing sheeted quartz vein prospects (Figure 23). LDD001 was drilled to 198m or about 150m vertically. Tin and tungsten mineralisation are present within numerous narrow sheeted veins principally between 80m and 130m down-hole, and probably corresponding with the Johnson's vein system. LDD002, targeted 75m along strike northeast from LDD001. Hole LDD002 was terminated at 190.1m following a zone of strongly visible tin, tungsten and copper mineralisation (Photo 1), and having intersected numerous other veins with visible tin and tungsten mineralisation further up-hole. Vein distribution and intensity is similar within both drill holes.



**Figure 23: Drill collar plan Lutwyche – Kookaburra area (current drill holes in red).**

Hole LDD003 targeted the Lutwyche vein system at about 100m vertically (Figure 23). Cassiterite and wolfram mineralised veins were intersected within the intervals 3 to 11m, 21 to 23m, 52 to 59m and 65 to 69m, with a high grade cassiterite vein at 75.1m (Photo 2).

Assays returned from LDD001 returned peak values of 8.9% tin, 6.3% tungstate, 582ppm silver, 2480ppm copper and 1.41% zinc. Significant intervals are summarised in Table 2.

Hole_ID	From (m)	To (m)	Interval (m)	Sn XRF %	WO <sub>3</sub> %	Sn% Equiv	Interval Comment
LDD001	80.20	124.50	44.30	0.07	0.04	0.10	All mineralised intervals included
LDD001	80.20	86.50	6.30	0.32	0.00	0.32	
including.	80.20	81.20	1.00	0.22	0.00	0.22	
including.	86.30	86.50	0.20	8.90	0.01	8.91	
LDD001	90.00	91.00	1.00	0.17	0.00	0.17	
LDD001	99.70	106.00	6.30	0.08	0.26	0.22	
including.	99.70	100.65	0.95	0.28	1.35	1.02	
including.	99.70	99.90	0.20	0.64	6.30	4.07	
including.	105.80	106.00	0.20	0.78	1.64	1.67	
LDD001	111.70	115.00	3.30	0.16	0.03	0.18	
including.	111.70	112.30	0.60	0.54	0.05	0.57	
including.	113.80	115.00	1.20	0.18	0.03	0.20	

**Table 2: Significant tin and tungsten intersections from LDD001.** NB: Sn(%) Equivalent is based upon metal prices on 23/1/2017, being US\$9.163/Lb Sn and \$US4.99/Lb WO<sub>3</sub>; The formula used is Sn(%) Equivalent = Sn(%) + 0.54461 X WO<sub>3</sub>% (source:- <https://www.metalprices.com/dailynapsshots/Index>)

## 4. EXPLORATION COMPLETED DURING THE REPORTING PERIOD

### 4.1 2017 Drilling Program.

TNT Mines Ltd conducted drill testing of the Lutwyche-Kookaburra mineralised systems, adjacent to the major historic tin and tungsten mine at Aberfoyle, during the 2016-2017 tenure year. Results from drill hole LDD001 were presented in the 2016-2017 annual. Due to a lack of funding, sampling and analysis of drill core from LDD002 and LDD003 was deferred to the current reporting year and details are presented below.

Hole_ID	East (GDA94)	North (GDA94)	RL (m)	Azimuth (TN)	Dip	Depth (m)	Date Commenced	Date Completed
LDD002	563152	5388777	606	117	-50	190.1	10/12/2017	30/01/2017
LDD003	563325	5388850	610	87	-74	98.1	31/01/2017	27/02/2017

**Table 3: Drill hole collar details for LDD002 and LDD003**

LDD001 and LDD002 were designed to test the Johnson's and Kookaburra cassiterite-wolfram bearing sheeted quartz vein prospects (Figure 23). LDD001 was drilled to 198m or about 150m vertically. Tin and tungsten mineralisation are present within numerous narrow sheeted veins principally between 80m and 130m down-hole, and probably corresponding with the Johnson's vein system. LDD002, targeted 75m along strike northeast from LDD001. Hole LDD002 was terminated at 190.1m following a zone of strongly visible tin, tungsten and copper mineralisation (Photo 1), and having intersected numerous other veins with visible tin and tungsten mineralisation further up-hole. Vein distribution and intensity is similar within both drill holes.

Hole LDD003 targeted the Lutwyche vein system at about 100m vertically (Figure 23). Cassiterite and wolfram mineralised veins were intersected within the intervals 3 to 11m, 21 to 23m, 52 to 59m and 65 to 69m, with a high grade cassiterite vein at 75.1m (Photo 2).



**Photo 1: LDD002 photo showing coarse grained cassiterite at 184.65m and quartz chalcopyrite-wolfram at 185.35m.**



**Photo 2: Quartz-cassiterite vein at 75.1m in LDD003.**

Lithologies within LDD002 and LDD003 are grey fine to medium grained hornfels quartzwacke with thin interbeds of laminar bedded siltstone and shale. Numerous individual narrow veins are scattered throughout the holes. Pyrite is the main accessory mineral in quartz veins toward the top of holes whilst cassiterite, wolfram, chalcopyrite and sphalerite mineralized quartz veins are mostly evident lower down. Cassiterite is notably common on vein margins.

Structure was where possible recorded for all significant veins, with the exception of stock work veined zones within which an average is reported if applicable. Core orientation was undertaken utilising a spear and china graph crayon. Confidence in the results is good, given that in two cases complete core recovery has allowed bottom dead centre (BDC) lines to be extended widely, providing a close (<5mm) match between runs. Structural data is included as Appendix 7.

Sampling of LDD002 and LDD003 was undertaken at a maximum of 1.6m intervals, with a minimum of 20cm. Short sample intervals cover the strongest mineralised veins extending approximately 10cm from vein margins. Longer intervals reflect sections of poor core recovery.

Analysis was undertaken at Australian Laboratory Services (ALS) via XRF (ME-XRF15d) at Burnie for Sn and WO<sub>3</sub>, with pulps sent to Townsville for multi-element ICP-AES (ME-ICP61; 33 elements) analysis. Key accessory elements for analysis were Cu, Pb, Zn, Ag, Cd and As. Results are digitally appended.

## **4.2 Tenement prospectivity review**

Following the successful IPO in November 2017 the new board instigated a review of the prospectivity of the tenement, initially Perth-based and at a high level. The board decided to focus on the northern part of the tenement initially and commissioned a more detailed prospectivity review of that area in March 2018, both looking at historical data and ground truthing.

## 5. DISCUSSION OF RESULTS

### 5.1 2017 Drilling Program.

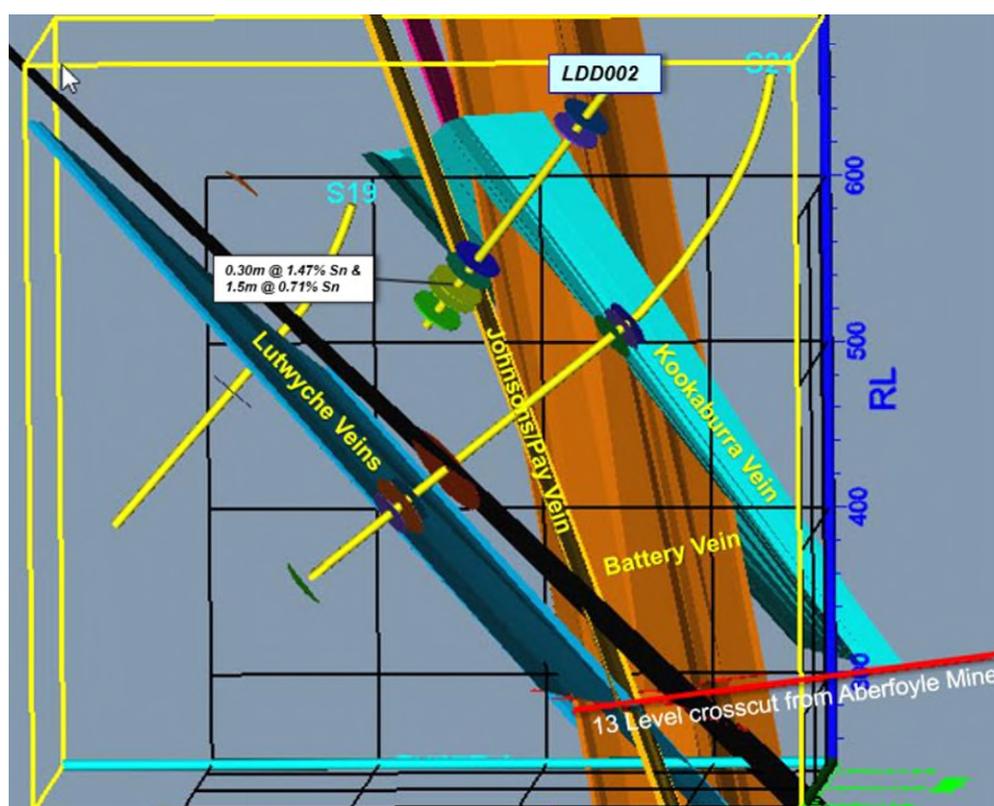
The 2017 drilling program confirmed the presence of significant narrow-vein, high-grade tin and tungsten mineralisation at Lutwyche-Kookaburra prospect. The best intercepts are shown in Table 4 below.

Hole_ID	GDA94 North	GDA94 East	RL	Dip	Azi	From (m)	To (m)	Interval (m)	Sn (%)	WO3 (%)	Ag (g/t)	Zn (%)	
LDD002	5388777.00	563152.00	615	-50	117	19.40	21.00	1.60	0.27	0.00	0.19	0.02	
						including.	20.50	21.00	0.50	0.62	0.60	0.03	
LDD002						31.70	33.20	1.50	0.17	0.01	1.59	0.04	
LDD002						140.90	141.40	0.50	0.24	0.00	<b>43.60</b>	0.22	
LDD002						150.90	151.20	0.30	0.76	0.01	2.20	0.03	
LDD002						162.90	163.20	0.30	0.50	0.17	<b>84.80</b>	<b>1.18</b>	
LDD002						170.00	170.30	<b>0.30</b>	<b>1.47</b>	0.01	7.60	0.23	
LDD002						183.30	185.90	2.60	0.46	0.00	<b>37.47</b>	0.31	
						including.	184.40	185.90	<b>1.50</b>	<b>0.71</b>	0.00	<b>60.20</b>	0.40
LDD003	5388848.80	563325.90	617	-74	87	45.50	92.50	47.00	0.06	0.00	0.79	0.03	
LDD003						52.50	58.00	5.50	0.18	0.00	3.55	0.08	
LDD003						including.	55.50	58.00	2.50	0.29	0.00	5.98	0.11
LDD003						and.	57.50	58.00	<b>0.50</b>	<b>0.96</b>	0.00	2.10	0.11
LDD003						75.10	75.30	<b>0.20</b>	<b>4.10</b>	0.01	0.50	0.05	

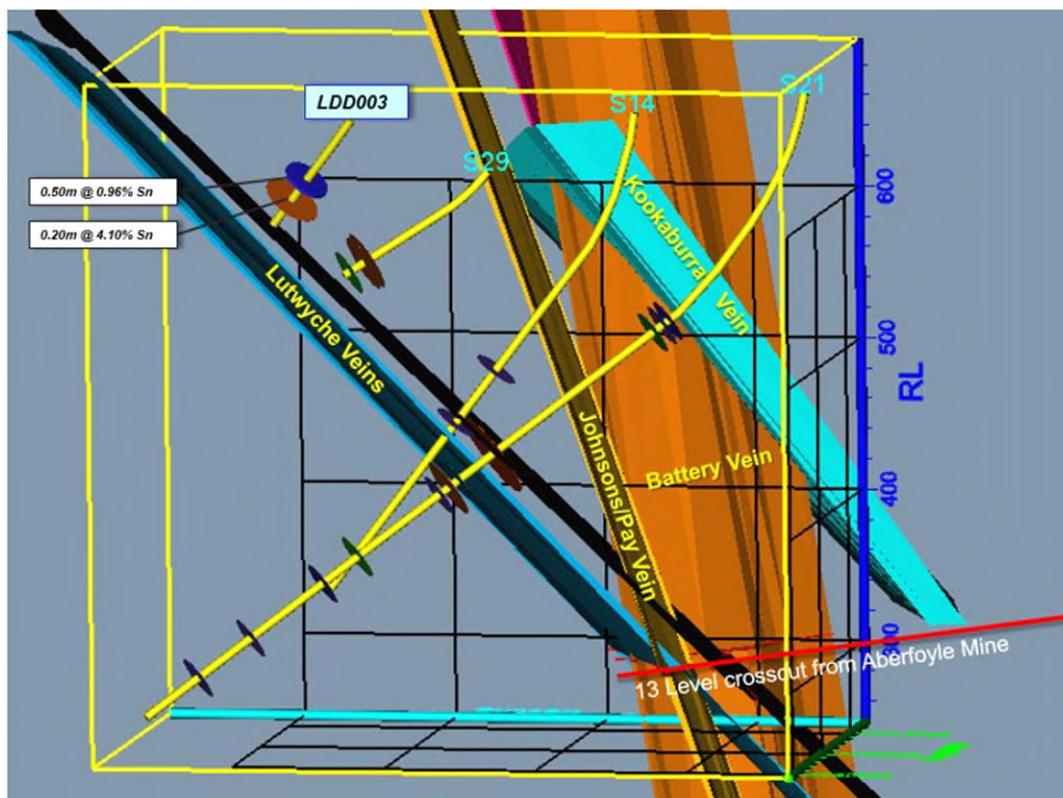
**Table 4: Significant tin and tungsten intersections from LDD002 and LDD003.** NB: Sn(%)

Equivalent is based upon metal prices on 23/1/2017, being US\$9.163/Lb Sn and \$US4.99/Lb WO<sub>3</sub>; The formula used is Sn(%)

Equivalent = Sn(%) + 0.54461 X WO<sub>3</sub>% (source:- <https://www.metalprices.com/dailynapsots/Index>)



**Figure 24: 3D oblique view of section looking SW through LDD002, showing position of mapped veins and traces of historical surface drill holes. Grid lines are 100m intervals. Model generated with Voxler 4 software.**

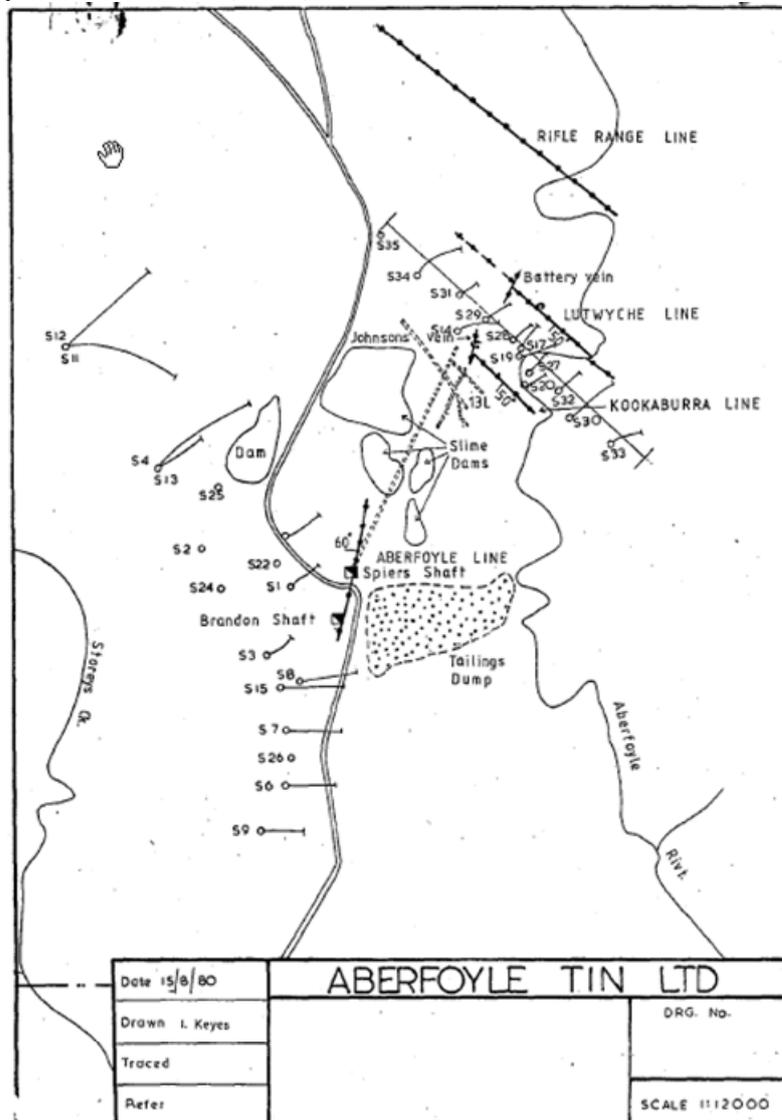
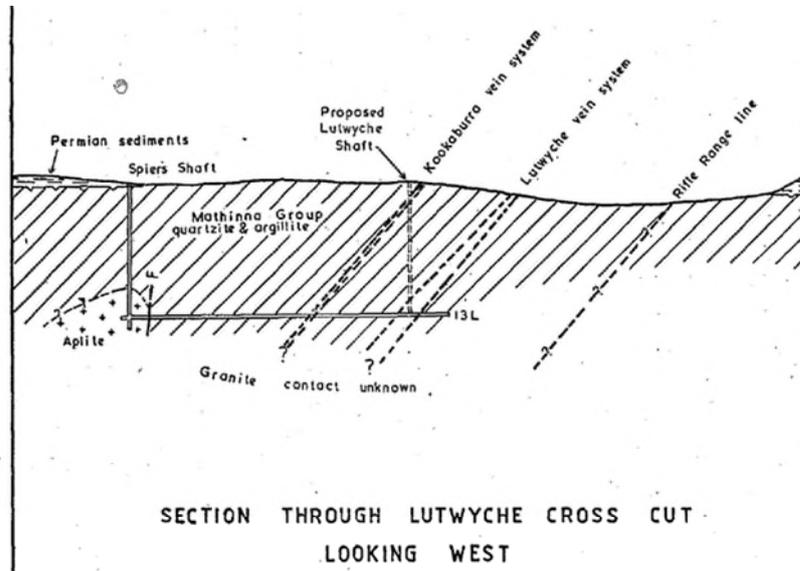


**Figure 25: 3D oblique view of section looking SE through LDD003, showing position of mapped veins and traces of historical surface drill holes. Grid lines are 100m intervals. Model generated with Voxler 4 software.**

3D modelling of the drilling data was undertaken using Voxler 4 software and representations of the data are presented at Figures 24 and 25. Notwithstanding the difficulty of representing a 3D model in 2D, it can be seen in Figure 24 that LDD002 intersects both the Kookaburra and Johnsons Pay veins within the margin of error from the modelled position of the two veins. The nuggety and discrete distribution of mineralised veins can also be seen as discs on the drill hole traces. Likewise, it can also be seen that LDD003 intersects the Lutwyche vein in Figure 25. Note, not all historical drilling is displayed to avoid a cluttered image.

## 5.2 Tenement prospectivity review

This work led to the identification of the Rifle Range Prospect as a potential drill target. The Rifle Range Prospect is a significant ~1,000m long belt of quartz float and veined quartzite that lies more or less parallel to the Lutwyche and Kookaburra vein systems (see section below). Aberfoyle conducted soil sampling over the prospect and defined a significant zinc, arsenic and copper anomalies that extended for about 700 metres. It was generally concluded that the Rifle Range line of veins was similar to Lutwyche but slightly deeper with no metal-bearing veins at surface (but a significant soil anomaly). In 1981, Rossarden Mines drilled two holes to the east of the vein system, apparently misdirected, and therefore did not test the supposed west-dipping vein system. A review of mineralisation by Summons in 1983 concluded that the Rifle Range line was “virtually untested”.



**Figure 26: Rifle Range Prospect in section view (upper) and plan view (lower).**

## **6. CONCLUSIONS**

Sampling and assaying of holes LDD002 and LDD003, drilled in the previous tenure year, have confirmed the significant tenor of tin and tungsten mineralisation in the Lutwyche-Kookaburra vein complex. Drill intercepts correspond to modelled mineralised zones previously developed from historical underground development, drilling and surface sampling. The Lutwyche-Kookaburra system remains open and requires a significant amount of additional drilling to properly delineate.

If a substantial vein system exists at the Rifle Range Prospect, similar to Lutwyche, then the potential viability of a mining operation in the Rossarden – Storeys Creek area would be enhanced. The Rifle Range Prospect is essentially untested and is a priority target for the company. A drilling contract has been executed and a diamond drill hole is proposed to commence in late November 2018 to test the target at 150-200 metres below surface.

## **7. FUTURE EXPLORATION**

The company proposes exploration as detailed below:

- Diamond drilling at the Rifle Range Prospect, approximately 400 metres NE of the Lutwyche vein system and sub-parallel to it. An initial 300m deep hole is planned to commence in late November 2018 to intersect the vein system at 150-200m below surface.
- Depending on results of first hole at Rifle Range Prospect, 1-2 additional diamond or RC drill holes proposed along strike or at different RLs.
- Review of Royal George data including ground truthing and development of drill targets.
  - If suitable targets are generated, a small RC drill program will be undertaken.
- Surface investigation of other potentially significant vein systems (>500m long), including Kookaburra SE, Lutwyche SE and Eastern Hills to develop drill targets.
- Gravity anomaly targets. Petrophysical test work on core and reinterpretation of gravity data.

## **8. ENVIRONMENTAL MANAGEMENT**

All collars, drill pads and sumps associated with the 2016-2017 drilling program have been rehabilitated. There are, however, an unknown number of exposed PVC collars from RC drilling programs conducted between 2007 and 2009. A total of 40 holes were drilled into the Aberfoyle and Storeys Creek vein systems. These need to be located and cut-off below ground level and the holes filled in. It is unlikely that any of these holes are making water.

## **9. EXPENDITURE**

Expenditure for the year was:

Geology	\$7,368
Drilling	\$34,220
Land access	\$3,360
Other	\$4,296
Administration	\$4,432
<b>TOTAL</b>	<b>\$53,676</b>

## **10. REFERENCES**

- Blissett, A.H. 1959.** The Geology of the Rossarden-Storeys Creek District. Geological Survey Bulletin No. 46. Tasmanian Department of Mines.
- Drummond, A. and Fulton R. 2007.** EL27/2004 Annual Report September 2007. Minemakers Limited.
- Fulton R. 2011.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2011. TNT Mines Limited.
- Fulton R. 2012.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2012. TNT Mines Limited.
- Fulton R. 2012.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2013. TNT Mines Limited.
- Godber, K. 2010.** Modelling of gravity data over Aberfoyle. GroundProbe Geophysics Report GF1183MM\_4.0
- Hall, Relph & Associates Pty Ltd 1970.** Report on Exploration Licence 13/69, Avoca, Tasmania. International Mining Corporation NL, May 1970.
- Lake, T, and Drummond, A 2014.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2014, TNT Mines Limited.
- Lake, T, and Drummond, A 2015.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2014, TNT Mines Limited.
- Leaman, D.E. 1974.** Gravity survey of the Rossarden-Storeys Creek region. TE\_19\_55\_81. Tasmanian Department of Mines.
- McGushin P.J. & Keyes, I.W. 1980.** Open cut ore potential of the Aberfoyle vein system south of the Brandon Shaft. Aberfoyle Tin Ltd. MRT open file report 81\_1540.
- Pohl D.C. 1978.** Report on EL12/77. Esso Exploration & Production Australia Inc. April 1978.
- Reid R. 2017.** EL27/2004 Rossarden – Royal George Annual Report to 26 November 2017. TNT Mines Limited.
- Roberts, C. and Teh, M. 1989.** An investigation of the potential of the Rossarden tin mine, north-eastern Tasmania, June-July 1989. Juka Mine Management Pty Ltd. MRT open file report 89\_3055.
- Summons, T. 1983.** Proposed Aberfoyle open pit and quartz grades in the Aberfoyle deposit ML27M/77 Rossarden district north-east Tasmania. Wheal Lutwyche Pty Ltd. MRT open file report 83\_2066.

## ***11. APPENDICES***

## Appendix 1 Assay intervals

Hole_ID	From (m)	To (m)	Sample ID	Sn %	WO3 %	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm	Mg %
LDD002	19.4	20.5	711395	0.11	0	0	3.98	9	320	8.8	0	0.14	5.1	4	37	62	1.64	10	1.56	20	0.44
LDD002	20.5	21.0	711396	0.62	0	0.6	3.45	10	290	12.9	0	0.23	15.1	4	29	70	1.57	10	1.45	20	0.37
LDD002	21.0	22.0	711397	0	0	0	7.41	40	750	18.6	0	0.15	9.4	9	64	32	3.08	20	3.36	30	0.94
LDD002	22.0	23.6	711398	0	0	0	7.51	34	940	34.8	3	0.15	0	9	82	24	3.33	20	4.06	20	0.96
LDD002	23.6	23.9	711399	0.07	0.09	0	3.82	13	330	10.9	0	0.36	0.7	6	34	51	1.73	10	1.79	20	0.43
LDD002	23.9	24.9	711400	0	0.01	0	5.54	18	450	14.8	0	0.16	0	6	41	18	2.24	10	1.97	30	0.62
LDD002	30.0	31.0	711401	0	0	0	4.9	10	420	3.6	0	0.16	0	8	45	8	2.66	10	1.78	30	0.69
LDD002	31.0	31.7	711402	0	0	0	4.38	11	350	4.3	2	0.15	0.6	6	37	6	2.05	10	1.48	30	0.54
LDD002	31.7	32.5	711403	0.1	0.01	0.8	3.95	25	310	18.8	2	0.45	17	5	29	67	1.83	10	1.74	30	0.49
LDD002	32.5	33.2	711404	0.24	0.01	2.5	6.78	43	780	37.9	2	0.67	14.4	17	63	562	3.56	20	3.53	30	1.07
LDD002	33.2	34.2	711405	0	0	0	4.62	11	430	8	0	0.23	0	8	44	28	2.55	10	1.93	30	0.7
LDD002	34.2	35.0	711406	0	0	0	8.45	29	1060	8.5	0	0.2	0	16	82	21	3.93	20	4.42	30	1.29
LDD002	43.9	44.9	711407	0	0	0	5.96	18	690	6.2	0	0.2	0	10	55	15	2.88	20	2.78	30	0.92
LDD002	69.2	69.8	711408	0	0.01	0	3.18	2000	210	4.1	2	0.13	0.6	5	23	13	1.6	10	0.93	20	0.27
LDD002	74.4	74.7	711409	0	0	0	3.42	5	260	13.7	2	0.28	5.1	4	23	56	1.54	10	1.32	20	0.35
LDD002	77.5	78.2	711410	0.05	0.01	0.6	2.75	0	190	7.9	0	0.27	4.4	4	27	60	1.48	10	0.88	20	0.29
LDD002	78.2	79.2	711411	0	0	0	3.76	13	330	5	0	0.15	0	5	31	15	1.79	10	1.3	30	0.43
LDD002	84.4	85.4	711412	0	0	0	4.27	9	390	9.5	2	0.25	0	6	36	12	2	10	1.43	30	0.48
LDD002	85.4	85.7	711413	0.02	0	2	3.99	11	370	17.2	2	0.38	45.4	5	35	117	1.96	10	1.88	30	0.41
LDD002	85.7	86.7	711414	0.01	0.01	0	2.68	0	210	7.5	0	0.26	5.2	3	24	26	1.34	10	0.86	20	0.22
LDD002	86.7	87.7	711415	0.15	0	0	3.28	11	260	5.3	0	0.31	3.2	5	23	25	1.41	10	1.17	20	0.25
LDD002	87.7	89.0	711416	0	0	0	3.98	11	330	4.1	0	0.2	0	6	36	9	1.76	10	1.18	30	0.35
LDD002	89.0	90.0	711417	0	0	0	2.73	0	260	4.4	2	0.13	4.7	4	28	35	1.59	10	1.16	20	0.29
LDD002	90.0	91.0	711418	0	0	0	2.66	9	250	4.8	0	0.11	1	3	21	19	1.46	10	1.15	20	0.27
LDD002	91.0	92.0	711419	0.06	0.01	1.3	4.57	11	470	9.7	3	0.28	6	5	36	95	1.68	10	2.42	30	0.49
LDD002	92.0	93.0	711420	0.07	0	1.3	3.03	14	240	8.4	0	1.22	29.3	6	29	47	4.31	10	1.24	20	0.73
LDD002	93.0	94.0	711421	0	0	0	3.98	5	380	6	0	0.14	4	5	35	41	1.82	10	1.74	30	0.48
LDD002	94.0	95.0	711422	0	0.01	0	5.14	17	540	7.1	2	0.15	0.5	8	49	16	2.38	10	2.03	30	0.68
LDD002	95.0	96.0	711423	0.1	0.01	4.6	3.48	8	300	7.4	13	0.15	23.1	4	33	308	1.82	10	1.83	20	0.42
LDD002	96.0	97.0	711424	0	0	0	4.29	22	370	14	2	0.27	0	5	36	18	2.21	10	1.65	30	0.57
LDD002	102.7	103.2	711425	0.01	0	0.7	8.6	124	880	13.7	5	0.17	0.6	14	78	56	3.86	20	3.93	40	1.19
LDD002	103.2	104.1	711426	0.01	0.01	0.6	8.91	152	910	13.5	4	0.15	0.6	15	88	40	3.61	30	4.33	30	1.15
LDD002	104.1	105.1	711427	0	0	0	3.06	17	230	3	2	0.2	0	4	32	7	1.66	10	1.1	30	0.35
LDD002	105.1	105.7	711428	0	0	0	2.89	10	170	2.9	0	0.18	0	4	31	10	1.52	10	0.81	20	0.33
LDD002	105.7	106.7	711429	0	0	0	3.26	10	220	3.2	0	0.22	0	6	34	6	1.62	10	0.99	30	0.37
LDD002	106.7	107.0	711430	0	0	42.1	2.9	493	230	5.4	95	0.45	0.7	14	26	174	3.04	10	1.3	20	0.37
LDD002	107.0	108.0	711431	0	0	0	3.17	21	220	4.4	2	0.22	0	5	33	14	1.63	10	1.06	30	0.41
LDD002	108.0	109.0	711432	0	0	0	3.24	16	260	8.8	0	0.22	0	4	31	26	1.69	10	1.34	20	0.45
LDD002	118.0	119.0	711433	0	0	0	9.96	52	1150	17.9	0	0.31	0	19	98	22	4.84	30	4.72	40	1.48
LDD002	119.0	119.6	711434	0	0	0	3.16	20	230	7.8	0	0.14	0.8	3	28	33	1.86	10	1.59	20	0.47
LDD002	119.6	120.6	711435	0	0	0	5.69	31	530	10.1	2	0.19	0.5	7	47	33	3.29	10	2.61	20	0.83
LDD002	120.6	121.0	711436	0	0.01	0	8.12	64	890	10	6	0.19	0	12	79	11	4.13	20	3.87	30	1.15

Hole_ID	From (m)	To (m)	Sample ID	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Ti	U	V	W	Zn	
				ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
LDD002	19.4	20.5	711395	212	1	0.51	9	660	11	0.15	0	5	55	0	0.21	0	0	33	20	161	
LDD002	20.5	21.0	711396	175	1	0.31	9	800	11	0.25	0	4	45	0	0.2	0	0	28	20	271	
LDD002	21.0	22.0	711397	209	1	0.5	24	620	6	0.12	0	11	60	20	0.4	0	0	74	30	139	
LDD002	22.0	23.6	711398	228	0	0.52	23	570	6	0.08	0	12	58	0	0.41	0	0	92	30	119	
LDD002	23.6	23.9	711399	284	2	0.27	12	410	8	0.21	0	4	39	0	0.21	0	0	28	760	60	
LDD002	23.9	24.9	711400	179	1	1.14	14	540	8	0.06	0	7	57	0	0.29	0	0	48	30	64	
LDD002	30.0	31.0	711401	468	0	0.96	19	470	12	0.05	0	6	48	0	0.3	0	0	43	10	101	
LDD002	31.0	31.7	711402	321	1	1.05	15	450	5	0.03	0	6	48	0	0.28	10	0	37	10	144	
LDD002	31.7	32.5	711403	481	1	0.33	14	490	7	0.32	0	5	53	0	0.19	0	0	30	90	532	
LDD002	32.5	33.2	711404	637	0	0.37	36	600	9	0.58	0	10	75	20	0.37	0	0	71	40	261	
LDD002	33.2	34.2	711405	418	1	0.68	22	740	5	0.15	0	6	50	0	0.29	0	0	42	50	80	
LDD002	34.2	35.0	711406	507	1	0.39	38	710	10	0.04	0	14	68	20	0.42	0	0	94	10	105	
LDD002	43.9	44.9	711407	433	1	0.44	27	540	13	0.07	0	9	55	20	0.34	0	0	57	0	60	
LDD002	69.2	69.8	711408	303	1	0.03	8	390	4	0.18	0	3	29	0	0.17	0	0	20	10	62	
LDD002	74.4	74.7	711409	287	1	0.67	10	390	4	0.15	0	3	36	0	0.17	0	0	21	20	215	
LDD002	77.5	78.2	711410	284	1	0.76	9	360	3	0.14	0	3	36	0	0.18	0	0	20	10	166	
LDD002	78.2	79.2	711411	361	1	0.86	14	450	3	0.07	0	5	44	0	0.24	0	0	29	10	55	
LDD002	84.4	85.4	711412	577	1	0.88	15	490	5	0.09	0	6	47	0	0.28	0	0	35	20	42	
LDD002	85.4	85.7	711413	571	2	0.18	10	570	9	0.49	0	4	41	0	0.21	0	0	26	10	1265	
LDD002	85.7	86.7	711414	344	2	0.15	8	360	6	0.17	0	3	35	0	0.15	0	0	17	10	215	
LDD002	86.7	87.7	711415	456	1	0.03	11	450	8	0.24	0	3	37	0	0.18	10	0	20	20	169	
LDD002	87.7	89.0	711416	726	1	0.15	11	520	8	0.06	0	5	49	0	0.28	0	0	31	20	51	
LDD002	89.0	90.0	711417	619	1	0.02	8	400	14	0.2	0	3	38	0	0.18	10	0	21	20	216	
LDD002	90.0	91.0	711418	642	1	0.02	8	390	20	0.1	0	3	29	0	0.15	0	0	19	20	61	
LDD002	91.0	92.0	711419	548	1	0.06	16	620	9	0.44	0	5	43	0	0.22	10	0	33	20	259	
LDD002	92.0	93.0	711420	4060	1	0.03	19	410	35	1.24	0	3	50	0	0.15	10	0	19	20	1075	
LDD002	93.0	94.0	711421	462	2	0.03	12	530	15	0.06	0	5	49	0	0.28	0	0	32	20	188	
LDD002	94.0	95.0	711422	442	1	0.07	21	510	4	0.04	0	7	69	20	0.32	0	0	49	20	82	
LDD002	95.0	96.0	711423	517	2	0.05	12	660	5	0.61	0	4	33	0	0.16	10	0	26	30	780	
LDD002	96.0	97.0	711424	442	0	0.18	14	430	3	0.07	0	6	46	0	0.26	0	0	37	10	59	
LDD002	102.7	103.2	711425	454	1	0.23	32	660	6	1.13	0	14	115	20	0.34	10	0	88	20	96	
LDD002	103.2	104.1	711426	320	1	0.26	45	670	17	1.81	6	14	124	20	0.4	0	0	102	20	112	
LDD002	104.1	105.1	711427	229	1	0.02	10	870	7	0.12	0	4	60	0	0.26	0	0	26	10	37	
LDD002	105.1	105.7	711428	195	1	0.03	10	770	4	0.11	0	4	62	0	0.21	0	0	22	20	35	
LDD002	105.7	106.7	711429	237	1	0.03	10	950	4	0.04	0	4	63	0	0.24	10	0	28	20	31	
LDD002	106.7	107.0	711430	337	1	0.07	18	770	70	1.77	0	4	58	0	0.13	0	0	21	30	70	
LDD002	107.0	108.0	711431	278	1	0.04	10	890	5	0.07	0	4	54	0	0.22	0	0	26	20	36	
LDD002	108.0	109.0	711432	330	2	0.05	12	820	2	0.18	0	4	53	0	0.18	0	0	24	10	36	
LDD002	118.0	119.0	711433	762	1	0.17	53	810	8	0.17	0	17	75	20	0.49	0	0	116	20	115	
LDD002	119.0	119.6	711434	540	1	0.04	8	370	2	0.32	0	4	31	0	0.16	0	0	21	20	53	
LDD002	119.6	120.6	711435	585	1	0.08	19	550	14	0.37	0	7	54	0	0.2	10	0	44	20	70	
LDD002	120.6	121.0	711436	588	1	0.14	39	570	7	0.26	0	14	63	20	0.37	0	0	95	30	76	

Hole_ID	From (m)	To (m)	Sample ID	Sn %	WO3 %	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm	Mg %
LDD002	121.0	122.0	711437	0	0.01	0	7.21	180	770	10.1	2	0.19	0	13	71	27	3.41	20	3.46	30	0.99
LDD002	139.3	139.8	711438	0	0	0	5.56	45	500	7	0	0.18	0	8	48	25	2.85	10	2.18	30	0.68
LDD002	139.8	140.9	711439	0	0.01	0.6	6.16	31	580	9.3	2	0.16	0.6	9	48	49	2.34	20	2.77	30	0.72
LDD002	140.9	141.4	711440	0.24	0	43.6	5.75	37	540	9.3	61	0.17	68.3	11	53	2790	4.38	10	2.5	30	0.74
LDD002	141.4	142.4	711441	0	0	0	7.1	32	670	9.4	0	0.23	0	9	59	41	2.95	20	2.97	30	0.81
LDD002	149.9	150.9	711442	0	0.01	0	6.04	29	650	18.9	0	0.41	0	10	54	21	2.85	10	2.63	30	0.88
LDD002	150.9	151.2	711443	0.76	0.01	2.2	4.4	10	390	27.9	9	1.01	9.2	5	32	176	2.02	10	1.91	20	0.53
LDD002	151.2	151.9	711444	0	0	0	4.03	11	290	7.5	0	0.24	0	6	34	11	1.73	10	1.24	30	0.45
LDD002	160.4	161.4	711445	0.11	0.01	0.7	7.27	129	760	34.8	0	0.91	8.3	13	61	80	3.93	20	3.41	30	1.04
LDD002	161.4	161.6	711446	0.02	0	0	6.56	19	710	15.3	2	0.32	0.6	8	62	71	3.38	20	3.28	20	0.92
LDD002	161.6	162.9	711447	0.01	0.01	0.5	6.61	77	730	14.2	2	0.17	2	10	57	92	2.78	20	3.37	30	0.94
LDD002	162.9	163.2	711448	0.5	0.17	84.8	2.8	163	230	5.6	105	0.16	357	10	17	896	6.23	10	1.32	10	0.29
LDD002	163.2	164.2	711449	0	0	0	5.83	24	510	22.6	3	0.62	6	8	46	50	2.79	20	2.47	30	0.78
LDD002	170.0	170.3	711450	1.47	0.01	7.6	11.75	67	1250	21.4	21	0.43	61.2	8	104	121	3.99	40	6	30	1.32
LDD002	176.2	177.2	711451	0	0	0	5.31	29	510	11.5	3	0.28	0.8	8	45	24	2.96	10	2.36	30	0.8
LDD002	177.2	177.9	711452	0.38	0.01	5.8	8.74	150	950	29	4	0.26	59.4	11	63	426	3.73	20	4.7	30	1.24
LDD002	177.9	178.9	711453	0	0.01	0	7.33	61	790	42.6	0	0.22	1.4	12	60	71	3.48	20	3.33	40	1.04
LDD002	178.9	179.9	711454	0.01	0	0.5	8.27	233	870	20.6	2	0.2	0.5	14	62	76	3.87	20	3.94	40	1.27
LDD002	179.9	180.5	711455	0	0	0	3.57	37	270	12.9	0	0.28	0	7	30	32	2.3	10	1.38	20	0.51
LDD002	180.5	181.9	711456	0	0.01	0	7.06	30	780	10	2	0.31	0	11	68	30	3.76	20	3.47	30	1.02
LDD002	181.9	183.3	711457	0	0.01	0	6.74	25	680	7.8	0	0.29	0	11	55	28	3.14	20	2.97	40	0.92
LDD002	183.3	183.7	711458	0.11	0.01	13.8	3.38	57	270	5.6	9	0.44	78.8	3	22	750	2.05	10	1.68	10	0.37
LDD002	183.7	184.4	711459	0.12	0.01	2.3	3.76	103	260	6.8	2	1.24	47.2	3	32	167	2.05	10	1.85	20	0.43
LDD002	184.4	184.9	711460	1.29	0	20.6	3.12	154	170	5.3	14	2.66	50	0	11	1030	1.63	10	1.48	10	0.21
LDD002	184.9	185.9	711461	0.42	0	80	3.01	71	230	5.4	30	0.49	162.5	3	26	4510	2.7	10	1.59	20	0.34
LDD002	185.9	186.9	711462	0	0	0	3.31	26	250	5.4	0	0.24	0.7	5	32	27	1.74	10	1.31	30	0.41
LDD002	186.9	188.1	711463	0.01	0.01	0	5	53	430	8.7	3	0.26	4.4	8	38	46	2.43	10	2.3	30	0.65
LDD002	188.1	188.4	711464	0.05	0.01	0.9	6.04	301	560	11.2	4	0.21	4.6	10	54	88	2.68	20	3	30	0.8
LDD002	188.4	189.1	711465	0.01	0	0	3.62	90	150	6.4	2	1.01	1.3	6	35	31	2.16	10	1.14	30	0.48
LDD002	189.1	190.1	711466	0	0	0	7.81	167	890	10.7	0	0.57	0	16	77	36	4.07	20	3.77	30	1.06

Hole_ID	From (m)	To (m)	Sample ID	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Ti	U	V	W	Zn	
				ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm
LDD002	121.0	122.0	711437	530	1	0.15	32	660	6	0.27	0	11	72	0	0.37	0	0	82	30	81	
LDD002	139.3	139.8	711438	577	1	0.1	26	510	6	0.28	0	8	57	0	0.29	0	0	51	40	63	
LDD002	139.8	140.9	711439	395	1	0.12	26	550	5	0.45	0	9	55	0	0.29	10	0	55	40	90	
LDD002	140.9	141.4	711440	594	1	0.13	29	560	100	2.25	0	8	55	0	0.23	0	0	53	30	2190	
LDD002	141.4	142.4	711441	717	1	0.12	26	580	3	0.18	0	11	69	20	0.34	0	0	68	50	100	
LDD002	149.9	150.9	711442	423	1	0.68	28	580	5	0.13	0	9	57	0	0.36	0	0	58	20	67	
LDD002	150.9	151.2	711443	371	1	0.43	14	500	9	0.24	0	5	46	0	0.22	0	0	29	80	309	
LDD002	151.2	151.9	711444	259	2	1.14	11	400	6	0.06	0	5	50	0	0.24	0	0	29	20	48	
LDD002	160.4	161.4	711445	1080	0	0.23	34	800	23	0.69	0	11	84	20	0.34	10	0	70	40	267	
LDD002	161.4	161.6	711446	636	1	0.22	32	840	6	0.59	0	9	70	0	0.28	10	0	62	30	120	
LDD002	161.6	162.9	711447	664	1	0.21	31	590	6	0.79	0	10	60	0	0.22	0	0	65	40	142	
LDD002	162.9	163.2	711448	924	2	0.06	14	510	58	5.2	5	3	32	0	0.07	10	0	17	1340	11750	
LDD002	163.2	164.2	711449	572	1	0.22	22	510	8	0.28	0	7	56	0	0.31	10	0	50	50	269	
LDD002	170.0	170.3	711450	1545	2	0.36	40	1680	17	0.78	0	15	134	20	0.29	10	0	113	20	2310	
LDD002	176.2	177.2	711451	510	1	0.07	19	440	2	0.03	0	8	42	0	0.29	10	0	49	20	81	
LDD002	177.2	177.9	711452	1245	1	0.21	38	760	9	0.71	0	11	64	0	0.26	0	0	74	30	2110	
LDD002	177.9	178.9	711453	741	1	0.2	36	670	2	0.85	0	12	71	20	0.26	0	0	71	20	132	
LDD002	178.9	179.9	711454	934	1	0.22	43	600	4	1.05	0	13	82	20	0.22	0	0	82	20	108	
LDD002	179.9	180.5	711455	318	1	0.06	20	380	3	0.4	0	4	42	0	0.13	0	0	30	20	63	
LDD002	180.5	181.9	711456	690	1	0.2	33	630	4	0.26	0	10	56	20	0.4	10	0	71	60	92	
LDD002	181.9	183.3	711457	449	1	0.14	29	490	3	0.2	0	10	57	20	0.35	10	0	65	40	78	
LDD002	183.3	183.7	711458	805	1	0.05	11	670	5	0.69	0	3	27	0	0.08	10	0	18	10	2580	
LDD002	183.7	184.4	711459	1120	1	0.05	13	1250	9	0.64	0	4	81	0	0.12	10	0	23	20	1640	
LDD002	184.4	184.9	711460	925	2	0.03	5	2050	10	0.39	0	1	172	0	0.05	0	0	7	20	1660	
LDD002	184.9	185.9	711461	878	1	0.04	11	1110	17	1.62	0	3	39	0	0.1	0	0	16	10	5160	
LDD002	185.9	186.9	711462	689	2	0.06	12	800	3	0.24	0	4	48	0	0.19	0	0	28	20	49	
LDD002	186.9	188.1	711463	654	1	0.12	25	1110	6	0.76	0	6	60	0	0.25	0	0	41	30	191	
LDD002	188.1	188.4	711464	931	1	0.13	29	850	4	0.87	0	8	52	20	0.23	0	0	52	30	218	
LDD002	188.4	189.1	711465	723	1	0.03	14	860	13	0.25	0	4	69	0	0.22	0	10	29	30	70	
LDD002	189.1	190.1	711466	1075	1	0.2	42	710	9	0.6	0	12	82	20	0.4	10	0	87	60	105	

Hole_ID	From (m)	To (m)	Sample ID	Sn %	WO3 %	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm	Mg %
LDD003	3.1	4	711467	0	0	0	3.24	8	290	1.7	0	0.01	0	3	28	11	0.86	10	0.86	30	0.16
LDD003	4	5	711468	0	0	0	5.64	22	640	5	2	0.02	0	3	50	25	2.22	10	2.31	40	0.46
LDD003	5	6	711469	0	0	0	3.8	34	370	4.4	3	0.01	0	2	40	15	1.67	10	1.36	30	0.29
LDD003	6	7	711470	0	0	0	5.74	37	600	5.8	3	0.02	0	1	47	9	1.5	10	2.21	40	0.43
LDD003	7	8	711471	0	0	0	3.16	7	280	2.6	0	0.04	0	1	26	9	0.66	10	0.91	30	0.17
LDD003	8	8.8	711472	0	0	0	5.94	65	650	11.2	0	0.01	0	1	42	19	1.77	10	3.08	40	0.65
LDD003	8.8	9.7	711473	0	0	0	4.54	48	480	6.5	0	0.01	0	1	39	10	1.57	10	1.75	30	0.39
LDD003	9.7	10.55	711474	0.07	0	0	4.77	150	540	9.6	4	0.01	0	1	35	32	1.4	10	2.48	30	0.51
LDD003	10.55	16.4	711475	0	0	0	4.97	63	450	10.6	2	0.02	0	1	38	15	1.67	10	1.88	30	0.48
LDD003	16.4	22.4	711476	0.04	0	0	3.05	22	290	5.4	2	0.07	0	1	36	14	1.09	10	1.35	30	0.26
LDD003	21.4	23.4	711477	0.01	0	0	4.24	38	330	8	2	0.15	0.7	2	40	37	1.2	10	1.6	30	0.34
LDD003	22.4	35.8	711478	0	0	0	2.63	29	220	5.2	0	0.01	0	1	25	9	1.13	10	1.05	20	0.2
LDD003	35.8	42.5	711479	0	0	0	5.53	22	550	7.2	0	0.09	2.4	7	47	99	1.74	10	2.27	30	0.45
LDD003	41.5	43.5	711480	0	0	0	5.76	42	600	8.1	3	0.3	0.8	10	47	43	2.37	10	2.53	30	0.66
LDD003	42.5	44.5	711481	0	0	0	6.3	35	590	6.4	4	0.25	0	11	54	19	2.84	20	2.38	30	0.68
LDD003	43.5	44.5	711482	0	0	0	3.06	15	230	4.1	0	0.21	1.8	4	36	13	1.41	10	1.12	30	0.29
LDD003	44.5	46.5	711483	0.01	0	0	5.04	48	490	9.3	0	0.15	0	7	43	38	1.99	10	2.19	30	0.65
LDD003	45.5	47.5	711484	0.05	0.02	2.5	5.62	403	540	10.8	2	0.12	17.3	8	40	271	2.1	10	2.73	30	0.72
LDD003	46.5	48.5	711485	0.01	0	0	6.5	59	660	11.1	0	0.14	1.4	10	55	65	2.44	20	3.03	30	0.82
LDD003	47.5	49.5	711486	0.04	0.01	0.6	6.68	141	660	12.1	0	0.13	3.5	10	51	97	2.32	20	3.26	30	0.88
LDD003	48.5	50.5	711487	0.04	0	0	2.86	20	200	4.1	0	0.19	5.3	3	20	28	1.25	10	0.98	20	0.25
LDD003	49.5	51.5	711488	0.01	0	0	7	59	750	12.3	0	0.2	1.5	15	63	63	2.95	20	3.27	30	0.95
LDD003	50.5	52.5	711489	0.04	0	0.8	6.85	180	670	12.8	2	0.15	11.2	11	53	148	2.7	20	3.54	30	0.92
LDD003	51.5	53.5	711490	0.21	0	2.2	6.81	83	670	12.3	6	0.13	16.2	11	52	152	2.85	20	3.28	30	0.88
LDD003	52.5	54.5	711491	0.03	0	1.6	4.6	32	400	7.9	10	0.09	34.6	6	37	103	1.81	10	2.16	30	0.5
LDD003	53.5	55.5	711492	0.02	0	0.8	6.35	103	650	13	3	0.12	7.1	11	49	91	2.36	20	3.04	30	0.82
LDD003	54.5	56.5	711493	0.12	0.01	7.3	6.14	180	610	12.5	16	0.13	34.1	12	44	321	2.97	20	3.3	30	0.83
LDD003	55.5	57.5	711494	0.13	0	6.6	5.5	64	490	10.3	14	0.12	25.8	8	42	387	2.17	10	2.78	30	0.66
LDD003	56.5	58	711495	0.96	0	2.1	4.92	78	360	9.6	2	0.13	28.4	5	29	164	1.63	10	2.32	20	0.45
LDD003	57.5	59	711496	0.08	0	2.6	7.01	237	690	15.2	6	0.28	29.2	14	58	124	3.25	20	3.11	30	0.93
LDD003	58	60	711497	0.02	0	0	5.43	26	420	5.4	2	0.19	2.7	7	44	13	2.32	10	1.83	30	0.52
LDD003	59	61	711498	0.04	0	1.2	6.26	58	590	10.8	4	0.29	7.9	10	47	90	2.57	20	3.05	30	0.79
LDD003	60	62	711499	0.02	0	0	6.96	140	680	13.6	4	0.39	1.4	11	54	54	3	20	3.25	30	0.92
LDD003	61	63	711500	0.02	0	0	5.24	36	430	9	2	0.31	2.9	6	47	54	2.39	10	2.21	30	0.64
LDD003	62	64	711501	0.05	0	0.9	7.9	78	730	14.4	2	0.28	2.8	10	65	130	3.09	20	3.82	30	1.06
LDD003	63	65	711502	0.02	0	0	7.54	60	760	16.7	2	0.4	21	17	68	82	3.4	20	3.96	30	1.09
LDD003	64	66	711503	0.02	0	0	8.1	51	700	12.7	2	0.52	2.6	15	67	89	3.51	20	3.41	40	0.97
LDD003	65	67	711504	0	0	0	3.91	21	270	4.7	0	0.47	0.9	7	39	25	1.85	10	1.41	30	0.39
LDD003	66	68	711505	0.08	0	2.4	7.49	82	700	13	4	0.23	11.7	12	57	151	3.03	20	3.61	40	0.93
LDD003	67	69.3	711506	0.02	0	0	5.71	101	490	9.3	0	0.13	1.2	9	46	73	2.31	10	2.5	30	0.73
LDD003	68	69.3	711507	0.27	0	1.7	5.85	960	580	11.3	3	0.27	4.3	8	36	88	2.19	20	3.09	30	0.69
LDD003	69.3	70.5	711508	0.01	0	0	7.74	78	880	10.7	2	0.2	0.7	15	73	68	3.72	20	3.9	30	1.02
LDD003	69.5	73.5	711509	0	0	0	3.29	48	200	3.3	2	0.06	0	4	23	21	0.72	10	1.04	20	0.2
LDD003	72.5	74.1	711510	0	0	0	2.95	21	180	2.2	0	0.09	2.5	4	27	13	1.05	10	0.8	20	0.2

Hole_ID	From (m)	To (m)	Sample ID	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Ti	U	V	W	Zn	
				ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm
LDD003	3.1	4	711467	89	1	0.12	7	260	14	0.01	0	4	22	0	0.22	0	0	24	0	17	
LDD003	4	5	711468	89	1	0.2	16	500	6	0	0	9	33	20	0.34	0	0	53	10	71	
LDD003	5	6	711469	74	2	0.07	13	350	5	0.02	0	6	35	0	0.26	0	0	37	10	49	
LDD003	6	7	711470	101	1	0.08	9	530	7	0	0	8	54	20	0.35	10	0	48	20	31	
LDD003	7	8	711471	60	1	0.28	4	430	10	0	0	4	32	0	0.22	0	0	23	10	13	
LDD003	8	8.8	711472	320	0	0.08	5	240	8	0.01	0	8	36	0	0.25	0	0	47	30	50	
LDD003	8.8	9.7	711473	132	2	0.07	6	270	9	0	0	6	41	0	0.28	0	0	38	20	38	
LDD003	9.7	10.55	711474	323	1	0.06	5	230	10	0.01	0	6	36	0	0.2	0	0	35	30	48	
LDD003	16	16.4	711475	122	1	0.12	8	470	8	0	0	7	58	0	0.28	0	0	43	10	28	
LDD003	21.4	22.4	711476	139	1	0.04	4	490	2	0.01	0	4	47	20	0.25	0	0	26	30	27	
LDD003	22.4	23.4	711477	107	1	0.06	6	420	6	0.05	0	6	75	0	0.29	0	0	35	40	49	
LDD003	35.5	35.8	711478	191	2	0.03	3	230	6	0.02	0	3	53	0	0.19	0	0	19	20	21	
LDD003	41.5	42.5	711479	83	1	0.07	21	600	5	0.09	0	8	67	0	0.33	0	0	49	20	100	
LDD003	42.5	43.5	711480	321	2	0.11	29	650	6	0.26	0	8	64	0	0.3	10	0	51	20	94	
LDD003	43.5	44.5	711481	550	0	0.07	27	790	6	0.12	0	9	85	20	0.36	0	0	62	30	116	
LDD003	44.5	45.5	711482	256	1	0.03	10	880	6	0.05	0	4	58	0	0.22	0	0	25	10	118	
LDD003	45.5	46.5	711483	338	1	0.11	16	620	5	0.18	0	7	72	0	0.27	10	0	45	20	97	
LDD003	46.5	47.5	711484	542	1	0.12	23	540	15	0.47	0	7	58	0	0.22	0	0	45	110	633	
LDD003	47.5	48.5	711485	398	1	0.14	26	590	6	0.43	0	9	78	20	0.33	0	0	56	20	122	
LDD003	48.5	49.5	711486	556	1	0.17	30	600	7	0.37	0	9	90	0	0.21	10	0	57	20	155	
LDD003	49.5	50.5	711487	241	1	0.03	5	380	5	0.12	0	3	38	0	0.15	0	0	18	20	177	
LDD003	50.5	51.5	711488	567	1	0.18	30	600	6	0.51	0	10	69	20	0.31	10	0	67	30	126	
LDD003	51.5	52.5	711489	712	2	0.15	29	710	9	0.86	0	9	73	0	0.21	10	0	58	20	442	
LDD003	52.5	53.5	711490	678	2	0.17	29	630	29	1.07	0	9	83	0	0.2	10	0	59	30	536	
LDD003	53.5	54.5	711491	379	1	0.08	15	460	16	0.5	0	5	55	0	0.19	10	0	34	20	686	
LDD003	54.5	55.5	711492	609	1	0.14	27	550	20	0.66	0	8	76	0	0.23	0	0	53	20	196	
LDD003	55.5	56.5	711493	886	1	0.14	26	630	46	1.28	0	8	59	0	0.17	10	0	49	70	1250	
LDD003	56.5	57.5	711494	674	1	0.11	21	600	35	0.74	0	7	59	0	0.17	10	0	41	20	903	
LDD003	57.5	58	711495	551	2	0.05	11	620	13	0.38	0	5	48	0	0.17	0	0	26	40	1140	
LDD003	58	59	711496	720	1	0.2	32	640	27	1.11	0	10	84	20	0.24	0	0	60	20	1060	
LDD003	59	60	711497	459	1	0.07	15	630	3	0.06	0	7	65	0	0.28	0	0	45	30	121	
LDD003	60	61	711498	754	1	0.12	26	580	12	0.62	0	8	60	0	0.21	0	0	51	30	380	
LDD003	61	62	711499	696	0	0.16	29	560	4	0.57	0	10	80	0	0.28	10	0	60	20	134	
LDD003	62	63	711500	431	1	0.11	21	580	7	0.46	0	7	66	0	0.23	0	0	44	20	136	
LDD003	63	64	711501	707	1	0.23	34	650	6	0.82	0	11	82	20	0.27	10	0	72	20	191	
LDD003	64	65	711502	687	0	0.22	39	650	4	0.61	0	11	87	0	0.31	10	0	78	20	982	
LDD003	65	66	711503	748	1	0.18	36	830	9	0.54	0	12	107	20	0.38	0	0	77	60	217	
LDD003	66	67	711504	318	0	0.04	17	1010	4	0.21	0	5	74	0	0.26	0	0	34	20	91	
LDD003	67	68	711505	711	1	0.17	30	770	25	0.8	0	10	92	20	0.28	0	0	66	20	523	
LDD003	68	69.3	711506	522	1	0.12	22	500	7	0.43	0	8	62	0	0.21	0	0	48	20	106	
LDD003	69.3	69.5	711507	662	2	0.11	23	1300	39	0.74	0	7	93	0	0.18	0	0	41	20	193	
LDD003	69.5	70.5	711508	668	1	0.16	42	690	11	0.56	0	12	75	0	0.38	10	0	85	30	114	
LDD003	72.5	73.5	711509	93	1	0.02	12	280	28	0.09	0	3	43	0	0.19	0	0	21	10	49	
LDD003	73.5	74.1	711510	151	1	0.02	9	350	40	0.05	0	4	43	0	0.21	10	0	24	20	99	

Hole_ID	From (m)	To (m)	Sample ID	Sn %	WO3 %	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	K %	La ppm	Mg %
LDD003	74.1	75.1	711511	0.01	0	0	6.29	50	670	7	2	0.14	1	9	56	26	2.61	20	2.58	30	0.72
LDD003	75.1	75.3	711512	4.1	0.01	0.5	6.99	27	750	14.1	0	0.1	9.5	8	51	56	2.24	20	3.96	30	0.86
LDD003	75.3	76.3	711513	0	0	0	3.3	14	230	2.4	3	0.11	0	5	28	4	1.49	10	0.87	20	0.26
LDD003	78.3	79.6	711514	0.01	0	0	6.69	365	690	9.1	3	0.11	0.9	12	52	58	2.32	20	2.83	30	0.77
LDD003	79.6	80	711515	0.09	0	4.3	7.52	148	820	14.6	4	0.09	30.2	9	62	298	3.03	20	4.19	30	1.01
LDD003	80	80.9	711516	0.01	0	0	5.18	46	370	5.6	0	0.11	0	6	35	16	1.36	10	1.66	30	0.42
LDD003	80.9	81.2	711517	0.03	0	1	7.03	105	710	11.7	6	0.08	24.3	14	54	91	2.42	20	3.45	40	0.79
LDD003	81.2	82.7	711518	0.03	0	0	4.5	120	410	8.4	3	0.05	21.8	13	32	57	1.3	10	2.28	30	0.48
LDD003	82.7	84.3	711519	0.04	0	0	3.92	9	300	4.8	0	0.08	1.1	2	28	29	0.83	10	1.43	30	0.32
LDD003	84.3	84.5	711520	0.18	0.01	13.6	3.77	17	350	7.4	10	0.06	32.3	7	24	1205	1.94	10	1.99	20	0.43
LDD003	84.5	85.5	711521	0.02	0.01	0.7	8.69	41	940	13.8	3	0.11	26	16	69	86	2.48	20	3.98	40	0.98
LDD003	85.5	86.5	711522	0	0	0	4.15	68	320	5.2	2	0.13	7.3	7	33	30	1.05	10	1.38	30	0.32
LDD003	86.5	87.5	711523	0.01	0	0	7.78	105	870	11.9	3	0.15	25.4	17	60	57	2.43	20	3.46	40	0.9
LDD003	87.5	88.5	711524	0	0	0	4.14	38	360	3.5	0	0.18	3.8	6	34	13	1.56	10	1.36	30	0.34
LDD003	88.5	89.5	711525	0	0	0	5.9	33	650	9.4	0	0.15	4.5	8	48	44	2.21	20	2.53	30	0.71
LDD003	89.5	90.5	711526	0.02	0	0	7.16	36	830	11	0	0.18	0.6	11	56	48	2.49	20	3.09	30	0.91
LDD003	90.5	91.5	711527	0.01	0	0	6.35	90	710	8.7	2	0.15	2.6	13	60	29	2.6	20	2.77	30	0.74
LDD003	91.5	92.5	711528	0.01	0	0.5	6	157	710	10.5	3	0.21	1.5	10	50	59	2.53	20	3.02	30	0.79
LDD003	92.5	93.5	711529	0	0	0	4.67	21	400	5.3	0	0.18	0	7	37	12	2.41	10	1.54	30	0.56

Hole_ID	From (m)	To (m)	Sample ID	Mn	Mo	Na	Ni	P	Pb	S	Sb	Sc	Sr	Th	Ti	Ti	U	V	W	Zn
				ppm	ppm	%	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm
LDD003	74.1	75.1	711511	498	1	0.09	27	480	7	0.24	0	9	90	20	0.35	0	0	64	20	96
LDD003	75.1	75.3	711512	608	1	0.11	28	490	6	0.33	0	9	62	0	0.21	0	0	60	30	463
LDD003	75.3	76.3	711513	227	1	0.02	11	360	11	0.03	0	4	43	0	0.2	0	0	25	10	73
LDD003	78.3	79.6	711514	372	1	0.11	28	510	3	0.31	0	9	81	20	0.31	0	0	62	40	148
LDD003	79.6	80	711515	631	1	0.14	38	490	7	1.04	0	11	74	0	0.18	10	0	68	20	1070
LDD003	80	80.9	711516	175	1	0.05	15	470	6	0.15	0	6	66	0	0.28	0	0	39	20	385
LDD003	80.9	81.2	711517	369	2	0.12	39	450	13	0.61	0	10	112	20	0.35	0	0	61	30	952
LDD003	81.2	82.7	711518	290	2	0.05	25	270	30	0.18	0	5	50	0	0.21	0	0	33	20	861
LDD003	82.7	84.3	711519	110	1	0.05	9	400	2	0.08	0	5	59	0	0.24	0	0	29	30	65
LDD003	84.3	84.5	711520	269	1	0.05	21	330	7	0.87	0	4	34	0	0.14	0	0	24	20	939
LDD003	84.5	85.5	711521	363	1	0.2	44	610	7	0.64	0	13	122	20	0.36	10	0	81	40	862
LDD003	85.5	86.5	711522	135	1	0.04	19	500	4	0.11	0	5	60	0	0.28	0	0	32	30	195
LDD003	86.5	87.5	711523	332	1	0.17	40	610	4	0.37	0	11	118	20	0.39	0	0	73	30	512
LDD003	87.5	88.5	711524	224	1	0.03	12	470	6	0.09	0	5	57	0	0.24	0	0	31	20	144
LDD003	88.5	89.5	711525	301	1	0.12	24	540	2	0.38	0	8	75	20	0.31	0	0	53	20	176
LDD003	89.5	90.5	711526	328	0	0.2	33	550	3	0.37	0	10	107	0	0.34	0	0	68	20	323
LDD003	90.5	91.5	711527	291	1	0.14	37	540	5	0.71	0	10	93	20	0.37	10	0	67	30	112
LDD003	91.5	92.5	711528	763	1	0.12	27	560	3	0.49	0	8	84	0	0.32	0	0	53	20	116
LDD003	92.5	93.5	711529	795	1	0.06	15	470	8	0.09	0	6	73	0	0.27	0	0	37	20	59

## **Appendix 2 Assay laboratory certificates**



Australian Laboratory Services Pty. Ltd.  
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Page: 1  
 Total # Pages: 5 (A - C)  
 Plus Appendix Pages  
 Finalized Date: 8-MAR-2018  
 This copy reported on 14-MAR-2018  
 Account: TNTMIN

**CERTIFICATE BU18037339**

Project: TNT\_272004\_190218

This report is for 135 Drill Core samples submitted to our lab in Burnie, TAS, Australia on 20-FEB-2018.

The following have access to data associated with this certificate:

NICK CASTLEDEN

ROBERT REID

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LEV-01	Waste Disposal Levy
CRU-21	Crush entire sample > 70% -6 mm
PUL-31b	Pulv. Lg split to >80% -75um
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Zn-OG62	Ore Grade Zn - Four Acid	ICP-AES
ME-XRF15d	Sulphide BM Conc. by XRF	XRF
ME-ICP61	33 element four acid ICP-AES	ICP-AES

To: TNT MINES LTD  
 ATTN: NICK CASTLEDEN  
 SUITE 50  
 NARABANG WAY  
 BELROSE NSW 2085

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*

**Signature:**

Ricky Gelston, Laboratory Manager, Burnie



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 Total # Pages: 5 (A - C)  
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Project: TNT\_272004\_190218

**CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	PUL-QC Pass75um %	ME-XRF15d Sn %	ME-XRF15d WtO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm
711395		1.96		0.11	<0.01	<0.5	3.98	9	320	8.8	<2	0.14	5.1	4	37	62
711396		0.88		0.62	<0.01	0.6	3.45	10	290	12.9	<2	0.23	15.1	4	29	70
711397		2.09		<0.01	<0.01	<0.5	7.41	40	750	18.6	<2	0.15	9.4	9	64	32
711398		3.10		<0.01	<0.01	<0.5	7.51	34	940	34.8	3	0.15	<0.5	9	82	24
711399		0.66		0.07	0.09	<0.5	3.82	13	330	10.9	<2	0.36	0.7	6	34	51
711400		2.06		<0.01	0.01	<0.5	5.54	18	450	14.8	<2	0.16	<0.5	6	41	18
711401		1.93		<0.01	<0.01	<0.5	4.90	10	420	3.6	<2	0.16	<0.5	8	45	8
711402		1.37		<0.01	<0.01	<0.5	4.38	11	350	4.3	2	0.15	0.6	6	37	6
711403		1.59		0.10	0.01	0.8	3.95	25	310	18.8	2	0.45	17.0	5	29	67
711404		1.42	97.8	0.24	0.01	2.5	6.78	43	780	37.9	2	0.67	14.4	17	63	562
711405		2.11		<0.01	<0.01	<0.5	4.62	11	430	8.0	<2	0.23	<0.5	8	44	28
711406		1.62		<0.01	<0.01	<0.5	8.45	29	1060	8.5	<2	0.20	<0.5	16	82	21
711407		1.84		<0.01	<0.01	<0.5	5.96	18	690	6.2	<2	0.20	<0.5	10	55	15
711408		1.37		<0.01	0.01	<0.5	3.18	2000	210	4.1	2	0.13	0.6	5	23	13
711409		1.06		<0.01	<0.01	<0.5	3.42	5	260	13.7	2	0.28	5.1	4	23	56
711410		1.84		0.05	0.01	0.6	2.75	<5	190	7.9	<2	0.27	4.4	4	27	60
711411		1.72		<0.01	<0.01	<0.5	3.76	13	330	5.0	<2	0.15	<0.5	5	31	15
711412		1.79		<0.01	<0.01	<0.5	4.27	9	390	9.5	2	0.25	<0.5	6	36	12
711413		0.57		0.02	<0.01	2.0	3.99	11	370	17.2	2	0.38	45.4	5	35	117
711414		1.93		0.01	0.01	<0.5	2.68	<5	210	7.5	<2	0.26	5.2	3	24	26
711415		2.16		0.15	<0.01	<0.5	3.28	11	260	5.3	<2	0.31	3.2	5	23	25
711416		2.43		<0.01	<0.01	<0.5	3.98	11	330	4.1	<2	0.20	<0.5	6	36	9
711417		1.93		<0.01	<0.01	<0.5	2.73	<5	260	4.4	2	0.13	4.7	4	28	35
711418		2.16		<0.01	<0.01	<0.5	2.66	9	250	4.8	<2	0.11	1.0	3	21	19
711419		2.08		0.06	0.01	1.3	4.57	11	470	9.7	3	0.28	6.0	5	36	95
711420		2.02		0.07	<0.01	1.3	3.03	14	240	8.4	<2	1.22	29.3	6	29	47
711421		2.28		<0.01	<0.01	<0.5	3.98	5	380	6.0	<2	0.14	4.0	5	35	41
711422		2.20		<0.01	0.01	<0.5	5.14	17	540	7.1	2	0.15	0.5	8	49	16
711423		1.74		0.10	0.01	4.6	3.48	8	300	7.4	13	0.15	23.1	4	33	308
711424		1.98		<0.01	<0.01	<0.5	4.29	22	370	14.0	2	0.27	<0.5	5	36	18
711425		1.28		0.01	<0.01	0.7	8.60	124	880	13.7	5	0.17	0.6	14	78	56
711426		1.75		0.01	0.01	0.6	8.91	152	910	13.5	4	0.15	0.6	15	88	40
711427		1.86		<0.01	<0.01	<0.5	3.06	17	230	3.0	2	0.20	<0.5	4	32	7
711428		1.10		<0.01	<0.01	<0.5	2.89	10	170	2.9	<2	0.18	<0.5	4	31	10
711429		1.56		<0.01	<0.01	<0.5	3.26	10	220	3.2	<2	0.22	<0.5	6	34	6
711430		0.57		<0.01	<0.01	42.1	2.90	483	230	5.4	95	0.45	0.7	14	26	174
711431		1.77		<0.01	<0.01	<0.5	3.17	21	220	4.4	2	0.22	<0.5	5	33	14
711432		1.73		<0.01	<0.01	<0.5	3.24	16	260	8.8	<2	0.22	<0.5	4	31	26
711433		1.81		<0.01	<0.01	<0.5	9.96	52	1150	17.9	<2	0.31	<0.5	19	98	22
711434		1.01		<0.01	<0.01	<0.5	3.16	20	230	7.8	<2	0.14	0.8	3	28	33



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Sample Description	Method Analyte Units LOR	ME-ICP61 Fe %	ME-ICP61 Ga ppm	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm
711395		1.64	10	1.56	20	0.44	212	1	0.51	9	660	11	0.15	<5	5	55
711396		1.57	10	1.45	20	0.37	175	1	0.31	9	800	11	0.25	<5	4	45
711397		3.08	20	3.36	30	0.94	209	1	0.50	24	620	6	0.12	<5	11	60
711398		3.33	20	4.06	20	0.96	228	<1	0.52	23	570	6	0.08	<5	12	58
711399		1.73	10	1.79	20	0.43	284	2	0.27	12	410	8	0.21	<5	4	39
711400		2.24	10	1.97	30	0.62	179	1	1.14	14	540	8	0.06	<5	7	57
711401		2.66	10	1.78	30	0.69	468	<1	0.96	19	470	12	0.05	<5	7	57
711402		2.05	10	1.48	30	0.54	321	1	1.05	15	450	5	0.03	<5	6	48
711403		1.83	10	1.74	30	0.49	481	1	0.33	14	490	7	0.32	<5	5	53
711404		3.56	20	3.53	30	1.07	637	<1	0.37	36	600	9	0.58	<5	10	75
711405		2.55	10	1.93	30	0.70	418	1	0.68	22	740	5	0.15	<5	6	50
711406		3.93	20	4.42	30	1.29	507	1	0.39	38	710	10	0.04	<5	14	68
711407		2.88	20	2.78	30	0.92	433	1	0.44	27	540	13	0.07	<5	9	55
711408		1.60	10	0.93	20	0.27	303	1	0.03	8	390	4	0.18	<5	3	29
711409		1.54	10	1.32	20	0.35	287	1	0.67	10	390	4	0.15	<5	3	36
711410		1.48	10	0.88	20	0.29	284	1	0.76	9	360	3	0.14	<5	3	36
711411		1.79	10	1.30	30	0.43	361	1	0.86	14	450	3	0.07	<5	5	44
711412		2.00	10	1.43	30	0.48	577	1	0.88	15	490	5	0.09	<5	6	47
711413		1.96	10	1.88	30	0.41	571	2	0.18	10	570	9	0.49	<5	4	41
711414		1.34	10	0.86	20	0.22	344	2	0.15	8	360	6	0.17	<5	3	35
711415		1.41	10	1.17	20	0.25	456	1	0.03	11	450	8	0.24	<5	3	37
711416		1.76	10	1.18	30	0.35	726	1	0.15	11	520	8	0.06	<5	5	49
711417		1.59	10	1.16	20	0.29	619	1	0.02	8	400	14	0.20	<5	3	38
711418		1.46	10	1.15	20	0.27	642	1	0.02	8	390	20	0.10	<5	3	29
711419		1.68	10	2.42	30	0.49	548	1	0.06	16	620	9	0.44	<5	5	43
711420		4.31	10	1.24	20	0.73	4060	1	0.03	19	410	35	1.24	<5	3	50
711421		1.82	10	1.74	30	0.48	462	2	0.03	12	530	15	0.06	<5	5	49
711422		2.38	10	2.03	30	0.68	442	1	0.07	21	510	4	0.04	<5	7	69
711423		1.82	10	1.83	20	0.42	517	2	0.05	12	660	5	0.61	<5	4	33
711424		2.21	10	1.65	30	0.57	442	<1	0.18	14	430	3	0.07	<5	6	46
711425		3.86	20	3.93	40	1.19	454	1	0.23	32	660	6	1.13	<5	14	115
711426		3.61	30	4.33	30	1.15	320	1	0.26	45	670	17	1.81	<5	14	124
711427		1.66	10	1.10	30	0.35	229	1	0.02	10	870	7	0.12	<5	4	60
711428		1.52	10	0.81	20	0.33	195	1	0.03	10	770	4	0.11	<5	4	62
711429		1.62	10	0.99	30	0.37	237	1	0.03	10	950	4	0.04	<5	4	63
711430		3.04	10	1.30	20	0.37	337	1	0.07	18	770	70	1.77	<5	4	58
711431		1.63	10	1.06	30	0.41	278	1	0.04	12	890	5	0.07	<5	4	54
711432		1.69	10	1.34	20	0.45	330	2	0.05	10	820	2	0.18	<5	4	53
711433		4.84	30	4.72	40	1.48	762	1	0.17	53	810	8	0.17	<5	17	75
711434		1.86	10	1.59	20	0.47	540	1	0.04	8	370	2	0.32	<5	4	31



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Sample Description	Method Analyte Units LOR	ME-ICP61 Th ppm 20	ME-ICP61 Ti % 0.01	ME-ICP61 Ti ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
711395		<20	0.21	<10	<10	33	20	161	
711396		<20	0.20	<10	<10	28	20	271	
711397		20	0.40	<10	<10	74	30	139	
711398		<20	0.41	<10	<10	92	30	119	
711399		<20	0.21	<10	<10	28	760	60	
711400		<20	0.29	<10	<10	48	30	64	
711401		<20	0.30	<10	<10	43	10	101	
711402		<20	0.28	10	<10	37	10	144	
711403		<20	0.19	<10	<10	30	90	532	
711404		<20	0.37	<10	<10	71	40	261	
711405		<20	0.29	<10	<10	42	50	80	
711406		20	0.42	<10	<10	94	10	105	
711407		20	0.34	<10	<10	57	<10	60	
711408		<20	0.17	<10	<10	20	10	62	
711409		<20	0.17	<10	<10	21	20	215	
711410		<20	0.18	<10	<10	20	10	166	
711411		<20	0.24	<10	<10	29	10	55	
711412		<20	0.28	<10	<10	35	20	42	
711413		<20	0.21	<10	<10	26	10	1265	
711414		<20	0.15	<10	<10	17	10	215	
711415		<20	0.18	10	<10	20	20	169	
711416		<20	0.28	<10	<10	31	20	51	
711417		<20	0.18	10	<10	21	20	216	
711418		<20	0.15	<10	<10	19	20	61	
711419		<20	0.22	10	<10	33	20	259	
711420		<20	0.15	10	<10	19	20	1075	
711421		<20	0.28	<10	<10	32	20	188	
711422		20	0.32	<10	<10	49	20	82	
711423		<20	0.16	10	<10	26	30	780	
711424		<20	0.26	<10	<10	37	10	59	
711425		20	0.34	10	<10	88	20	96	
711426		<20	0.40	<10	<10	102	20	112	
711427		<20	0.26	<10	<10	26	10	37	
711428		<20	0.21	<10	<10	22	20	35	
711429		<20	0.24	10	<10	28	20	31	
711430		<20	0.13	<10	<10	21	30	70	
711431		<20	0.22	<10	<10	26	20	36	
711432		<20	0.18	<10	<10	24	10	36	
711433		20	0.49	<10	<10	116	20	115	
711434		<20	0.16	<10	<10	21	20	53	



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Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	PUL-QC Pass75um %	ME-XRF15d Sn %	ME-XRF15d WtO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm
711435		1.84		<0.01	<0.01	<0.5	5.69	31	530	10.1	2	0.19	0.5	7	47	33
711436		0.71		<0.01	0.01	<0.5	8.12	64	890	10.0	6	0.19	<0.5	12	79	11
711437		1.84		<0.01	0.01	<0.5	7.21	180	770	10.1	2	0.19	<0.5	13	71	27
711438		1.23		<0.01	<0.01	<0.5	5.56	45	500	7.0	<2	0.18	<0.5	8	48	25
711439		1.81		<0.01	0.01	0.6	6.16	31	580	9.3	2	0.16	0.6	9	48	49
711440		0.90		0.24	<0.01	43.6	5.75	37	540	9.3	61	0.17	68.3	11	53	2790
711441		2.46		<0.01	<0.01	<0.5	7.10	32	670	9.4	<2	0.23	<0.5	9	59	41
711442		2.06		<0.01	0.01	<0.5	6.04	29	650	18.9	<2	0.41	<0.5	10	54	21
711443		0.55		0.76	0.01	2.2	4.40	10	390	27.9	9	1.01	9.2	5	32	176
711444		1.06	98.2	<0.01	<0.01	<0.5	4.03	11	290	7.5	<2	0.24	<0.5	6	34	11
711445		2.25		0.11	0.01	0.7	7.27	129	760	34.8	<2	0.91	8.3	13	61	80
711446		0.39		0.02	<0.01	<0.5	6.56	19	710	15.3	2	0.32	0.6	8	62	71
711447		2.80		0.01	0.01	0.5	6.61	77	730	14.2	2	0.17	2.0	10	57	92
711448		0.64		0.50	0.17	84.8	2.80	163	230	5.6	105	0.16	357	10	17	896
711449		2.16		<0.01	<0.01	<0.5	5.83	24	510	22.6	3	0.62	6.0	8	46	50
711450		0.60		1.47	0.01	7.6	11.75	67	1250	21.4	21	0.43	61.2	8	104	121
711451		1.95		<0.01	<0.01	<0.5	5.31	29	510	11.5	3	0.28	0.8	8	45	24
711452		0.97		0.38	0.01	5.8	8.74	150	950	29.0	4	0.26	59.4	11	63	426
711453		1.80		<0.01	0.01	<0.5	7.33	61	790	42.6	<2	0.22	1.4	12	60	71
711454		2.33		0.01	<0.01	0.5	8.27	233	870	20.6	2	0.20	0.5	14	62	76
711455		1.30		<0.01	<0.01	<0.5	3.57	37	780	12.9	<2	0.28	<0.5	7	30	32
711456		2.97		<0.01	0.01	<0.5	7.06	30	780	10.0	2	0.31	<0.5	11	68	30
711457		2.86		<0.01	0.01	<0.5	6.74	25	680	7.8	<2	0.29	<0.5	11	55	28
711458		0.77		0.11	0.01	13.8	3.38	57	270	5.6	9	0.44	78.8	3	22	750
711459		1.67		0.12	0.01	2.3	3.76	103	260	6.8	2	1.24	47.2	3	32	167
711460		1.00		1.29	<0.01	20.6	3.12	154	170	5.3	14	2.66	50.0	<1	11	1030
711461		2.03		0.42	<0.01	80.0	3.01	71	230	5.4	30	0.49	162.5	3	26	4510
711462		1.49		<0.01	<0.01	<0.5	3.31	26	250	5.4	<2	0.24	0.7	5	32	27
711463		2.71		0.01	0.01	<0.5	5.00	53	430	8.7	3	0.26	4.4	8	38	46
711464		0.74		0.05	0.01	0.9	6.04	301	560	11.2	4	0.21	4.6	10	54	88
711465		1.51		0.01	<0.01	<0.5	3.62	90	150	6.4	2	1.01	1.3	6	35	31
711466		2.04		<0.01	<0.01	<0.5	7.81	167	890	10.7	<2	0.57	<0.5	16	77	36
711467		2.13		<0.01	<0.01	<0.5	3.24	8	290	1.7	<2	0.01	<0.5	3	28	11
711468		3.27		<0.01	<0.01	<0.5	5.64	22	640	5.0	2	0.02	<0.5	3	50	25
711469		3.36		<0.01	<0.01	<0.5	3.80	34	370	4.4	3	0.01	<0.5	2	40	15
711470		3.20		<0.01	<0.01	<0.5	5.74	37	600	5.8	3	0.02	<0.5	1	47	9
711471		2.78		<0.01	<0.01	<0.5	3.16	7	280	2.6	<2	0.04	<0.5	1	26	9
711472		3.22		<0.01	<0.01	<0.5	5.94	65	650	11.2	<2	0.01	<0.5	1	42	19
711473		1.69		<0.01	<0.01	<0.5	4.54	48	480	6.5	<2	0.01	<0.5	1	39	10
711474		1.76		0.07	<0.01	<0.5	4.77	150	540	9.6	4	0.01	<0.5	1	35	32



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711435		3.29	10	2.61	20	0.83	585	1	0.08	19	550	14	0.37	<5	7	54
711436		4.13	20	3.87	30	1.15	588	1	0.14	39	570	7	0.26	<5	14	63
711437		711437	20	3.46	30	0.99	530	1	0.15	32	660	6	0.27	<5	11	72
711438		2.85	10	2.18	30	0.68	577	1	0.10	26	510	6	0.28	<5	8	57
711439		2.34	20	2.77	30	0.72	395	1	0.12	26	550	5	0.45	<5	9	55
711440		4.38	10	2.50	30	0.74	594	1	0.13	29	560	100	2.25	<5	8	55
711441		2.95	20	2.97	30	0.81	717	1	0.12	26	580	3	0.18	<5	11	69
711442		2.85	10	2.63	30	0.88	423	1	0.68	28	580	5	0.13	<5	9	57
711443		2.02	10	1.91	20	0.53	371	1	0.43	14	500	9	0.24	<5	5	46
711444		1.73	10	1.24	30	0.45	259	2	1.14	11	440	6	0.06	<5	5	50
711445		3.93	20	3.41	30	1.04	1080	<1	0.23	34	800	23	0.69	<5	11	84
711446		3.38	20	3.28	20	0.92	636	1	0.22	32	840	6	0.59	<5	9	70
711447		2.78	20	3.37	30	0.94	664	1	0.21	31	590	6	0.79	<5	10	60
711448		6.23	10	1.32	10	0.29	924	2	0.06	14	510	58	5.20	<5	3	32
711449		2.79	20	2.47	30	0.78	572	1	0.22	22	510	8	0.28	<5	7	56
711450		3.99	40	6.00	30	1.32	1545	2	0.36	40	1680	17	0.78	<5	15	134
711451		2.96	10	2.36	30	0.80	440	1	0.07	19	440	2	0.03	<5	8	42
711452		3.73	20	4.70	30	1.24	1245	1	0.21	38	760	9	0.71	<5	11	64
711453		3.48	20	3.33	40	1.04	741	1	0.20	36	670	2	0.85	<5	12	71
711454		3.87	20	3.94	40	1.27	934	1	0.22	43	600	4	1.05	<5	13	82
711455		2.30	10	1.38	20	0.51	318	1	0.06	20	380	3	0.40	<5	4	42
711456		3.76	20	3.47	30	1.02	690	1	0.20	33	630	4	0.26	<5	10	56
711457		3.14	20	2.97	40	0.92	449	1	0.14	29	490	3	0.20	<5	10	57
711458		2.05	10	1.68	10	0.37	805	1	0.05	11	670	5	0.69	<5	3	27
711459		2.05	10	1.85	20	0.43	1120	1	0.05	13	1250	9	0.64	<5	4	81
711460		1.63	10	1.48	10	0.21	925	2	0.03	5	2050	10	0.39	<5	1	172
711461		2.70	10	1.59	20	0.34	878	1	0.04	11	1110	17	1.62	<5	3	39
711462		1.74	10	1.31	30	0.41	689	2	0.06	12	800	3	0.24	<5	3	48
711463		2.43	10	2.30	30	0.65	654	1	0.12	25	1110	6	0.76	<5	6	60
711464		2.68	20	3.00	30	0.80	931	1	0.13	29	850	4	0.87	<5	8	52
711465		2.16	10	1.14	30	0.48	723	1	0.03	14	860	13	0.25	<5	4	69
711466		4.07	20	3.77	30	1.06	1075	1	0.20	42	710	9	0.60	<5	12	82
711467		0.86	10	0.86	30	0.16	89	1	0.12	7	260	14	0.01	<5	4	22
711468		2.22	10	2.31	40	0.46	89	1	0.20	16	500	6	<0.01	<5	9	33
711469		1.67	10	1.36	30	0.29	74	2	0.07	13	350	5	0.02	<5	6	35
711470		1.50	10	2.21	40	0.43	101	1	0.08	9	530	7	<0.01	<5	8	54
711471		0.66	10	0.91	30	0.17	60	1	0.28	4	430	10	<0.01	<5	4	32
711472		1.77	10	3.08	40	0.65	320	<1	0.08	5	240	8	0.01	<5	8	36
711473		1.57	10	1.75	30	0.39	132	2	0.07	6	270	9	<0.01	<5	6	41
711474		1.40	10	2.48	30	0.51	323	1	0.06	5	230	10	0.01	<5	6	36



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Sample Description	Method Analyte Units LOR	ME-ICP61 Th ppm 20	ME-ICP61 Ti % 0.01	ME-ICP61 Ti ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
711435		<20	0.20	10	<10	44	20	70	
711436		20	0.37	<10	<10	95	30	76	
711437		<20	0.37	<10	<10	82	30	81	
711438		<20	0.29	<10	<10	51	40	63	
711439		<20	0.29	10	<10	55	40	90	
711440		<20	0.23	<10	<10	53	30	2190	
711441		20	0.34	<10	<10	68	50	100	
711442		<20	0.36	<10	<10	58	20	67	
711443		<20	0.22	<10	<10	29	80	309	
711444		<20	0.24	<10	<10	29	20	48	
711445		20	0.34	10	<10	70	40	267	
711446		<20	0.28	10	<10	62	30	120	
711447		<20	0.22	<10	<10	65	40	142	
711448		<20	0.07	10	<10	17	1340	>10000	1.175
711449		<20	0.31	10	<10	50	50	269	
711450		20	0.29	10	<10	113	20	2310	
711451		<20	0.29	10	<10	49	20	81	
711452		<20	0.26	<10	<10	74	30	2110	
711453		20	0.26	<10	<10	71	20	132	
711454		20	0.22	<10	<10	82	20	108	
711455		<20	0.13	<10	<10	30	20	63	
711456		20	0.40	10	<10	71	60	92	
711457		20	0.35	10	<10	65	40	78	
711458		<20	0.08	10	<10	18	10	2580	
711459		<20	0.12	10	<10	23	20	1640	
711460		<20	0.05	<10	<10	7	20	1660	
711461		<20	0.10	<10	<10	16	10	5160	
711462		<20	0.19	<10	<10	28	20	49	
711463		<20	0.25	<10	<10	41	30	191	
711464		20	0.23	<10	<10	52	30	218	
711465		<20	0.22	<10	10	29	30	70	
711466		20	0.40	10	<10	87	60	105	
711467		<20	0.22	<10	<10	24	<10	17	
711468		20	0.34	<10	<10	53	10	71	
711469		<20	0.26	<10	<10	37	10	49	
711470		20	0.35	10	<10	48	20	31	
711471		<20	0.22	<10	<10	23	10	13	
711472		<20	0.25	<10	<10	47	30	50	
711473		<20	0.28	<10	<10	38	20	38	
711474		<20	0.20	<10	<10	35	30	48	



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Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	PUL-QC Pass75um %	ME-XRF15d Sn %	ME-XRF15d WtO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm
711475		0.72		<0.01	<0.01	<0.5	4.97	63	450	10.6	2	0.02	<0.5	1	38	15
711476		2.03		0.04	<0.01	<0.5	3.05	22	290	5.4	2	0.07	<0.5	1	36	14
711477		1.39		0.01	<0.01	<0.5	4.24	38	330	8.0	2	0.15	0.7	2	40	37
711478		0.59		<0.01	<0.01	<0.5	2.63	29	220	5.2	<2	0.01	<0.5	1	25	9
711479		1.59		<0.01	<0.01	<0.5	5.53	22	550	7.2	<2	0.09	2.4	7	47	99
711480		1.64		<0.01	<0.01	<0.5	5.76	42	600	8.1	3	0.30	0.8	10	47	43
711481		2.14		<0.01	<0.01	<0.5	6.30	35	590	6.4	4	0.25	<0.5	11	54	19
711482		2.01		<0.01	<0.01	<0.5	3.06	15	230	4.1	<2	0.21	1.8	4	36	13
711483		2.49		0.01	<0.01	<0.5	5.04	48	490	9.3	<2	0.15	<0.5	7	43	38
711484		2.43	97.9	0.05	0.02	2.5	5.62	403	540	10.8	2	0.12	17.3	8	40	271
711485		2.05		0.01	<0.01	<0.5	6.50	59	660	11.1	<2	0.14	1.4	10	55	65
711486		2.38		0.04	0.01	0.6	6.68	141	660	12.1	<2	0.13	3.5	10	51	97
711487		1.63		0.04	<0.01	<0.5	2.86	20	200	4.1	<2	0.19	5.3	3	20	28
711488		1.91		0.01	<0.01	<0.5	7.00	59	750	12.3	<2	0.20	11.2	15	63	63
711489		1.71		0.04	<0.01	0.8	6.85	180	670	12.8	2	0.15	11.2	11	53	148
711490		1.91		0.21	<0.01	2.2	6.81	83	670	12.3	6	0.13	16.2	11	52	152
711491		1.59		0.03	<0.01	1.6	4.60	32	400	7.9	10	0.09	34.6	6	37	103
711492		1.96		0.02	<0.01	0.8	6.35	103	650	13.0	3	0.12	7.1	11	49	91
711493		2.05		0.12	0.01	7.3	6.14	180	610	12.5	16	0.13	34.1	12	44	321
711494		1.75		0.13	<0.01	6.6	5.50	64	490	10.3	14	0.12	25.8	8	42	387
711495		0.93		0.96	<0.01	2.1	4.92	78	360	9.6	2	0.13	28.4	5	29	164
711496		1.72		0.08	<0.01	2.6	7.01	237	690	15.2	6	0.28	29.2	14	58	124
711497		1.73		0.02	<0.01	<0.5	5.43	26	420	5.4	2	0.19	2.7	7	44	13
711498		2.07		0.04	<0.01	1.2	6.26	58	590	10.8	4	0.29	7.9	10	47	90
711499		1.82		0.02	<0.01	<0.5	6.96	140	680	13.6	4	0.39	1.4	11	54	54
711500		1.80		0.02	<0.01	<0.5	5.24	36	430	9.0	2	0.31	2.9	6	47	54
711501		2.57		0.05	<0.01	0.9	7.90	78	730	14.4	2	0.28	2.8	10	65	130
711502		2.39		0.02	<0.01	<0.5	7.54	60	760	16.7	2	0.40	21.0	17	68	82
711503		2.08		0.02	<0.01	<0.5	8.10	51	700	12.7	2	0.52	2.6	15	67	89
711504		1.83		<0.01	<0.01	<0.5	3.91	21	270	4.7	<2	0.47	0.9	7	39	25
711505		2.19		0.08	<0.01	2.4	7.49	82	700	13.0	4	0.23	11.7	12	57	151
711506		2.95		0.02	<0.01	<0.5	5.71	101	490	9.3	<2	0.13	1.2	10	46	73
711507		0.44		0.27	<0.01	1.7	5.85	960	880	11.3	3	0.27	4.3	8	36	88
711508		2.13		0.01	<0.01	<0.5	7.74	78	880	10.7	2	0.20	0.7	15	73	68
711509		2.01		<0.01	<0.01	<0.5	3.29	48	200	3.3	2	0.06	<0.5	4	23	21
711510		2.61		<0.01	<0.01	<0.5	2.95	21	180	2.2	<2	0.09	2.5	4	27	13
711511		2.27		0.01	<0.01	<0.5	6.29	50	670	7.0	2	0.14	1.0	9	56	26
711512		0.56		4.10	0.01	0.5	6.99	27	750	14.1	<2	0.10	9.5	8	51	56
711513		1.96		<0.01	<0.01	<0.5	3.30	14	230	2.4	3	0.11	<0.5	5	28	4
711514		2.60		0.01	<0.01	<0.5	6.69	365	690	9.1	3	0.11	0.9	12	52	58



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Sample Description	Method Analyte Units LOR	ME-ICP61 Fe %	ME-ICP61 Ga ppm	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm
711475		1.67	10	1.88	30	0.48	122	1	0.12	8	470	8	<0.01	<5	7	58
711476		1.09	10	1.35	30	0.26	139	1	0.04	4	490	2	0.01	<5	4	47
711477		1.20	10	1.60	30	0.34	107	1	0.06	6	420	6	0.05	<5	6	75
711478		1.13	10	1.05	20	0.20	191	2	0.03	3	230	6	0.02	<5	3	53
711479		1.74	10	2.27	30	0.45	83	1	0.07	21	600	5	0.09	<5	8	67
711480		2.37	10	2.53	30	0.66	321	2	0.11	29	650	6	0.26	<5	8	64
711481		2.84	20	2.38	30	0.68	550	<1	0.07	27	790	6	0.12	<5	9	85
711482		1.41	10	1.12	30	0.29	256	1	0.03	10	880	6	0.05	<5	4	58
711483		1.99	10	2.19	30	0.65	338	1	0.11	16	620	5	0.18	<5	7	72
711484		2.10	10	2.73	30	0.72	542	1	0.12	23	540	15	0.47	<5	7	58
711485		2.44	20	3.03	30	0.82	398	1	0.14	26	590	6	0.43	<5	9	78
711486		2.32	20	3.26	30	0.88	556	1	0.17	30	600	7	0.37	<5	9	90
711487		1.25	10	0.98	20	0.25	241	1	0.03	5	380	5	0.12	<5	3	38
711488		2.95	20	3.27	30	0.95	567	1	0.18	30	600	6	0.51	<5	10	69
711489		2.70	20	3.54	30	0.92	712	2	0.15	29	710	9	0.86	<5	9	73
711490		2.85	20	3.28	30	0.88	678	2	0.17	29	630	29	1.07	<5	9	83
711491		1.81	10	2.16	30	0.50	379	1	0.08	15	460	16	0.50	<5	5	55
711492		2.36	20	3.04	30	0.82	609	1	0.14	27	550	20	0.66	<5	8	76
711493		2.97	20	3.30	30	0.83	886	1	0.14	26	630	46	1.28	<5	8	59
711494		2.17	10	2.78	30	0.66	674	1	0.11	21	600	35	0.74	<5	7	59
711495		1.63	10	2.32	20	0.45	551	2	0.05	11	620	13	0.38	<5	5	48
711496		3.25	20	3.11	30	0.93	720	1	0.20	32	640	27	1.11	<5	10	84
711497		2.32	10	1.83	30	0.52	459	1	0.07	15	630	3	0.06	<5	7	65
711498		2.57	20	3.05	30	0.79	754	1	0.12	26	580	12	0.62	<5	8	60
711499		3.00	20	3.25	30	0.92	696	<1	0.16	29	560	4	0.57	<5	10	80
711500		2.39	10	2.21	30	0.64	431	1	0.11	21	580	7	0.46	<5	7	66
711501		3.09	20	3.82	30	1.06	707	1	0.23	34	650	6	0.82	<5	11	82
711502		2.19	10	3.96	30	1.09	687	<1	0.22	39	650	4	0.61	<5	11	87
711503		3.51	20	3.41	40	0.97	748	1	0.18	36	830	9	0.54	<5	12	107
711504		1.85	10	1.41	30	0.39	318	<1	0.04	17	1010	4	0.21	<5	5	74
711505		3.03	20	3.61	40	0.93	711	1	0.17	30	770	25	0.80	<5	10	92
711506		2.31	10	2.50	30	0.73	522	1	0.12	22	500	7	0.43	<5	8	62
711507		2.19	20	3.09	30	0.69	662	2	0.11	23	1300	39	0.74	<5	7	93
711508		3.72	20	3.90	30	1.02	668	1	0.16	42	690	11	0.56	<5	12	75
711509		0.72	10	1.04	20	0.20	93	1	0.02	12	280	28	0.09	<5	3	43
711510		1.05	10	0.80	20	0.20	151	1	0.02	9	350	40	0.05	<5	4	43
711511		2.61	20	2.58	30	0.72	498	1	0.09	27	480	7	0.24	<5	9	90
711512		2.24	20	3.96	30	0.86	608	1	0.11	28	490	6	0.33	<5	9	62
711513		1.49	10	0.87	20	0.26	227	1	0.02	11	360	11	0.03	<5	4	43
711514		2.32	20	2.83	30	0.77	372	1	0.11	28	510	3	0.31	<5	9	81



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711475		<20	0.28	<10	<10	43	10	28	
711476		20	0.25	<10	<10	26	30	27	
711477		<20	0.29	<10	<10	35	40	49	
711478		<20	0.19	<10	<10	19	20	21	
711479		<20	0.33	<10	<10	49	20	100	
711480		<20	0.30	10	<10	51	20	94	
711481		20	0.36	<10	<10	62	30	116	
711482		<20	0.22	<10	<10	25	10	118	
711483		<20	0.27	10	<10	45	20	97	
711484		<20	0.22	<10	<10	45	110	633	
711485		20	0.33	<10	<10	56	20	122	
711486		<20	0.21	10	<10	57	20	155	
711487		<20	0.15	<10	<10	18	20	177	
711488		20	0.31	10	<10	67	30	126	
711489		<20	0.21	10	<10	58	20	442	
711490		<20	0.20	10	<10	59	30	536	
711491		<20	0.19	10	<10	34	20	686	
711492		<20	0.23	<10	<10	53	20	196	
711493		<20	0.17	10	<10	49	70	1250	
711494		<20	0.17	10	<10	41	20	903	
711495		<20	0.17	<10	<10	26	40	1140	
711496		20	0.24	<10	<10	60	20	1060	
711497		<20	0.28	<10	<10	45	30	121	
711498		<20	0.21	<10	<10	51	30	380	
711499		<20	0.28	10	<10	60	20	134	
711500		<20	0.23	<10	<10	44	20	136	
711501		20	0.27	10	<10	72	20	191	
711502		<20	0.31	10	<10	78	20	982	
711503		20	0.38	<10	<10	77	60	217	
711504		<20	0.26	<10	<10	34	20	91	
711505		20	0.28	<10	<10	66	20	523	
711506		<20	0.21	<10	<10	48	20	106	
711507		<20	0.18	<10	<10	41	20	193	
711508		<20	0.38	10	<10	85	30	114	
711509		<20	0.19	<10	<10	21	10	49	
711510		<20	0.21	10	<10	24	20	99	
711511		20	0.35	<10	<10	64	20	96	
711512		<20	0.21	<10	<10	60	30	463	
711513		<20	0.20	<10	<10	25	10	73	
711514		20	0.31	<10	<10	62	40	148	



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**CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg	PUL-QC Pass/Sum %	ME-XRF15d Sn %	ME-XRF15d W03 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm
711515		0.81	0.01	0.09	<0.01	4.3	7.52	148	820	14.6	4	0.09	30.2	9	62	298
711516		1.71	0.01	0.01	<0.01	<0.5	5.18	46	370	5.6	<2	0.11	<0.5	6	35	16
711517		0.53	0.03	0.03	<0.01	1.0	7.03	105	710	11.7	6	0.08	24.3	14	54	91
711518		0.41	0.03	0.03	<0.01	<0.5	4.50	120	410	8.4	3	0.05	21.8	13	32	57
711519		1.48	0.04	0.04	<0.01	<0.5	3.92	9	300	4.8	<2	0.08	1.1	2	28	29
711520		0.61	0.18	0.18	0.01	13.6	3.77	17	350	7.4	10	0.06	32.3	7	24	1205
711521		2.09	0.02	0.02	0.01	0.7	8.69	41	940	13.8	3	0.11	26.0	16	69	86
711522		1.85	<0.01	<0.01	<0.01	<0.5	4.15	68	320	5.2	2	0.13	7.3	7	33	30
711523		2.00	0.01	0.01	<0.01	<0.5	7.78	105	870	11.9	3	0.15	25.4	17	60	57
711524		2.13	98.6	<0.01	<0.01	<0.5	4.14	38	360	3.5	<2	0.18	3.8	6	34	13
711525		2.01	<0.01	<0.01	<0.01	<0.5	5.90	33	650	9.4	<2	0.15	4.5	8	48	44
711526		1.53	0.02	0.02	<0.01	<0.5	7.16	36	830	11.0	<2	0.18	0.6	11	56	48
711527		1.94	0.01	0.01	<0.01	<0.5	6.35	90	710	8.7	2	0.15	2.6	13	60	29
711528		2.26	0.01	0.01	<0.01	0.5	6.00	157	710	10.5	3	0.21	1.5	10	50	59
711529		2.07	<0.01	<0.01	<0.01	<0.5	4.67	21	400	5.3	<2	0.18	<0.5	7	37	12



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**CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 Fe %	ME-ICP61 Ga ppm	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm
711515		3.03	20	4.19	30	1.01	631	1	0.14	38	490	7	1.04	<5	11	74
711516		1.36	10	1.66	30	0.42	175	1	0.05	15	470	6	0.15	<5	6	66
711517		2.42	20	3.45	40	0.79	369	2	0.12	39	450	13	0.61	<5	10	112
711518		1.30	10	2.28	30	0.48	290	2	0.05	25	270	30	0.18	<5	5	50
711519		0.83	10	1.43	30	0.32	110	1	0.05	9	400	2	0.08	<5	5	59
711520		1.94	10	1.99	20	0.43	269	1	0.05	21	330	7	0.87	<5	4	34
711521		2.48	20	3.98	40	0.98	363	1	0.20	44	610	7	0.64	<5	13	122
711522		1.05	10	1.38	30	0.32	135	1	0.04	19	500	4	0.11	<5	5	60
711523		2.43	20	3.46	40	0.90	332	1	0.17	40	610	4	0.37	<5	11	118
711524		1.56	10	1.36	30	0.34	224	1	0.03	12	470	6	0.09	<5	5	57
711525		2.21	20	2.53	30	0.71	301	1	0.12	24	540	2	0.38	<5	8	75
711526		2.49	20	3.09	30	0.91	328	<1	0.20	33	550	3	0.37	<5	10	107
711527		2.60	20	2.77	30	0.74	291	1	0.14	37	540	5	0.71	<5	10	93
711528		2.53	20	3.02	30	0.79	763	1	0.12	27	560	3	0.49	<5	8	84
711529		2.41	10	1.54	30	0.56	795	1	0.06	15	470	8	0.09	<5	6	73



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**CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 Th ppm 20	ME-ICP61 Ti % 0.01	ME-ICP61 Ti ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
711515		<20	0.18	10	<10	68	20	1070	
711516		<20	0.28	<10	<10	39	20	385	
711517		20	0.35	<10	<10	61	30	952	
711518		<20	0.21	<10	<10	33	20	861	
711519		<20	0.24	<10	<10	29	30	65	
711520		<20	0.14	<10	<10	24	20	939	
711521		20	0.36	10	<10	81	40	862	
711522		<20	0.28	<10	<10	32	30	195	
711523		20	0.39	<10	<10	73	30	512	
711524		<20	0.24	<10	<10	31	20	144	
711525		20	0.31	<10	<10	53	20	176	
711526		<20	0.34	<10	<10	68	20	323	
711527		20	0.37	10	<10	67	30	112	
711528		<20	0.32	<10	<10	53	20	116	
711529		<20	0.27	<10	<10	37	20	59	



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**CERTIFICATE OF ANALYSIS BU18037339**

<b>CERTIFICATE COMMENTS</b>	
<p>Applies to Method:</p>   <p>Applies to Method:</p>  <p>Applies to Method:</p>	<p style="text-align: center;"><b>ACCREDITATION COMMENTS</b></p> <p>NATA Accreditation covers the performance of this service but does not cover the performance of ALS Brisbane Sample Preparation. Corporate Accreditation No:825, Corporate Site No:818. Technical Signatory is Samantha Profke,ICPAES Supervising Chemist        ME-OG62 Zn-OG62</p> <p style="text-align: center;"><b>LABORATORY ADDRESSES</b></p> <p>Processed at ALS Brisbane located at 32 Shand Street, Stafford, Brisbane, QLD, Australia. Processed at ALS Brisbane Sample Preparation at 116 Delta Street, Geebung, QLD 4034, Australia        ME-ICP61 ME-OG62 Zn-OG62</p> <p>Processed at ALS Burnie located at 39 River Road, Burnie, TAS, Australia.        CRU-21 LEV-01 PUL-31b        PUL-QC WEI-21</p>

### **Appendix 3 Assay laboratory QAQC certificates**



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**QC CERTIFICATE BU18037339**

Project: TNT\_272004\_190218

This report is for 135 Drill Core samples submitted to our lab in Burnie, TAS, Australia on 20-FEB-2018.

The following have access to data associated with this certificate:

NICK CASTLEDEN

ROBERT REID

SAMPLE PREPARATION	
ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LEV-01	Waste Disposal Levy
CRU-21	Crush entire sample > 70% -6 mm
PUL-31b	Pulv. Lg split to >80% -75um
PUL-QC	Pulverizing QC Test

ANALYTICAL PROCEDURES		
ALS CODE	DESCRIPTION	INSTRUMENT
ME-OG62	Ore Grade Elements - Four Acid	ICP-AES
Zn-OG62	Ore Grade Zn - Four Acid	ICP-AES
ME-XRF15d	Sulphide BM Conc. by XRF	XRF
ME-ICP61	33 element four acid ICP-AES	ICP-AES

To: TNT MINES LTD  
 ATTN: NICK CASTLEDEN  
 SUITE 50  
 NARABANG WAY  
 BELROSE NSW 2085

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

\*\*\*\* See Appendix Page for comments regarding this certificate \*\*\*\*

**Signature:**

Ricky Gelston, Laboratory Manager, Burnie



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-XRF15d Sn %	ME-XRF15d WO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm	
CPB-2	Target Range - Lower Bound	0.02	<0.01														
	Upper Bound	<0.01	<0.01														
CZN-4	Target Range - Lower Bound	0.06	0.02														
	Upper Bound	0.03	<0.01														
GBM398-1	Target Range - Lower Bound	0.07	0.02														
	Upper Bound																
GBM908-10	Target Range - Lower Bound	2.9	7.32	57	1120	1.4	5	3.73	1.9	25	142	3520	5.46	20			
	Upper Bound	3.0	7.60	61	1160	1.4	<2	3.89	2.2	25	147	3680	5.74	20			
GBM908-10	Target Range - Lower Bound	1.8	6.40	43	930	<0.5	<2	3.36	0.6	23	125	3350	4.98	<10			
	Upper Bound	4.0	7.84	69	1280	2.5	5	4.12	2.8	30	155	3850	6.10	40			
GBM915-10	Target Range - Lower Bound	14.4	7.84	491	250	1.1	3	3.53	3.3	146	70	866	14.15	20			
	Upper Bound	14.2	8.09	508	260	1.1	5	3.59	3.3	150	71	877	14.60	30			
MRGeo08	Target Range - Lower Bound	12.5	6.82	442	200	<0.5	<2	3.14	1.5	133	62	843	12.65	<10			
	Upper Bound	16.3	8.36	552	290	2.3	6	3.86	3.7	165	78	971	15.50	50			
MRGeo08	Target Range - Lower Bound	4.4	7.78	36	1110	3.1	2	2.62	2.5	19	89	605	3.94	20			
	Upper Bound	4.4	6.67	37	1100	3.2	4	2.65	2.5	20	92	624	3.97	20			
NBS-2430	Target Range - Lower Bound	3.2	6.64	21	920	2.2	<2	2.35	1.1	17	81	586	3.55	<10			
	Upper Bound	5.7	8.14	45	1270	4.5	5	2.90	3.4	23	102	676	4.37	40			
NBS-2430	Target Range - Lower Bound	<0.01	70.1														
	Upper Bound	0.02	70.4														
NBS-2430	Target Range - Lower Bound	0.02	70.1														
	Upper Bound	<0.01	63.2														
NCSDC35002	Target Range - Lower Bound	0.02	77.3														
	Upper Bound	62.8	0.22														
NCSDC35002	Target Range - Lower Bound	62.3	0.22														
	Upper Bound	62.4	0.22														
NCSDC35002	Target Range - Lower Bound	59.4	0.15														
	Upper Bound	65.6	0.21														
NCSDC35009	Target Range - Lower Bound	0.98	<0.01														
	Upper Bound	0.87	<0.01														
	Upper Bound	0.99	0.02														

**STANDARDS**



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Method Analyte Units LOR	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %
CPB-2	2.07	50	1.80	781	57	2.13	2290	1000	2050	0.37	<5	17	304	20	0.65
Target Range - Lower Bound	2.17	50	1.90	823	59	2.26	2430	1050	2140	0.39	<5	18	318	20	0.68
Upper Bound	1.87	20	1.61	715	57	1.93	2020	880	1840	0.33	<5	14	260	<20	0.59
CZN-4	2.31	70	1.99	885	72	2.38	2470	1100	2260	0.43	12	20	320	60	0.74
Target Range - Lower Bound	0.78	10	1.55	1055	8	1.57	316	770	253	0.29	16	21	150	20	0.95
Upper Bound	0.80	10	1.58	1075	8	1.60	326	820	262	0.30	20	21	153	20	0.95
GBM398-1	0.68	<10	1.39	963	6	1.40	284	690	233	0.25	8	20	138	<20	0.85
Target Range - Lower Bound	0.86	40	1.72	1190	10	1.74	350	870	289	0.33	33	27	171	60	1.06
Upper Bound	3.09	30	1.33	547	15	1.94	692	1060	1095	0.30	5	12	316	20	0.50
MRGeo08	3.11	20	1.25	564	15	2.03	729	1050	1115	0.31	<5	10	313	20	0.51
Target Range - Lower Bound	2.79	<10	1.17	497	12	1.76	621	930	969	0.27	<5	10	276	<20	0.44
Upper Bound	3.43	60	1.45	619	18	2.18	761	1160	1190	0.35	15	15	340	60	0.56
NBS-2430															
NBS-2430															
NBS-2430															
Target Range - Lower Bound															
Upper Bound															
NCSDC35002															
NCSDC35002															
NCSDC35002															
Target Range - Lower Bound															
Upper Bound															
NCSDC35009															
Target Range - Lower Bound															
Upper Bound															

**STANDARDS**



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 Ti ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
CPB-2	Target Range - Lower Bound						
	Upper Bound						
CZN-4	Target Range - Lower Bound						
	Upper Bound						
GBM398-1	Target Range - Lower Bound						2.08
	Upper Bound						1.955
							2.10
GBM908-10	Target Range - Lower Bound	10	<10	138	<10	1050	
	Upper Bound	<10	<10	145	<10	1110	
GBM915-10	Target Range - Lower Bound	<10	<10	123	<10	939	
	Upper Bound	20	20	153	20	1150	
GBM915-10	Target Range - Lower Bound	<10	<10	276	<10	927	
	Upper Bound	<10	<10	276	<10	945	
MGeo08	Target Range - Lower Bound	<10	<10	253	<10	842	
	Upper Bound	20	20	312	20	1035	
MGeo08	Target Range - Lower Bound	<10	<10	109	<10	792	
	Upper Bound	<10	<10	113	<10	819	
NBS-2430	Target Range - Lower Bound	<10	<10	97	<10	722	
	Upper Bound	20	30	121	30	886	
NBS-2430	Target Range - Lower Bound						
	Upper Bound						
NCSDC35002	Target Range - Lower Bound						
	Upper Bound						
NCSDC35002	Target Range - Lower Bound						
	Upper Bound						
NCSDC35009	Target Range - Lower Bound						
	Upper Bound						

**STANDARDS**



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-XRF15d Sn %	ME-XRF15d WO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 As ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm
NCSDC70017		0.02	4.59													
Target Range - Lower Bound		<0.01	4.14													
Upper Bound		0.04	5.09													
OGGeo08				19.9	7.03	125	860	2.8	17	2.20	19.1	96	82	8130	5.31	20
OGGeo08				20.1	7.23	124	630	2.9	13	2.22	19.4	98	80	8360	5.38	20
Target Range - Lower Bound				17.7	6.07	102	700	1.8	6	1.98	16.2	86	78	7800	4.81	<10
Upper Bound				22.7	7.44	136	980	4.1	15	2.44	21.0	108	98	8980	5.91	40
OREAS 622		0.01	<0.01													
OREAS 622		0.02	<0.01													
Target Range - Lower Bound		<0.01	<0.01													
Upper Bound		0.02	0.02													
OREAS 97																
Target Range - Lower Bound																
Upper Bound																
OREAS-133b																
Target Range - Lower Bound																
Upper Bound																
BLANK				<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10
BLANK				<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	1	<1	<0.01	<10
BLANK				<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	<1	<1	<1	<0.01	<10
BLANK				<0.5	<0.01	<5	<10	<0.5	<2	<0.01	<0.5	1	<1	<1	<0.01	<10
Target Range - Lower Bound				1.0	0.02	10	20	1.0	4	0.02	1.0	2	2	2	0.02	20
Upper Bound																
BLANK		<0.01	<0.01													
BLANK		<0.01	<0.01													
BLANK		<0.01	<0.01													
BLANK		<0.01	<0.01													
Target Range - Lower Bound		<0.01	<0.01													
Upper Bound		0.02	0.02													
BLANK																
Target Range - Lower Bound																
Upper Bound																

**STANDARDS**

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Method Analyte Units LOR	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %	
<b>STANDARDS</b>																
NCSDC70017																
Target Range - Lower Bound																
Upper Bound																
OGGeo08	2.88	30	1.25	499	935	1.82	8770	860	7350	2.81	27	10	258	20	0.40	
OGGeo08	3.00	30	1.28	511	947	1.86	8940	890	7410	2.85	21	10	263	20	0.41	
Target Range - Lower Bound	2.59	<10	1.11	447	841	1.62	8000	760	6510	2.51	14	8	223	<20	0.35	
Upper Bound	3.19	60	1.38	557	1030	2.00	9770	950	7970	3.09	40	13	275	60	0.45	
OREAS 622																
OREAS 622																
Target Range - Lower Bound																
Upper Bound																
OREAS 97																
Target Range - Lower Bound																
Upper Bound																
OREAS-133b																
Target Range - Lower Bound																
Upper Bound																
<b>BLANKS</b>																
BLANK	<0.01	<10	<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	
BLANK	<0.01	<10	<0.01	<5	<1	<0.01	<1	10	<2	<0.01	<5	<1	1	<20	<0.01	
BLANK	<0.01	<10	<0.01	<5	1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	
BLANK	<0.01	<10	<0.01	<5	1	<0.01	<1	10	<2	<0.01	<5	<1	<1	<20	<0.01	
Target Range - Lower Bound	<0.01	<10	<0.01	<5	<1	<0.01	<1	<10	<2	<0.01	<5	<1	<1	<20	<0.01	
Upper Bound	0.02	20	0.02	10	2	0.02	2	20	4	0.02	10	2	2	40	0.02	
BLANK																
BLANK																
BLANK																
BLANK																
Target Range - Lower Bound																
Upper Bound																
BLANK																
Target Range - Lower Bound																
Upper Bound																



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 TI ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
NCSDC70017							
Target Range - Lower Bound		<10	10	88	<10	7110	
Upper Bound		<10	<10	89	<10	7220	
OGGeo08							
Target Range - Lower Bound		<10	<10	77	<10	6500	
Upper Bound		20	30	97	30	7950	
OREAS 622							
Target Range - Lower Bound							
Upper Bound							
OREAS 97							
Target Range - Lower Bound							0.067
Upper Bound							0.060
OREAS-133b							0.067
Target Range - Lower Bound							11.35
Upper Bound							10.95
							11.75
BLANK							
Target Range - Lower Bound		<10	<10	<1	<10	<2	
Upper Bound		<10	<10	<1	<10	<2	
BLANK							
Target Range - Lower Bound		<10	<10	<1	<10	<2	
Upper Bound		<10	<10	<1	<10	<2	
BLANK							
Target Range - Lower Bound		<10	<10	<1	<10	<2	
Upper Bound		20	20	2	20	4	
BLANK							
Target Range - Lower Bound							0.001
Upper Bound							<0.001
							0.002

**STANDARDS**

**BLANKS**



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**QC CERTIFICATE OF ANALYSIS BU18037339**

Method Analyte Units LOR	ME-XRF15d Sn %	ME-XRF15d WO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 AS ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm
711404	0.24	0.01	2.5	6.78	43	780	37.9	2	0.67	14.4	17	63	562	3.56	20
DUP	0.24	<0.01	2.4	6.62	39	750	35.7	4	0.63	13.8	16	60	533	3.43	20
Target Range - Lower Bound	0.22	<0.01	1.8	6.36	34	700	34.5	<2	0.61	12.9	15	57	527	3.31	<10
Upper Bound	0.26	0.02	3.1	7.05	48	830	39.1	4	0.69	15.3	18	66	568	3.68	30
711419	1.3		1.3	4.57	11	470	9.7	3	0.28	6.0	5	36	95	1.68	10
DUP	1.3		1.3	4.33	13	440	9.1	5	0.26	5.5	5	35	91	1.60	10
Target Range - Lower Bound	0.7		0.7	4.22	6	410	8.4	<2	0.25	5.0	4	33	89	1.55	<10
Upper Bound	1.9		1.9	4.68	18	500	10.4	6	0.29	6.5	6	38	97	1.73	20
711424	<0.01		<0.01												
DUP	<0.01		<0.01												
Target Range - Lower Bound	<0.01		<0.01												
Upper Bound	0.02		0.02												
711439	0.6		0.6	6.16	31	580	9.3	2	0.16	0.6	9	48	49	2.34	20
DUP	0.6		0.6	5.97	42	580	9.3	<2	0.16	0.7	9	48	51	2.35	20
Target Range - Lower Bound	<0.5		<0.5	5.75	30	530	8.3	<2	0.14	<0.5	8	45	47	2.22	<10
Upper Bound	1.0		1.0	6.38	43	630	10.3	4	0.18	1.0	10	51	53	2.47	30
711447	0.01		0.01												
DUP	0.01		0.01												
Target Range - Lower Bound	<0.01		<0.01												
Upper Bound	0.02		0.02												
711454	0.5		0.5	8.27	233	870	20.6	2	0.20	0.5	14	62	76	3.87	20
DUP	0.5		0.5	7.92	220	840	20.3	<2	0.20	0.5	14	60	75	3.76	20
Target Range - Lower Bound	<0.5		<0.5	7.68	210	780	18.9	<2	0.18	<0.5	12	57	72	3.61	<10
Upper Bound	1.0		1.0	8.51	243	930	22.0	4	0.22	1.0	16	65	79	4.02	30
711467	<0.01		<0.01												
DUP	<0.01		<0.01												
Target Range - Lower Bound	<0.01		<0.01												
Upper Bound	0.02		0.02												
711474	<0.5		<0.5	4.77	150	540	9.6	4	0.01	<0.5	1	35	32	1.40	10
DUP	<0.5		<0.5	4.79	146	540	9.8	4	0.01	<0.5	1	35	33	1.39	10
Target Range - Lower Bound	<0.5		<0.5	4.53	136	490	8.7	<2	<0.01	<0.5	<1	32	30	1.32	<10
Upper Bound	1.0		1.0	5.03	160	590	10.7	6	0.02	1.0	2	38	35	1.47	20

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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 K % 0.01	ME-ICP61 La ppm 10	ME-ICP61 Mg % 0.01	ME-ICP61 Mn ppm 5	ME-ICP61 Mo ppm 1	ME-ICP61 Na % 0.01	ME-ICP61 Ni ppm 1	ME-ICP61 P ppm 10	ME-ICP61 Pb ppm 2	ME-ICP61 S % 0.01	ME-ICP61 Sb ppm 5	ME-ICP61 Sc ppm 1	ME-ICP61 Sr ppm 1	ME-ICP61 Th ppm 20	ME-ICP61 Ti % 0.01
711404	DUP	3.53	30	1.07	637	<1	0.37	36	600	9	0.58	<5	10	75	20	0.37
	Target Range - Lower Bound	3.38	30	1.04	601	<1	0.36	35	600	7	0.57	<5	10	72	<20	0.36
	Upper Bound	3.27	20	0.99	583	<1	0.34	33	560	6	0.54	<5	9	69	<20	0.34
		3.64	40	1.12	655	2	0.39	38	640	10	0.61	10	12	78	40	0.39
711419	DUP	2.42	30	0.49	548	1	0.06	16	620	9	0.44	<5	5	43	<20	0.22
	Target Range - Lower Bound	2.27	30	0.46	521	1	0.06	15	580	10	0.42	<5	5	41	<20	0.20
	Upper Bound	2.22	20	0.44	503	<1	0.05	14	560	7	0.40	<5	4	39	<20	0.19
		2.47	40	0.51	566	2	0.07	17	640	12	0.46	10	6	45	40	0.23
711424	DUP															
	Target Range - Lower Bound															
	Upper Bound															
711439	DUP	2.77	30	0.72	395	1	0.12	26	550	5	0.45	<5	9	55	<20	0.29
	Target Range - Lower Bound	2.81	30	0.72	393	<1	0.12	27	570	5	0.46	<5	8	54	<20	0.30
	Upper Bound	2.64	20	0.67	369	<1	0.10	24	520	3	0.42	<5	7	51	<20	0.27
		2.94	40	0.77	419	2	0.14	29	600	7	0.49	10	10	58	40	0.32
711447	DUP															
	Target Range - Lower Bound															
	Upper Bound															
711454	DUP	3.94	40	1.27	934	1	0.22	43	600	4	1.05	<5	13	82	20	0.22
	Target Range - Lower Bound	3.86	30	1.22	911	<1	0.22	42	600	5	1.02	<5	12	80	<20	0.22
	Upper Bound	3.70	20	1.17	871	<1	0.20	39	560	<2	0.97	<5	11	76	<20	0.20
		4.11	50	1.32	974	2	0.24	46	640	7	1.10	10	14	86	40	0.24
711467	DUP															
	Target Range - Lower Bound															
	Upper Bound															
711474	DUP	2.48	30	0.51	323	1	0.06	5	230	10	0.01	<5	6	36	<20	0.20
	Target Range - Lower Bound	2.54	30	0.51	329	1	0.06	4	210	13	0.01	<5	6	37	<20	0.21
	Upper Bound	2.37	20	0.47	305	<1	0.05	3	200	9	<0.01	<5	5	34	<20	0.18
		2.65	40	0.55	347	2	0.07	6	240	14	0.02	10	7	39	40	0.23

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Sample Description	Method Analyte Units LOR	ME-ICP61 TI ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
711404 DUP Target Range - Lower Bound Upper Bound		<10 <10 <10 20	<10 <10 <10 20	71 70 66 75	40 40 30 50	261 248 240 269	
711419 DUP Target Range - Lower Bound Upper Bound		10 <10 <10 20	<10 <10 <10 20	33 31 29 35	20 20 <10 30	259 242 236 265	
711424 DUP Target Range - Lower Bound Upper Bound							
711439 DUP Target Range - Lower Bound Upper Bound		10 10 <10 20	<10 <10 <10 20	55 56 52 59	40 40 30 50	90 91 84 97	
711447 DUP Target Range - Lower Bound Upper Bound							
711454 DUP Target Range - Lower Bound Upper Bound		<10 <10 <10 20	<10 <10 <10 20	82 79 75 86	20 20 <10 30	108 106 100 114	
711467 DUP Target Range - Lower Bound Upper Bound							
711474 DUP Target Range - Lower Bound Upper Bound		<10 <10 <10 20	<10 <10 <10 20	35 34 32 37	30 30 20 40	48 48 44 52	

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Method Analyte Units LOR	ME-XRF15d Sn %	ME-XRF15d WO3 %	ME-ICP61 Ag ppm	ME-ICP61 Al %	ME-ICP61 AS ppm	ME-ICP61 Ba ppm	ME-ICP61 Be ppm	ME-ICP61 Bi ppm	ME-ICP61 Ca %	ME-ICP61 Cd ppm	ME-ICP61 Co ppm	ME-ICP61 Cr ppm	ME-ICP61 Cu ppm	ME-ICP61 Fe %	ME-ICP61 Ga ppm
711489			0.8	6.85	180	670	12.8	2	0.15	11.2	11	53	148	2.70	20
DUP			0.8	6.74	174	650	12.4	3	0.15	10.7	10	51	148	2.62	20
Target Range - Lower Bound			<0.5	6.45	163	600	11.5	<2	0.13	9.9	9	48	142	2.52	<10
Upper Bound			1.0	7.14	191	720	13.7	4	0.17	12.0	12	56	154	2.80	30
711490			<0.01	<0.01											
DUP			0.21	0.21											
Target Range - Lower Bound			<0.01	<0.01											
Upper Bound			0.23	0.02											
711509			<0.5	3.29	48	200	3.3	2	0.06	<0.5	4	23	21	0.72	10
DUP			<0.5	3.34	46	200	3.3	<2	0.06	<0.5	3	24	22	0.73	10
Target Range - Lower Bound			<0.5	3.14	40	180	2.6	<2	0.05	<0.5	2	21	20	0.68	<10
Upper Bound			1.0	3.49	54	230	4.0	4	0.07	1.0	5	26	23	0.77	20
711510			<0.01	<0.01											
DUP			<0.01	<0.01											
Target Range - Lower Bound			<0.01	<0.01											
Upper Bound			0.02	0.02											
711524			<0.5	4.14	38	360	3.5	<2	0.18	3.8	6	34	13	1.56	10
DUP			<0.5	4.10	36	350	3.5	<2	0.18	3.7	6	33	12	1.56	10
Target Range - Lower Bound			<0.5	3.90	30	320	2.8	<2	0.16	3.1	5	31	11	1.47	<10
Upper Bound			1.0	4.34	44	390	4.2	4	0.20	4.4	7	36	14	1.65	20
ORIGINAL			<0.01	<0.01											
DUP			0.01	<0.01											
Target Range - Lower Bound			<0.01	<0.01											
Upper Bound			0.02	0.02											
ORIGINAL			<0.01	<0.01											
DUP			0.01	<0.01											
Target Range - Lower Bound			<0.01	<0.01											
Upper Bound			0.02	0.02											

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Method Analyte Units LOR	ME-ICP61 K %	ME-ICP61 La ppm	ME-ICP61 Mg %	ME-ICP61 Mn ppm	ME-ICP61 Mo ppm	ME-ICP61 Na %	ME-ICP61 Ni ppm	ME-ICP61 P ppm	ME-ICP61 Pb ppm	ME-ICP61 S %	ME-ICP61 Sb ppm	ME-ICP61 Sc ppm	ME-ICP61 Sr ppm	ME-ICP61 Th ppm	ME-ICP61 Ti %
711489	3.54	30	0.92	712	2	0.15	29	710	9	0.86	<5	9	73	<20	0.21
DUP	3.49	30	0.88	680	1	0.15	30	680	10	0.84	<5	9	73	<20	0.20
Target Range - Lower Bound	3.33	20	0.85	656	<1	0.13	27	650	7	0.80	<5	8	68	<20	0.18
Upper Bound	3.70	40	0.96	736	2	0.17	32	740	12	0.90	10	10	78	40	0.23
711490															
DUP															
Target Range - Lower Bound															
Upper Bound															
711509	1.04	20	0.20	93	1	0.02	12	280	28	0.09	<5	3	43	<20	0.19
DUP	1.05	20	0.20	97	1	0.02	12	270	27	0.09	<5	4	43	<20	0.20
Target Range - Lower Bound	0.98	<10	0.18	85	<1	<0.01	10	250	24	0.08	<5	2	40	<20	0.18
Upper Bound	1.11	30	0.22	105	2	0.03	14	300	31	0.10	10	5	46	40	0.21
711510															
DUP															
Target Range - Lower Bound															
Upper Bound															
711524	1.36	30	0.34	224	1	0.03	12	470	6	0.09	<5	5	57	<20	0.24
DUP	1.37	30	0.34	227	1	0.03	13	480	5	0.09	<5	5	56	<20	0.25
Target Range - Lower Bound	1.29	20	0.31	209	<1	0.02	11	440	3	0.08	<5	4	53	<20	0.22
Upper Bound	1.44	40	0.37	242	2	0.04	14	510	8	0.10	10	6	60	40	0.27
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															
ORIGINAL															
DUP															
Target Range - Lower Bound															
Upper Bound															

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**QC CERTIFICATE OF ANALYSIS BU18037339**

Sample Description	Method Analyte Units LOR	ME-ICP61 Ti ppm 10	ME-ICP61 U ppm 10	ME-ICP61 V ppm 1	ME-ICP61 W ppm 10	ME-ICP61 Zn ppm 2	Zn-OG62 Zn % 0.001
711489 DUP Target Range - Lower Bound Upper Bound		10 10 <10 20	<10 <10 <10 20	58 55 53 60	20 20 <10 30	442 427 411 458	
711490 DUP Target Range - Lower Bound Upper Bound							
711509 DUP Target Range - Lower Bound Upper Bound		<10 <10 <10 20	<10 <10 <10 20	21 22 19 24	10 10 <10 20	49 55 47 57	
711510 DUP Target Range - Lower Bound Upper Bound							
711524 DUP Target Range - Lower Bound Upper Bound		<10 <10 <10 20	<10 <10 <10 20	31 31 28 34	20 20 <10 30	144 142 134 152	
ORIGINAL DUP Target Range - Lower Bound Upper Bound							3.74 3.85 3.70 3.89
ORIGINAL DUP Target Range - Lower Bound Upper Bound							

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### CERTIFICATE COMMENTS

#### ACCREDITATION COMMENTS

NATA Accreditation covers the performance of this service but does not cover the performance of ALS Brisbane Sample Preparation. Corporate Accreditation No:825, Corporate Site No:818. Technical Signatory is Samantha Profke,ICPAES Supervising Chemist  
ME-ICP61 ME-OG62 Zn-OG62

#### LABORATORY ADDRESSES

Processed at ALS Brisbane located at 32 Shand Street, Stafford, Brisbane, QLD, Australia. Processed at ALS Brisbane Sample Preparation at 116 Delta Street, Geebung, QLD 4034, Australia  
ME-ICP61 ME-OG62 Zn-OG62

Processed at ALS Burnie located at 39 River Road, Burnie, TAS, Australia.  
CRU-21 LEV-01 ME-XRF15d  
PUL-QC WEI-21 PUL-31b

Applies to Method:

Applies to Method:

Applies to Method:

## Appendix 4 Core recovery data

Drill Core Recovery & RQD Log								
Hole_ID	From	To	Interval	Measured	Recovery%	Lengths>10cm	RQD %	Comments
LDD002	3.00	3.60	0.60	0.60	100.00	0.00	0	
LDD002	3.60	4.50	0.90	0.90	100.00	0.13	14.4	
LDD002	4.50	5.10	0.60	0.48	80.00	0.00	0.0	
LDD002	5.10	5.40	0.30	0.25	83.33	0.00	0.0	
LDD002	5.40	6.60	1.20	1.03	85.83	0.11	9.2	
LDD002	6.60	7.60	1.00	1.00	100.00	0.34	34.0	
LDD002	7.60	8.50	0.90	0.70	77.78	0.10	11.1	
LDD002	8.50	9.90	1.40	1.39	99.29	0.00	0.0	
LDD002	9.90	10.30	0.40	0.42	105.00	0.00	0.0	
LDD002	10.30	10.60	0.30	0.30	100.00	0.00	0.0	
LDD002	10.60	11.00	0.40	0.37	92.50	0.00	0.0	
LDD002	11.00	11.70	0.70	0.70	100.00	0.00	0.0	
LDD002	11.70	12.10	0.40	0.50	125.00	0.13	32.5	
LDD002	12.10	13.00	0.90	0.90	100.00	0.40	44.4	
LDD002	13.00	13.40	0.40	0.30	75.00	0.00	0.0	
LDD002	13.40	14.20	0.80	1.01	126.25	0.10	12.5	
LDD002	14.20	14.60	0.40	0.40	100.00	0.26	65.0	
LDD002	14.60	16.80	2.20	1.35	61.36	0.40	18.2	
LDD002	16.80	19.00	2.20	2.33	105.91	1.67	75.9	
LDD002	19.00	20.60	1.60	1.55	96.87	1.50	93.7	
LDD002	20.60	23.40	2.80	2.81	100.36	2.13	76.1	
LDD002	23.40	24.70	1.30	1.33	102.31	0.91	70.0	
LDD002	24.70	26.00	1.30	1.38	106.15	0.58	44.6	
LDD002	26.00	29.10	3.10	3.18	102.58	2.75	88.7	
LDD002	29.10	32.20	3.10	3.12	100.65	2.77	89.4	
LDD002	32.20	35.30	3.10	3.13	100.97	2.42	78.1	
LDD002	35.30	38.40	3.10	3.10	100.00	2.76	89.0	
LDD002	38.40	39.70	1.30	1.22	93.85	1.07	82.3	
LDD002	39.70	40.20	0.50	0.55	110.00	0.55	110.0	
LDD002	40.20	43.80	3.60	3.70	102.78	3.00	83.3	
LDD002	43.80	44.60	0.80	0.85	106.25	0.85	106.2	
LDD002	44.60	47.60	3.00	3.00	100.00	3.00	100.0	
LDD002	47.60	48.50	0.90	0.87	96.67	0.68	75.6	
LDD002	48.50	49.30	0.80	0.95	118.75	0.77	96.3	
LDD002	49.30	50.60	1.30	1.30	100.00	1.30	100.0	
LDD002	50.60	53.60	3.00	3.05	101.67	2.72	90.7	
LDD002	53.60	55.80	2.20	2.57	116.82	2.37	107.7	
LDD002	55.80	57.80	2.00	1.78	89.00	1.66	83.0	
LDD002	57.80	59.60	1.80	2.20	122.22	1.67	92.8	
LDD002	59.60	61.70	2.10	2.22	105.71	1.00	47.6	
LDD002	61.70	62.90	1.20	1.13	94.17	0.30	25.0	
LDD002	62.90	64.40	1.50	1.00	66.67	0.37	24.7	
LDD002	64.40	65.40	1.00	0.85	85.00	0.00	0.0	
LDD002	65.40	66.10	0.70	0.75	107.14	0.30	42.9	
LDD002	66.10	68.00	1.90	1.90	100.00	0.91	47.9	
LDD002	68.00	68.90	0.90	0.78	86.67	0.17	18.9	
LDD002	68.90	70.10	1.20	1.12	93.33	0.70	58.3	

### Drill Core Recovery & RQD Log

Hole_ID	From	To	Interval	Measured	Recovery%	Lengths>10cm	RQD %	Comments
LDD002	70.10	71.60	1.50	1.50	100.00	1.45	96.7	
LDD002	71.60	74.60	3.00	2.95	98.33	2.55	85.0	
LDD002	74.60	77.30	2.70	2.80	103.70	2.16	80.0	
LDD002	77.30	79.40	2.10	2.10	100.00	1.57	74.8	
LDD002	79.40	80.60	1.20	1.17	97.50	0.56	46.7	
LDD002	80.60	81.80	1.20	1.30	108.33	0.90	75.0	
LDD002	81.80	83.60	1.80	1.80	100.00	1.63	90.6	
LDD002	83.60	86.60	3.00	2.98	99.33	2.35	78.3	
LDD002	86.60	87.60	1.00	1.09	109.00	0.70	70.0	
LDD002	87.60	89.60	2.00	1.90	95.00	1.57	78.5	
LDD002	89.60	92.10	2.50	2.49	99.60	2.03	81.2	
LDD002	92.10	95.10	3.00	3.00	100.00	2.21	73.7	
LDD002	95.10	98.20	3.10	3.10	100.00	2.76	89.0	
LDD002	98.20	101.30	3.10	2.95	95.16	2.41	77.7	
LDD002	101.30	101.70	0.40	0.37	92.50	0.00	0.0	
LDD002	101.70	103.70	2.00	1.98	99.00	0.89	44.5	
LDD002	103.70	105.70	2.00	2.10	105.00	0.72	36.0	
LDD002	105.70	107.60	1.90	1.77	93.16	1.39	73.2	
LDD002	107.60	110.60	3.00	3.00	100.00	2.39	79.7	
LDD002	110.60	113.60	3.00	2.95	98.33	2.17	72.3	
LDD002	113.60	116.60	3.00	3.05	101.67	2.67	89.0	
LDD002	116.60	119.60	3.00	2.96	98.67	2.96	98.7	
LDD002	119.60	122.60	3.00	3.01	100.33	2.78	92.7	
LDD002	122.60	125.60	3.00	3.01	100.33	2.80	93.3	
LDD002	125.60	128.60	3.00	2.96	98.67	2.86	95.3	
LDD002	128.60	131.60	3.00	3.00	100.00	2.36	78.7	
LDD002	131.60	134.60	3.00	2.99	99.67	2.57	85.7	
LDD002	134.60	137.60	3.00	2.97	99.00	2.42	80.7	
LDD002	137.60	140.60	3.00	2.95	98.33	2.51	83.7	
LDD002	140.60	142.50	1.90	1.69	88.95	0.73	38.4	
LDD002	142.50	144.20	1.70	1.72	101.18	1.51	88.8	
LDD002	144.20	144.40	0.20	0.18	90.00	0.00	0.0	
LDD002	144.40	146.60	2.20	2.20	100.00	1.76	80.0	
LDD002	146.60	149.60	3.00	2.88	96.00	1.99	66.3	
LDD002	149.60	151.90	2.30	2.17	94.35	1.56	67.8	
LDD002	151.90	152.10	0.20	0.10	50.00	0.00	0.0	
LDD002	152.10	153.10	1.00	1.00	100.00	0.15	15.0	
LDD002	153.10	154.50	1.40	1.30	92.86	1.12	80.0	
LDD002	154.50	155.60	1.10	0.84	76.36	0.75	68.2	
LDD002	155.60	156.50	0.90	1.00	111.11	0.88	97.8	
LDD002	156.50	158.60	2.10	2.15	102.38	1.85	88.1	
LDD002	158.60	160.10	1.50	1.49	99.33	1.16	77.3	
LDD002	160.10	161.60	1.50	1.40	93.33	1.22	81.3	
LDD002	161.60	162.90	1.30	1.33	102.31	1.19	91.5	
LDD002	162.90	164.60	1.70	1.87	110.00	1.94	114.1	
LDD002	164.60	167.60	3.00	2.97	99.00	2.98	99.3	
LDD002	167.60	170.60	3.00	3.07	102.33	2.91	97.0	

### Drill Core Recovery & RQD Log

Hole_ID	From	To	Interval	Measured	Recovery%	Lengths>10cm	RQD %	Comments
LDD002	170.60	173.60	3.00	3.00	100.00	3.00	100.0	
LDD002	173.60	175.70	2.10	2.16	102.86	2.09	99.5	
LDD002	175.70	179.60	3.90	3.75	96.15	3.50	89.7	
LDD002	179.60	182.60	3.00	3.05	101.67	3.05	101.7	
LDD002	182.60	184.80	2.20	2.26	102.73	1.56	70.9	
LDD002	184.80	186.00	1.20	1.20	100.00	0.30	25.0	
LDD002	186.00	187.00	1.00	0.80	80.00	0.49	49.0	
LDD002	187.00	188.10	1.10	1.30	118.18	0.60	54.5	
LDD002	188.10	190.10	2.00	2.10	105.00	0.90	45.0	
LDD003	0.00	3.00	3.00	0.00	0.0	0.00	0.0	
LDD003	3.00	4.30	1.30	1.18	90.8	1.00	76.9	
LDD003	4.30	5.80	1.50	1.57	104.7	1.08	72.0	
LDD003	5.80	6.50	0.70	0.68	97.1	0.00	0.0	
LDD003	6.50	8.10	1.60	1.57	98.1	0.97	60.6	
LDD003	8.10	8.80	0.70	0.66	94.3	0.48	68.6	
LDD003	8.80	11.30	2.50	1.92	76.8	1.19	47.6	
LDD003	11.30	11.70	0.40	0.35	87.5	0.00	0.0	
LDD003	11.70	12.60	0.90	0.82	91.1	0.28	31.1	
LDD003	12.60	14.20	1.60	1.67	104.4	0.82	51.3	
LDD003	14.20	15.30	1.10	1.20	109.1	0.49	44.6	
LDD003	15.30	16.50	1.20	1.03	85.8	0.12	10.0	
LDD003	16.50	17.40	0.90	0.79	87.8	0.13	14.4	
LDD003	17.40	18.80	1.40	1.31	93.6	0.53	37.9	
LDD003	18.80	20.00	1.20	1.00	83.3	0.34	28.3	
LDD003	20.00	21.10	1.10	1.02	92.7	0.14	12.7	
LDD003	21.10	22.70	1.60	1.59	99.4	0.44	27.5	
LDD003	22.70	23.50	0.80	0.62	77.5	0.13	16.3	
LDD003	23.50	25.20	1.70	1.17	68.8	0.23	13.5	
LDD003	25.20	26.60	1.40	1.31	93.6	0.52	37.1	
LDD003	26.60	27.60	1.00	0.51	51.0	0.23	23.0	
LDD003	27.60	30.40	2.80	0.40	14.3	0.10	3.6	
LDD003	30.40	31.70	1.30	1.26	96.9	0.70	53.9	
LDD003	31.70	33.40	1.70	1.70	100.0	0.49	28.8	
LDD003	33.40	34.00	0.60	0.54	90.0	0.00	0.0	
LDD003	34.00	35.50	1.50	1.65	110.0	0.31	20.7	
LDD003	35.50	37.00	1.50	1.29	86.0	0.45	30.0	
LDD003	37.00	37.50	0.50	0.39	78.0	0.00	0.0	
LDD003	37.50	38.50	1.00	0.97	97.0	0.12	12.0	
LDD003	38.50	39.90	1.40	1.35	96.4	0.48	34.3	
LDD003	39.90	40.80	0.90	0.79	87.8	0.00	0.0	
LDD003	40.80	41.20	0.40	0.47	117.5	0.11	27.5	
LDD003	41.20	41.60	0.40	0.35	87.5	0.00	0.0	
LDD003	41.60	42.70	1.10	0.87	79.1	0.00	0.0	
LDD003	42.70	44.90	2.20	2.20	100.0	1.02	46.4	
LDD003	44.90	46.90	2.00	2.42	121.0	1.17	58.5	
LDD003	46.90	49.90	3.00	3.07	102.3	1.81	60.3	
LDD003	49.90	51.10	1.20	1.20	100.0	0.88	73.3	
LDD003	51.10	53.50	2.40	2.50	104.2	1.25	52.1	
LDD003	53.50	54.40	0.90	0.67	74.4	0.14	15.6	
LDD003	54.40	56.20	1.80	1.91	106.1	1.44	80.0	
LDD003	56.20	59.30	3.10	3.05	98.4	2.86	92.3	
LDD003	59.30	62.30	3.00	3.09	103.0	2.95	98.3	

### Drill Core Recovery & RQD Log

Hole_ID	From	To	Interval	Measured	Recovery%	Lengths>10cm	RQD %	Comments
LDD003	62.30	64.40	2.10	1.97	93.8	1.37	65.2	
LDD003	64.40	66.10	1.70	1.77	104.1	1.58	92.9	
LDD003	66.10	69.10	3.00	3.05	101.7	2.69	89.7	
LDD003	69.10	72.10	3.00	2.99	99.7	2.45	81.7	
LDD003	72.10	73.10	1.00	1.00	100.0	0.00	0.0	
LDD003	73.10	73.90	0.80	0.81	101.3	0.00	0.0	
LDD003	73.90	74.50	0.60	1.66	276.7	0.47	78.3	
LDD003	74.50	77.10	2.60	2.45	94.2	1.63	62.7	
LDD003	77.10	78.90	1.80	1.88	104.4	0.85	47.2	
LDD003	78.90	79.80	0.90	0.90	100.0	0.00	0.0	
LDD003	79.80	80.40	0.60	0.53	88.3	0.15	25.0	
LDD003	80.40	82.30	1.90	0.90	47.4	0.33	17.4	
LDD003	82.30	82.70	0.40	0.08	20.0	0.00	0.0	
LDD003	82.70	83.70	1.00	0.50	50.0	0.18	18.0	
LDD003	83.70	84.30	0.60	0.34	56.7	0.00	0.0	
LDD003	84.30	85.30	1.00	1.05	105.0	0.14	14.0	
LDD003	85.30	86.10	0.80	0.82	102.5	0.27	33.8	
LDD003	86.10	87.40	1.30	1.18	90.8	0.72	55.4	
LDD003	87.40	88.90	1.50	1.58	105.3	0.90	60.0	
LDD003	88.90	91.00	2.10	2.06	98.1	0.72	34.3	
LDD003	91.00	91.90	0.90	0.71	78.9	0.34	37.8	
LDD003	91.90	93.60	1.70	1.67	98.2	1.34	78.8	
LDD003	93.60	95.10	1.50	1.38	92.0	1.20	80.0	
LDD003	95.10	95.90	0.80	0.89	111.3	0.81	101.3	
LDD003	95.90	98.10	2.20	2.04	92.7	1.82	82.7	

## Appendix 5 Geology logs

Hole_ID	From (m)	To (m)	Description	Broken (1-5)	Lith1	Lith2	Alteration_1	Alteration_2	SiIVn_(%)	QVn_(%)	Cassiterite_%	Wolfram_%	Pyrite%	Chalcopyrite%	Sphalerite%
LDD002	0	11	broken siltstone and sandstone with minimal early silica veining.		SSILT	SSAND			0.5						
LDD002	11	12	grey fg hornfels Sandstone. Broken(m/s)	4	SSAND										
LDD002	12	12.6	hornfels Siltstone. Irregular sil vnd(w). Broken(m)	3	SSILT		SiIVn		2						
LDD002	12.6	13.9	grey horn Sandstone. Broken (w/m)	2	SSAND										
LDD002	13.9	14.3	sist. Silica vnd (w/m). Broken(m)	3	SSILT		SiIVn		5						
LDD002	14.3	16.6	grey fg sst. q vnd w. approx 45 lca frags	4	SSAND	SFSAND	QVn		0.1						
LDD002	16.6	19.1	grey fg sst and interbedded slst.	1	SSAND	SSILT			0.1						
LDD002	19.1	23.8	aa, scattered q py vnd by 5 to 2cm. at 23.8m 1cm euhedral q vug / vn with py 4%. bladed wolf to 5mm 2%. q to 1cm length.	1	SSAND	SSILT	QVn		4	1		0.1	1		
LDD002	23.8	30.1	aa. sil vnd zones locally w/m, w overall.	1	SSAND	SSILT	SiIVn		1						
LDD002	30.1	34.4	grey fg q sst, weakly laminar bedded. common accessory muscovite, irreg sil vnd weak to locally w/m. mostly str edged q py +/- musc vnd (1%) zone. vns to 16mm at 32.62m. @32.7 1cm vuggy q py 15% cass 3% wolf 2% vn. @33.85m 5mm q py cass 2% wolf(tr) cpy(tr) vn. at 31.7 to 32.9m pale green bleached/ weakly skarnified pale gn zone q py wolf cass(tr) veining 2%. from 32.5m graded bedding over 1m from fg sst to shale top indicates facing down hole. strongest is 31.5 to 32.9m q vnd zone ~2% mineralised veins bearing py cpy(tr) wolf 0.5% overall, and cass <0.5% overall.		SSAND	SSILT	QVn	SiIVn	2	2	0.1	0.1			
LDD002	34.4	35	lam bedded dark grey shale. facing down hole from graded bedding, basal scour and weak flame structures. sil vnd zones locally, w/m overall.		SSHALE		SiIVn		4						
LDD002	35	36	grey fg q sst, sil vnd zones locally w/m, w overall.	1	SSAND	SSILT	SiIVn		3						
LDD002	36	43.9	grey fg sst. sil vnd w		SSAND		SiIVn		0.5						
LDD002	43.9	45	fg sst, sist and minor shale. sil vnd 5% - q vnd 10%. sparse late q py wolf(tr) cass(tr) in veins. minor clots chlorite in veins.		SSILT	SSHALE	QVn	SiIVn	5	10	0.1	0.1			
LDD002	45	56	fg sst sil vnd w. wolf in vns 54.5 to 54.85m.		SSAND	SFSAND	SiIVn		3						
LDD002	56	62	fg sst sil vnd(w) to locally w/m		SSAND	SFSAND	SiIVn		5						
LDD002	62	65	mostly slst, shale and minor fg sst. broken(m)	3	SSILT	SSHALE									
LDD002	65	73.8	fg sst, minor slst and sh. incl. 69.2 to 69.8m q py vnd 5%. py and cpy very fine stringer veinlet in matrix foliation locally	1	SSAND	SSILT				0.1					
LDD002	73.8	87.2	fg sst. @74.55 3 veins totalling 27mm over 35mm q with euhedral vuggy q, wolf tr, py. @78m 12mm q py 7% cpy 2% wolf(tr) cass(tr) vn wollastonite/muscovite ? blades in vuggy vn 1cm. @85.55 17mm muscovite (Wollastonite?) py 5% q wolf 5% vn		SSAND	SFSAND	QVn		1	0.5	0.1	0.1			
LDD002	87.2	94.67	fg sst, sparse q vns , 3 to 35mm... @ 87.34m 20mm q py 3% wolf 2%. @91.1 37mm q wolf 1% vn. @91.33 6mm q wolf 1% vn. @92.87 7mm q py 2% cpy(tr) wolf 1% cass? tr. includes 92.5 to 92.8m mg q sst with musc(m/s) as matrix pervasive infill		SSAND	SFSAND	QVn		0.5	0.5		0.1			

Hole_ID	From (m)	To (m)	Description	Broken (1-5)	Lith1	Lith2	Alteration_1	Alteration_2	SilVn_(%)	QVn_(%)	Cassiterite_%	Wolfram_%	Pyrite%	Chalcopyrite%	Sphalerite%
LDD002	94.67	96.1	fg sst. q vnd(w/m) as 10 to 25mm vns, minor py bearing wolf 0.5% overall, cpy(tr) @95.88 18mm q py 2% wolf 3% cb 5% in vugs.		SSAND	SFSAND	QVn			10		0.1	1		
LDD002	96.1	100.48	fg sst, minor sst. uphole facing from graded beds @98.8m.		SSAND	SSILT									
LDD002	100.48	100.67	fault. strongly leached zone bearing relict finely lithic textures and a 4cm q vn clast at end interval. upper contact sharp weakly striated 62 lca	3	FALT	SSAND	QVn			5					
LDD002	100.67	101	strongly broken shale, 50% recovery, faulted	5	FALT										
LDD002	101	102.7	dark grey shale, fine laminar, q py vnd 1% bedding,	2	SSAND	SSHALE	QVn			1			0		
LDD002	102.7	103.2	aa, 50% irreg edged quartz veining, minor py 1%, wolf? tr, also includes sparse shale faulted clasts.		QVN	FALT	QVn	SiVn	50				1		
LDD002	103.2	104	mostly dgrey sh, q py 1% veining from 102.7 to 103.2m with 40% py in veins and as selvage replacement, commonly on late fractures.		SSHALE				0.1	1			1		
LDD002	104	104.12	grey and cream, fault breccia bearing angular shale and sed/seed clasts up to 12mm and q py(tr) vn clast of 40mm.		FALT	FALT	QVn			30					
LDD002	104.12	105.2	grey fg sst. q vnd mostly 1 to 5cm w/m 3% overall.		SSAND	SFSAND			2	3					
LDD002	105.2	105.4	60% milky quartz veining, py veinlet overprint tr, up to 20 cm individual width. common sed wall rock angular clasts		QVN		QVn			60			0		
LDD002	105.4	113.55	grey fg sst. q vnd mostly 1 to 5cm w/m 3% overall. @106.85m vuggy 27mm q py 5% cass(tr) to 0.5%, 40 lca.		SSAND	SFSAND			1	3	0.1		2		
LDD002	113.55	119	sh, sst and fg sst. sil vnd(w) 3% mostly in shale interbeds, 21 lca		SSHALE	SSILT	SiVn		3						
LDD002	119	119.75	fg sst, sst and sh. sil vnd 3% q vnd 8%		SSAND	SSILT	QVn	SiVn	3	8					
LDD002	119.75	120.7	fg sst, sst and sh. sil vnd 3% 119.8 to 120.7m qvnd 50% to 20cm as individual q-vns. trace wolf in 7mm q vn at 119.75m.		SSAND	SSILT	QVn	SiVn	3	50		0.1			
LDD002	120.7	128.6	fg sst, sst and sh. sil vnd 3% q vnd 8%		SSAND	SSILT	QVn	SiVn	3	8					
LDD002	128.6	140.95	mostly q sst and minor sst interbeds ~15%. q vn 1%, sil vnd 2%. includes 5 cm qvn at 133.4m and 3cm at 136.15 m. @132.8m 1 cm musc q py cpy 1% cass(tr) wolf 0.5% vn @10 to 15 lca.		SSAND	SSILT			2	1	0.1	0.1			
LDD002	140.95	141.35	q py 15%, cpy 2%, cass 2% sparse euhedral!. musc veining extend into lower contact, frags at 20 lca		QVN		QVn			80	2				
LDD002	141.35	144	mostly fg/mg q sst and minor sst interbeds ~15%. q vn 1%, sil vnd 2%. includes 6cm qvn at 141.75m with hydrofractured margin		SSAND	SSILT			2	1					
LDD002	144	144.25	qvn zone, upper 15 lca on 3 cm vn and 55 lca on mid 5cm qvn. lower 3 cm musc q vn ~30 lca.		QVN	SSAND	QVn			80					
LDD002	144.25	144.4	grey clayey with sed frags, broken very strongly, fault zone?		FALT	FALT									
LDD002	144.4	151	mostly fg/mg q sst and minor sst interbeds ~15%. q vn 0.5%, sil vnd 1%. @145.4m q vn wolf tr. signif 3cm mineralised qvn .		SSAND	SSILT			1	0.5		0.1			
LDD002	151	151.9	fg/mg q sst. q vn 5%, sil vnd tr%. @151m signif 40lca 4cm mineralised q musc cass 5% vn. & 6 more qvn to 7mm.		SSAND	SMSAND	QVn		0.1	5	0.5				



Hole_ID	From (m)	To (m)	Description	Broken (1-5)	Lith1	Lith2	Alteration_1	Alteration_2	SilVn_(%)	QVn_(%)	Cassiterite_%	Wolfram_%	Pyrite%	Chalcopyrite%	Sphalerite%	
LDD002	183.35	185.75	q vnd 40% zone within grey fg sst. strongly broken locally. reworked / milled rounded quartz vein clasts locally within faulted quartz vein. late muscovite wolf cassiterite vein overprint filling matrix and as irregular zones within veins. veins vary from 10 to 20 lca. includes 183.8 to 184m 25mm musc wolf 4% cass tr. includes 184.6 to 184.85m 10 lca q wolf 0.5% cg sub rounded cass 2% to 10mm! musc 5%. includes 185.2 to 185.45m 20mm 5 lca q py cpy 20% wolf 8% py 10% musc. wolf locally euhedral crystalline but commonly anhedral to 7mm locally. All vns carry minor wolf, particularly near margins. All veins also carry fg but massive pyrite frac fillings and common small vugs to 0.5 cm.		SSAND	QVN	QVN				40	1	2	5		
LDD002	185.75	189.2	mostly fg grey sst, trending from very thin bedded to lam bdd down hole. includes 188.25 to 188.34m quartz as two 25 & 17mm vns, including cg to 6mm cass(tr) to 0.5%		SSAND					1	0.1					
LDD002	189.2	190.1	dark grey slst qnd sh, semiperv irreg sil vnd(w/m) 10%		SSILT				10							





## Appendix 6 Logging codes

<b>Lithology code</b>	<b>Lithology Description</b>
CFIL	Undifferentiated fill eg: drill pad/road rubble
CLOS	Core loss - no lithology
FCLAY	ferruginous clay
FALT	Fault
TFBX	Fault breccia
TFS	Fault Shear
TCATA	Cataclasite
TMYO	Mylonite
TFG	Fault gouge
SSHALE	shale (includes carbonaceous/graphitic fine layered sediments)
SMDST	mudstone
SSILT	siltstone
SSHSST	Interbedded Shale and Sandstone
SSAND	sandstone - grain size not measured
SCONG	conglomerate - grainsize not measured
SFSAND	Fine sandstone (0.06-0.25mm)
SMSAND	Medium sandstone (0.25-0.5mm)
SCSAND	Coarse sandstone (0.5-2mm)
SFBSAND	Fine sandstone (0.06-0.25mm), commonly thin bedded
HORN	Hornfelsing
GREISEN	Greisenisation (eg: flourite, beryl, topaz, sericite etc)
QVN	Quartz veining
SQV	sulphide-bearing quartz vein
DSX	Disseminated sulphides
Sil	silica - pervassive
SILI	Intense silicification
Cb	Carbonate
OX	Oxidised, including FeO
ODP	Mill breccia, "pebble dyke"
ODF	Felsic dyke
OVEIN	Vein
OHBX	Hydrothermal breccia
BX	Breccia
SBREC	Sedimentary breccia
SCHERT	Chert
IFGRAD	Granite
IMDL	Dolerite
MUSED	Undifferentiated metasediments
MSLAT	Slate
MPHYL	Phyllite
MSHST	Schist
MQTZ	Quartzite
MHORN	Hornfels
MSSX	Massive Sulphide

<b>Mineralisation Code</b>	<b>Mineralisation and Alteration Description</b>
QVN	quartz veining - incl. epithermal style, vuggy, drusy, banded
QSV	sulphide-bearing quartz vein(/veinlets)
Sil	silica - pervassive and semi-pervassive alteration
Ser	sericite
HEM	Hematisation
Ch	chlorite
Cb	Carbonate
CLY	Clay alteration
HORN	Hornfelsing
GREISEN	Greisenisation (eg: flourite, beryl, topaz, sericite etc)
FeQSV	FeO-Quartz stockwork veining, commonly vuggy
FeSilSP	Semi- Perv Sil-FeO Selvages
MSSX	massive sulphide
SMSX	semi-massive sulphide
DSX	disseminated sulphides
V SX	Sulphide veining, commonly straight along joints

<b>Mineralisation Code</b>	<b>Mineralisation and Alteration Description</b>
OX	Oxidised, including FeO pervasive and semipervasive in matrix/groundmass
OXMnO	black Manganese oxide, veins, spots
QSVB	Broken / brecciated quartz vein zone / faulted
QOVSX	Oxidised FeO (goethite & limonite) within quartz stockwork, likely after veined sulphide
OVSX	Oxidised FeO (/goethite & limonite) likely after veined sulphide
CbVN	Carbonate +/- quartz vein(/s)
SISX	Pervasive silica - disseminated sulphide alteration
CALS	Calc-silicate replacement (commonly veined and semi-perv)
HORN	Hornfelsing
GREISEN	Greisenisation (eg: fluorite, beryl, topaz, sericite etc)

<b>Mineral Type Code</b>	<b>Mineral</b>
Py	Pyrite
Aspy	Arsenopyrite
Sb	Stibnite
Ga	Galena
Sp	Sphalerite
Cpy	Chalcopyrite
Cv	Covellite
Cc	Chalcocite
Bn	Bornite
Mo	Molybdenite
Po	Pyrrhotite
Mc	Marcasite
Bism	Bismuthinite
Tetn	Tetrahedrite-Tennantite
Mag	Magnetite
He	Hematite
Wolf	Wolframite
Cst	Cassiterite
Cw	Cuprite
Mal	Malachite
Cs	Cerrusite
Au	Visible Au
Cu	Native Copper
Ag	Native Silver
Ad	Adularia
Al	Alunite
Dik	Dickite
Il	Illite
Ka	Kaolinite
Pry	Pyrophyllite
Chd	Chalcedony
Qz	Quartz
Zeo	Zeolite
Sm	Smectite
Se	Sericite
Ch	Chlorite
Ep	Epidote
Cb	Carbonate
Ci	Calcite
Dol	Dolomite
Rh	Rhodochrosite
Sd	Siderite
Mgs	Magnesite
Ahd	Anhydrite
Ba	Barite
En	Enargite
Pyr	Pyrrargite
Tml	Tourmaline
Fl	Flourite
Mu	Muscovite

<b>Mineral Type Code</b>	<b>Mineral</b>
Bi	Biotite
Ap	Apatite
Cd	Cordierite
Im	Ilmenite
Rt	Rutile
Gt	Garnet
Si	Silicification
Am	Amphibole
Hb	Hornblende
Cpx	Clinopyroxene
Di	Diopside
Alb	Albite
Kf	K-Feldspar
Ck	Chrysocolla
Pi	Psilomelane
Mn	Pyrolusite
Li	Limonite
Go	Goethite
Jr	Jarosite
FMag	ferromagnesian minerals

<b>Structure Code</b>	<b>Description</b>
Face	Facing
Ft	Fault
Sh	shear
Vn	vein
Fo	Foliation
Fr	fracture
Jt	Joint
Bd	Bedding
Fold	Fold
con	contact
lay	layering
bnd	banding
Ln	Lineation
CATA	Cataclasite
Slick	Slickensides
Pu	Puggy seam
Cl	Cleavage

## Appendix 7 Downhole structure logs

**Down Hole Structural Log**

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure_ Code2	Comments	Dip	Dip_Dir
LDD002	3.70	10			Bd	Bd			
LDD002	12.10	26			Fr	Fr	FeO coated frac undulating rough. opposes bedding		
LDD002	12.20	26			Bd	Bd			
LDD002	14.00	46			Vn	QVh	weakly pygmatic 3mm sil vein		
LDD002	18.00	23			Bd	Bd			
LDD002	19.00	13			Bd	Bd			
LDD002	19.17	37			Vn	QWVn	8 and 6mm q py(tr) dark specks mg cass/wolf tr to 1%		
LDD002	19.57	40			Vn	QWVn	10mm q py 4% wolf? 2% vn		
LDD002	20.50	43			Vn	QSnVn	6mm q py 10%, cass 15% to 4mm, vuggy vn		
LDD002	20.70	30			Vn	QVn	4mm cream sil vn, irreg edges		
LDD002	20.93	40			Vn	QSnWVn	17mm vuggy q py 15%, wolf 0.5%, cass 0.5% vn		
LDD002	21.90	26			Bd	Bd			
LDD002	22.20	45			Bd	Bd	bedding changes across 15 cm irreg sil vnd zone		
LDD002	23.00	22			Bd	Bd	down hole facing from basal scour and graded bedding		
LDD002	23.00	28			Bd	Bd			
LDD002	23.35	23			Bd	Bd			
LDD002	23.76	58			Vn	QSnWVn	17mm euhedral drusy quartz to 6mm dia py 3%, bladed wolf to 7mm 3%, cass(tr) subhedral to 3mm		
LDD002	24.65	25			Bd	Bd			
LDD002	25.30	15	315		Fr	Fr	relatively planar FeO(m) frac, musc(w), end strongly broken zone possible fault surface	89	137
LDD002	25.43	45	265		Vn	QPyVn	3mm q py 1% vn	47	104
LDD002	25.54	53	310		Vn	QSnWVn	4mm q py 5%, wolf 10%, cass(tr) vn	52	144
LDD002	25.80	45	306		Fr	Fr	planar frac	58	138
LDD002	25.90	30	315		Bd	Bd		75	141
LDD002	29.15	20	270		Bd	Bd		71	97
LDD002	29.60	25	275		Bd	Bd		68	104
LDD002	30.15	50	255		Vn	QPyVn	11mm q dss py 1% vn	39	101
LDD002	30.25	45	225		Vn	QPyVn	23mm q dss py 1% vn	33	66
LDD002	30.65	40	290		Vn	QPyVn	3mm q py dss 0.5%	59	123
LDD002	31.20	40	230		Vn	QPyVn	2mm q py dss 0.5%	39	69
LDD002	31.26	45	275		Fr	Fr	frac planar rough	50	114
LDD002	31.43	50	205		Vn	QVn	7mm q vn	23	45
LDD002	31.77	40	270		Vn	QWVn	6mm q py 2%, wolf(tr), musc(w) edges	53	107
LDD002	32.00	35	315		Vn	QSnWVn	14mm q py 2%, wolf 0.5%, cass tr to 0.5%,	71	142
LDD002	32.58	45	152		Vn	QPyVn	6mm q py(tr)	28	314

### Down Hole Structural Log

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure_ Code2	Comments	Dip	Dip_Dir
LDD002	32.62	45	270		Vn	QSnWVn	14mm py 50%, wolf 2%, cass(tr)	49	110
LDD002	32.70	45	120		Fr	Fr	frac wrakly undulating stepped	38	277
LDD002	32.80	40	180		Vn	QPyVn	two 7mm q py 1% musc(tr) vns	29	0
LDD002	33.25	18	272		Bd	<b>Bd</b>	facing downhole from broad 1m graded bedding	74	99
LDD002	33.52	35	155		Fr	Fr	planar smooth	36	324
LDD002	33.55	50	255		Vn	Vn	3mm q musc py 5% 2mm vn	39	101
LDD002	34.10	40	275		Fr	Fr		55	111
LDD002	34.30	15	277		Bd	Bd		79	102
LDD002	34.38	43	235		Vn	QVn	5mm qvn	38	77
LDD002	35.05	9	284		Bd	Bd		87	106
LDD002	35.90	25	18		Vn	QPyVn	6mm q py(tr) vn	86	196
LDD002	35.92	43	165		Fr	Fr	planar smooth	26	335
LDD002	36.00	30	27		Vn	QVn	6mm q vn	80	204
LDD002	53.70	42			Vn	QPyVn	8mm qvn py(tr)		
LDD002	54.65	65			Vn	QWVn	3mm q py 30%, wolf 4%, musc 10% vn		
LDD002	55.18	60			Vn	QWVn	2mm q py wolf vn		
LDD002	55.22	35			Vn	Vn			
LDD002	57.20	35			Vn	QPyVn	8mm q py(tr) vn		
LDD002	57.30	35			Vn	QWVn	4mm q musc py wolf(tr)		
LDD002	58.25	65	297		Vn	QWVn	2mm q py 20%, cpy 10%, wolf(tr)	44	147
LDD002	59.16	55	304		Vn	QPyVn	3mm q coarse grained py 10%	54	144
LDD002	59.20	55	335		Vn	QWVn	2mm q py 10%, wolf(tr),	61	164
LDD002	60.70	32			Bd	Bd			
LDD002	69.38	60			Vn	QPyVn	3mm q pyrite 25%,		
LDD002	69.40	60			Vn	QPyVn	3mm q py 30% vn		
LDD002	71.55	35			Vn	QWVn	7mm q py(tr) wolf 1% silvery sulphide		
LDD002	74.52	36			Vn	QWVn	20mm musc vuggy drusy q, cg py1%, cg wolf(tr)		
LDD002	76.75	5	130		Bd	Bd			
LDD002	77.32	50	298		Vn	QPyVn	4mm q py 3% vn	60	139
LDD002	77.69	15	296		Vn	QPyVn	2mm q py vn	90	120
LDD002	77.70	60	328		Vn	QWVn	2mm q py, wolf(tr) vn	59	162
LDD002	77.78	40	203		Fr	Fr	planar frac	24	48
LDD002	78.05	55	300		Vn	QWVn	12mm q cpy5%, py 5%, cg wolf(tr), silvery sulphide(tr).	57	143
LDD002	85.56	60			Vn	QWVn	12mm musc q py 5% wolf 5%		
LDD002	86.13	45			Vn	QWVn	3mm q py 5% wolf(tr)		
LDD002	86.68	47			Vn	QPyVn	2mm q py(tr) vn		

### Down Hole Structural Log

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure_ Code2	Comments	Dip	Dip_Dir
LDD002	86.70	13			Vn	QVh	5mm layer diffuse edged q py(tr) crosscuts straight edged q py vn		
LDD002	87.32	45			Vn	QSnWVn	22mm q py 1% wolf 0.5% cass 1% vn		
LDD002	88.20	50			Vn	QPyVn	3 by 4 to 6mm q vn over 20cm interval		
LDD002	90.60	60			Vn	QVn	3mm q vn crosscuts over 20cm interval		
LDD002	91.10	52			Vn	QWVn	36mm q py 0.5% wolf 1%, musc(tr) v. straight edged milky		
LDD002	91.35	50			Vn	QWVn	5mm q py wolf 2% vn		
LDD002	91.50	55			Vn	QSnWVn	3mm q py cass 1% wolf(tr) vn		
LDD002	91.65	55			Vn	QSnWVn	4mm q py 3% cass(tr) wolf(tr) vn		
LDD002	92.25	23			Vn	QMuscVn	3mm q musc vn		
LDD002	92.50	52			Bd	Bd			
LDD002	92.85	34			Vn	QSnWVn	7mm q py wolf 0.5%, cass(tr) vn		
LDD002	94.60	35			Vn	QVn	18mm q musc(tr) ch(w) vn		
LDD002	95.13	55			Vn	QWVn	17mm q py 1% wolf 0.5%		
LDD002	95.88	57			Vn	QWVn	18mm q py 2% wolf 3% cb 5% in vugs.		
LDD002	98.70	52			Bd	Bd	facing up hole		
LDD002	100.48	62			Ft	Ft	fault contact		
LDD002	100.48	62			Ft	Ft	sharp fault? contact		
LDD002	102.80	35			Vn	QVh	3mm irreg edged q sil vn. no unique crosscutting traces		
LDD002	104.12	50	5		Ft	Ft	faulted irreg rough fracture surface	77	183
LDD002	104.20	50	335		Vn	QVh	11mm qvn	75	164
LDD002	104.30	50	120		Fr	Fr	planar rough	36	250
LDD002	104.35	70	358		Vn	QVn	4mm qvn	57	179
LDD002	105.15	35	222		Vn	QVn	grey semi perv? sil vn	34	76
LDD002	105.20	55	332		Vn	QVn	upper contact 23 cm qvn	70	163
LDD002	105.40	65	315		Vn	Vn	frac. at upper vn contact	57	159
LDD002	105.50	50	250		Vn	QVh	milky qvn	42	116
LDD002	105.75	30	320		Vn	QMuscVn	1mm q musc vn	90	326
LDD002	105.85	55	255		Fr	Fr	planar smooth vn	42	125
LDD002	106.60	30	108		Fr	Fr	weakly undulating smooth	56	263
LDD002	106.78	65	245		Fr	Fr	q vnd frac	34	137
LDD002	106.85	40	328		Vn	QSnVn	vuggy 27mm q py 5% cass(tr) to 0.5%, 40 loca.	84	156
LDD002	107.10	85	272		Fr	Fr	1mm planar smooth frac with musc py vn	38	172
LDD002	107.15	45	223		Vn	QVn	6mm q/sil vn	29	93
LDD002	107.70	40	190		Vn	QVn	grey semitrans semi perv edged q sil vn	14	34

**Down Hole Structural Log**

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure_ Code2	Comments	Dip	Dip_Dir
LDD002	108.07	60	326		Fr	Fr	frac planar rough	65	162
LDD002	108.09	55	282		Vn	QVh	1 cm qvn	55	137
LDD002	108.25	25	310		Vn	QVh	1 cm semi perv sil vn	88	316
LDD002	108.30	70	232		Vn	QMuscVn	1mm musc vnlets	30	147
LDD002	108.35	65	178		Vn	QMuscVn	0.5mm musc vnlets	13	184
LDD002	108.63	40	320		Vn	QVh	grey semi perv earlier qvn	82	150
LDD002	108.65	50	320		Vn	QMuscVn	musc py and grey sil crosscuts earlier qvn	73	154
LDD002	108.80	35	308		Fr	Fr	undulating fr	82	139
LDD002	108.88	70	313		Vn	QPyVn	1.1mm q py(tr) vn, sparse musc py overprint	54	162
LDD002	108.95	55	200		Vn	QMuscVn	1mm musc py vn	12	113
LDD002	109.55	60	244		Vn	QVh	grey qvn	35	129
LDD002	109.70	55	281		Vn	QPyVh	3mm q py(tr) musc w	55	137
LDD002	109.72	65	309		Fr	Fr	undulating rough frac	57	157
LDD002	111.28	75	263		Vn	QVh	7mm grey semi trans q/sil vn	39	156
LDD002	111.30	45	321		Vn	QPyVh	8mm q py 3%, crosscuts earlier grey semi trans q/sil vn	78	153
LDD002	111.45	55	225		Fr	Fr	planar weakly stepped	27	116
LDD002	112.36	25	74		Fr	Fr	planar smooth fr	80	242
LDD002	112.46	55	248		Vn	QVh	5mm q/sil vn	39	123
LDD002	112.48	60	293		Vn	QWVh	6mm q py cpy musc wolf 2%+ vn	57	147
LDD002	112.51	40	334		Vn	QPyVh	3mm grey q py selvage and musc py 0.5mm vein	86	160
LDD002	112.63	55	227		Fr	Fr	planar smooth fr	28	117
LDD002	112.85	70	275		Vn	QPyVh	9mm q vn py selv, musc(tr)	45	151
LDD002	113.70	12			Bd	Bd	down hole facing?		
LDD002	114.60	14			Bd	Bd	sharp shale to sst bedding contact.		
LDD002	115.40	10			Bd	Bd	down hole facing graded beds and flame strucs		
LDD002	115.65	5			Bd	Bd	uphole facing, weak open folding		
LDD002	116.00	10			Bd	Bd	facong down hole		
LDD002	117.40	15	292		Bd	Bd	downhole facing	88	296
LDD002	117.60	70	305		Fr	Fr	irreg rough frac	54	160
LDD002	117.75	20	141		Vn	QPyVh	5mm q py 0.5% vn	43	300
LDD002	119.00	40	265		Bd	Bd	facing downhole	58	116
LDD002	119.10	55	301		Vn	QPyVh	7mm q py 20%	64	147
LDD002	119.27	75	210		Vn	QVh	8mm semi-perv qvn	28	164
LDD002	119.35	55	282		Vn	QWVh	13mm vuggy q wolff(tr)	57	138
LDD002	120.00	70	220		Vn	QVh	3 cm qvn	28	152
LDD002	120.10	25	155		Bd	Bd		31	312

**Down Hole Structural Log**

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure_ Code2	Comments	Dip	Dip_Dir
LDD002	120.10	25	155		Vn	QVn	20mm irreg qvn on bed plane	31	312
LDD002	120.45	60	185		Vn	QMuscVn	1mm musc vn	11	167
LDD002	120.70	35	305		Vn	QWVn	40mm sharp irreg edged q wolf(tr) vn. hydrofrac breccia in sh extends 3 cm downhole	83	137
LDD002	121.65	50	287		Bd	Bd	up hole facing	64	137
LDD002	123.50	45	260		Vn	QVh	14mm q vn, numerous on this orientation	53	119
LDD002	123.75	40	290		Vn	QVh	5mm qvn	72	131
LDD002	124.65	30	295		Vn	QPvVn	3 cm q ch py 0.5%	83	128
LDD002	124.95	30	190		Vn	QVh	15mm qvn	20	27
LDD002	125.00	65	257		Vn	QVh	6 cm qvn	43	142
LDD002	125.40	45	292		Vn	QVh	5mm qvn	70	136
LDD002	129.40	42			Bd	Bd	uphole facing		
LDD002	130.40	35	282		Bd	Bd	uphole facing	72	122
LDD002	131.75	40	268		Bd	Bd	uphole facing	60	118
LDD002	132.20	40	250		Vn	QVh	1 cm sil zone / vn parralel to bedding	49	108
LDD002	132.75	20	50		Vn	QMuscVn	1 cm musc q py cass?(tr)	81	47
LDD002	132.90	70	315		Fr	Fr	planar rough frac	58	163
LDD002	133.40	70	140		Vn	QVh	6 cm qvn	29	207
LDD002	133.50	50	220		Vn	QWVn	1 cm q musc py 1% wolf(tr)	26	110
LDD002	133.75	35	185		Fr	Fr	planar rough frac	14	18
LDD002	136.20	40	276		Bd	Bd	up hole facing	65	123
LDD002	136.20	40	276		Vn	QVn	5mm irreg sil vn parallel to bedding	65	123
LDD002	137.25	40	278		Vn	QMuscVn	5mm q musc(w), py(tr) vn. bedding parallel	66	124
LDD002	139.45	65			Vn	QVh	5 cm irreg sil/q vn with sh angular clast inclusions		
LDD002	141.20	32			Vn	QSnWVn	vn edge q py wolf cass		
LDD002	141.25	22			Fr	Fr	planar rough fr		
LDD002	141.30	30			Vn	QMuscVn	musc veining vuggy		
LDD002	148.15	40			Vn	QMuscVn	vn bedding parallel, 4mm q py 10% musc		
LDD002	150.70	44			Bd	Bd	uphole facing?		
LDD002	151.00	40			Vn	QSnVn	4cm q musc cass 5%		
LDD002	152.45	80			Fr	Fr	fr fault margin		
LDD002	153.57	38			Vn	QVn	20mm qvn		
LDD002	156.00	43			Bd	Bd			
LDD002	157.35	60	80		Vn	QSnVn	5mm q cass ?(tr)	54	217
LDD002	157.50	42	335		Vn	QVh	6 cm q vn	87	162
LDD002	158.50	40	240		Bd	Bd	up hole facing	43	102



### Down Hole Structural Log

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure Code2	Comments	Dip	Dip_Dir
LDD003	4.60	45			Bd		@5.8m likely facing up hole from graded beds		
LDD003	17.80	45			Bd		uphole facing from graded beds		
LDD003	13.80	40			Vn		5mm q py(1%) vein		
LDD003	22.41	40			Vn		q py vein		
LDD003	31.50	30			Bd				
LDD003	44.20	40			Bd		up hole facing graded beds		
LDD003	46.45	60					22mm q wolf(10)_py(5) incl minor vuggy fine drusy q.		
LDD003	46.55				Vn				
LDD003	48.50	50			Vn				
LDD003	49.85	20			Vn				
LDD003	50.31	70	310		Sh		striated / slickensides with coarse ramps indicating west top block to east, but possibly detachment on veins.	56	278
LDD003	50.45	70	325		Sh		slickensided frac surface in sst. weak silicate attachments agree with frac above	58	284
LDD003	50.55	48	352		Vn		3mm q py(1) wolf(tr) vn	83	292
LDD003	50.65	60	315		Bd		1cm shale interbed	65	274
LDD003	50.87	55	321		Bd		uphole facing graded bedding in shaley sst	71	275
LDD003	51.75	57	335		Bd		uphole facing graded bedding in shaley sst	72	283
LDD003	51.90	45	20		Vn		3mm q py 2 cass(tr?) vn	84	311
LDD003	52.05	55	323		Vn		3mm q py cpy vn parallel to s0 smooth planar fracture pa	71	276
LDD003	52.05	55	323		Bd			71	276
LDD003	52.95	50			Vn				
LDD003	56.75	50					bed parallel 22mm q wolf py vn		
LDD003	65.03	54	327		Bd		uphole facing from graded bedding and basal scour / par	73	277
LDD003	65.40	50	321		Vn		9mm q py(5) wolf(2) vn	75	272
LDD003	65.47	55	218		Vn		11mm q py(tr) vn.	24	236
LDD003	65.47	55	218		Bd		s0 parallel to vn	24	236
LDD003	65.80	50	350		Bd		uphole facing	81	291
LDD003	66.38	55	185		Fr		rough frac parting in vein	7	272
LDD003	66.37	35	185		Vn		upper q py(tr) vn 20mm	14	134
LDD003	65.90	46	210		Fr		weakly undulating planar frac	20	210
LDD003	66.50	5	350		Fr		undulating surface prob old fault affecting vein terminatio	55	105
LDD003	66.60	15	45		Fr		planar frac	75	162
LDD003	66.70	45	185		Vn		4mm q vn	5	159
LDD003	67.67	45	356		Vn		30mm q py(2) wolf(1) vn	86	294
LDD003	67.90	50	340		Bd			80	284
LDD003	67.95	65	275		????			49	263
LDD003	67.80	55	355		Vn		30mm q py cpy(2) wolf/sph(3)	76	294
LDD003	68.16	45	150				1mm vfg py coated planar smooth frac	21	27
LDD003	68.40	45	345		Bd			85	286

### Down Hole Structural Log

Hole_ID	At(m)	Core angle (LCA / Alpha)	Beta	Lineation_Alpha	Structure _Code	Structure Code2	Comments	Dip	Dip_Dir
LDD003	68.55	45	352		Bd		uphole facing	86	291
LDD003	69.20	50	347		Bd			80	289
LDD003	69.38	50	348		Vn		29mm vuggy q cass(tr) wolf(0.5) vn	80	289
LDD003	70.80	55			Bd				
LDD003	84.35	25			Vn				
LDD003	90.30	30			Bd		shale lower sharp contact		
LDD003	91.30	10	175		Vn		13mm sharp edged but irreg q cg py(tr) vn. developed at	39	109
LDD003	91.85	65	325		Vn		15m vuggy q vn. sharp margins	63	281
LDD003	91.75	55	168		Fr		weak undulating frac	9	343
LDD003	92.30	25	317		Bd		down hole facing from basal scour and rip up clasts	83	79
LDD003	92.65	35	300		Bd		down hole facing graded bdd	81	251
LDD003	92.87	60	25				one orient in zone irreg q vns. fold axial proximal?	69	310
LDD003	93.50	70	350		Fr		irreg frac	61	293
LDD003	93.60	20	240		Vn		irreg qvn 4mm	56	198
LDD003	97.60	60			Bd		down hole facing.		

## **Appendix 8 Downhole structure codes**

Structure Code		Structure Code2	
Code	Description	Code	Description
Face	Facing	Face	Facing
Ft	Fault	Ft	Fault
Sh	shear	Sh	shear
Vn	vein	Vn	vein
Fo	Foliation	QVN	Quartz vein
Fr	fracture	QCbVn	quartz - carbonate vein
Jt	Joint	QPyVn	quartz - pyrite vein, tylically >50% silica
Bd	Bedding	QPyCpyVn	
Fold	Fold	QPySphVn	+/-Cpy
con	contact	QSnVn	quartz-cassiterite vein
lay	layering	QSnWVn	quartz-cassiterite-wolfram vein
bnd	banding	QWVn	quartz-Wolfram vein
Ln	Lineation	PyVn	massive to semi-massive pyrite vein, +/- very minor silica
CATA	Cataclasite	Fo	Foliation
Slick	Slickensides	Fr	fracture
Pu	Puggy seam	FrS	fracture straight
Cl	Cleavage	FrI	fracture irregular surface
		FrL	late fracture
		Jt	Joint
		Bd	Bedding
		Fold	Fold
		con	contact
		lay	layering
		bnd	banding
		Ln	Lineation
		CATA	Cataclasite
		Slick	Slickensides
		Pu	Puggy seam
		Cl	Cleavage