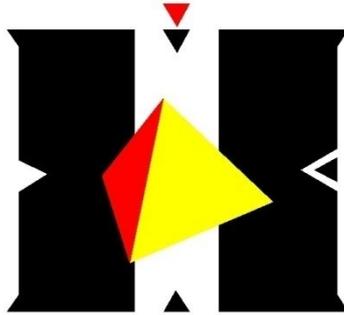


# **Retention Licence 4/2009 Comstock EDGI Final Drilling Project Report**



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Mineral Resources Tasmania

Coordinate system used in maps and diagrams within this report is MGA55 (GDA94), unless otherwise specified.

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## **Abstract**

During the EDGI drilling project period, 1 diamond drill hole totalling 804.5m was drilled at Comstock prospect, Comstock RL4/2009.

Core recovery was excellent throughout, the hole drilled fairly straight initially, with some cork-screwing and deflection to the west at depth; HQ diamond was drilled to 152.9m and NQ diamond to end of hole.

Most of the objectives were met - the hole reached design-depth, traversed two major structures and provided further high-recovery intersects of stratabound, replacement style sulphide mineralisation.

A number of 3-4m (apparent-width) notable Pb-Zn-Ag intersections were achieved in the hole, with two intervals containing over 10% combined Pb+Zn.

# **1 Introduction**

Australian Hualong P/L (AHL) is a privately owned resource company incorporated in NSW and owned by Mr. Zhian Zhang.

RL4/2009 was originally granted to Creat Resources Holdings Limited on February 1, 2010 for a period of 2 years, and applied to all Category 1 minerals. Australian Hualong P/L acquired RL4/2009 from Creat Resources Holdings Limited on 26<sup>th</sup> March 2013.

## **1.1 Tenement Location**

### **1.1.1 Mineral Exploration Area**

Retention Licence 4/2009 covers an area of 3 square kilometres and is located to the west of Zeehan, Western Tasmania.

### **1.1.2 Site Location**

The Trial Harbour Road provides road access to RL4/2009. The Emu Bay Railway and the Murchison Highway connect the township of Zeehan with the Port of Burnie, located approximately 140km to the north.

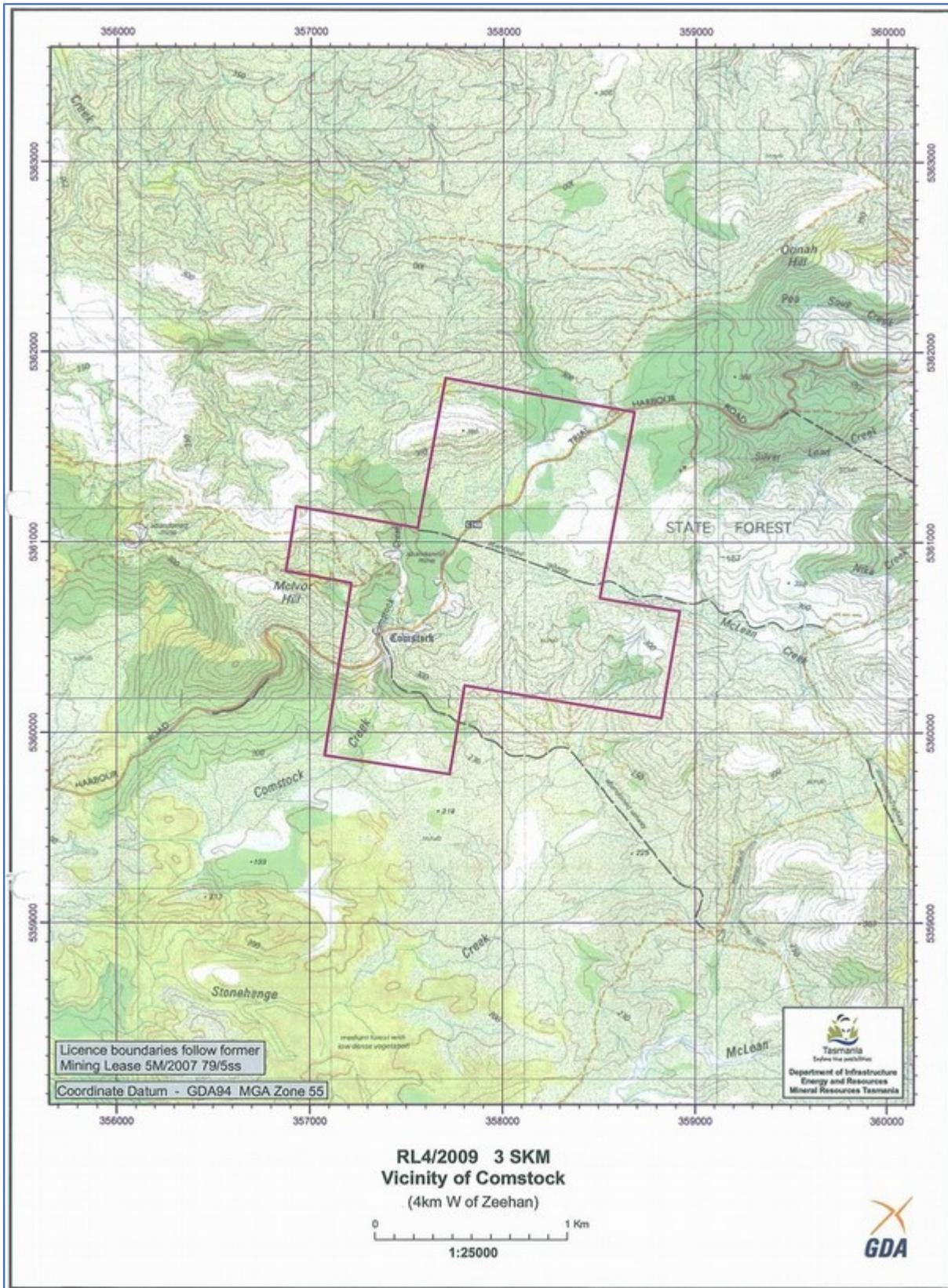


Figure 1: Location of the Comstock Retention Licence

1.1.3 Land Tenure

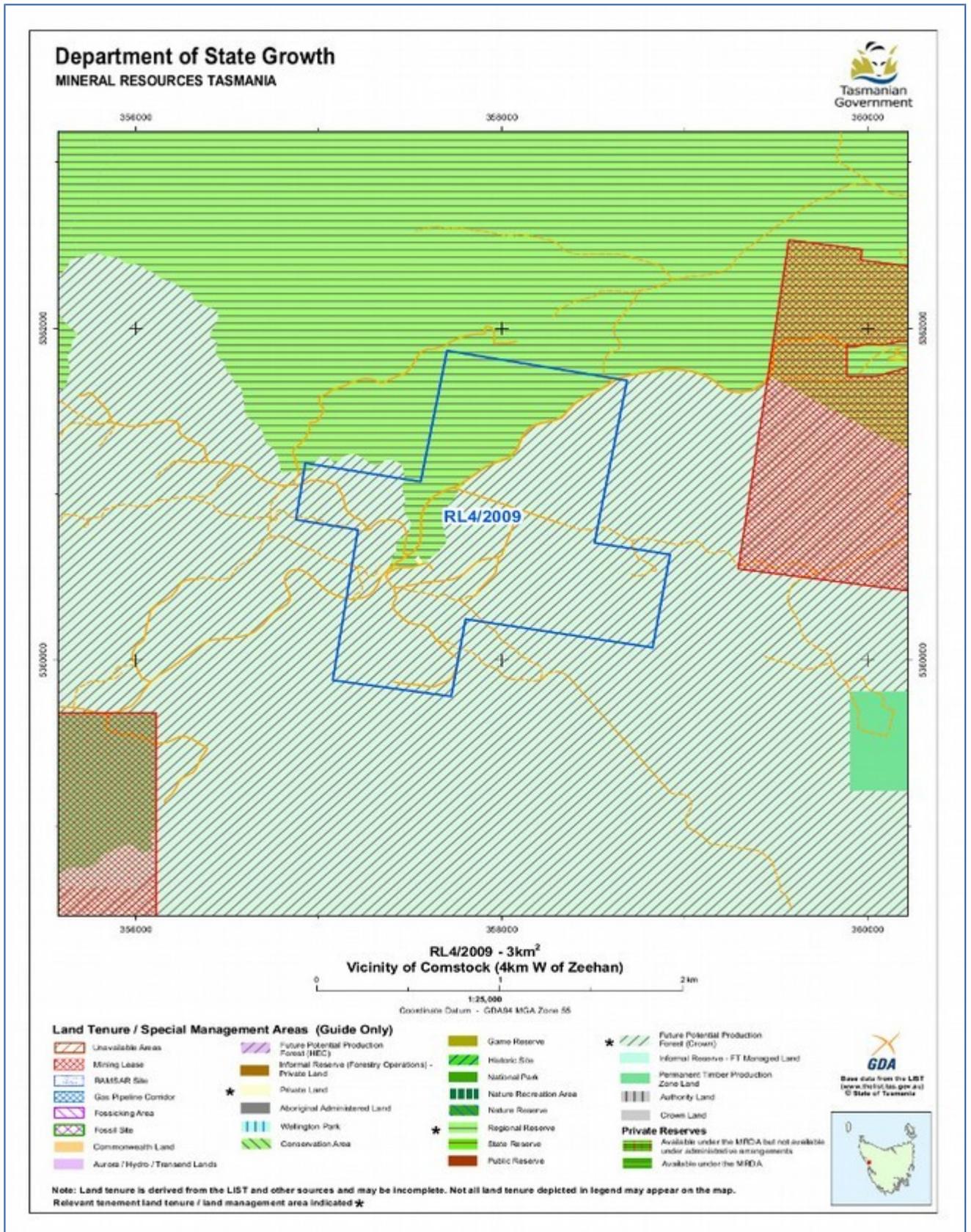


Figure 2: Land tenure at Comstock RL (2019)

## **2 Geology and Previous Work**

### **2.1 Previous Mining and Exploration within RL4/2009 Comstock**

The Comstock area has had a long and chequered history of mining and related activity that dates back to the 1880's. Old workings aimed at extracting lead/silver-rich fissure fill veins litter the Comstock area and comprise small scale shafts and levels completed by previous miners, some of which date back to the 19th Century. Various records e.g. Blake (1936), Twelvetrees (1900), Blisset (1962) and Summons (1981) have accounts of the old workings and some of these reports have supplied maps, although these have in some cases been referred to as sketch maps. Recent attempts have been made to create 3D shapes of these old workings from scanned hard-copy images of the old maps but with mixed results. Digitisation of old workings' outlines was undertaken by RGC and Western Metals but these too have some geo-registering issues affecting accuracy.

In the case of the Allison's Lode there are some old workings in the central parts which appear to have been stoped to the 49' level (15m below the original surface). The ore thickness of the inferred stoped material between the No. 2 Shaft and the No 3A shaft ranges from 0.5m and 4.3m (Summons 1981). Recent aircore drilling by ZZL appears to have located the old stope, recorded in the logs as a cavity and as a result a small 3D solid was created but out of synchronisation with Blake's (1936) map of the workings. The volume of this shape is put at 1364m<sup>3</sup>, equivalent to 4500t. This shape was used as part of a constraint in the block model reporting of resources by SMGC (Tear 2005c).

Nearby mining at South Comstock and Sylvester in the late 1980's resulted in small open pits being developed and a reported quantity of 70,000t of material was extracted with 7000t of ore trucked to Rosebery for processing at an estimated grade of 14.8% Zn and 3.6% Pb (Hancock & Stephenson 2000).

In 1996 trial costeaning and sampling produced a bulk sample from Allison's. This was reported as 500t at 19% Zn (zinc) and 2.3% Pb (lead) that was trucked to the nearby Rosebery Zinc mine. A second shipment contained 740t at 11.8% Zn and 2.5% Pb (Hancock & Stephenson 2000). In 2000/2001 Oceania Tasmania (now ZZL) began trial mining of the Allison's Lode and produced a high grade stockpile containing 3300t @14.5%Pb, 21.5% Zn and 540g/t Ag (Cottle, 2005). The floor of the pit was 20m below the original surface after the trial mining. Exploration work in 2002-5 on the Comstock mine leases targeted the Allison's Lode and consisted of geological mapping, channel sampling and aircore drilling. SMGC completed a new geological interpretation, the definition of a 3D geological model and a new block model (Tear 2005b, c and d).

### **2.2 Prospect Geology**

The geology of the Comstock Project comprises weakly metamorphosed Proterozoic-aged sediments of the Oonah Formation juxtaposed with a mixed sequence of volcanoclastics and arenaceous rocks of the Cambrian Crimson Creek Formation. The steeply north dipping WNW-ENE striking Balstrup Fault divides the two sedimentary packages. In the southern half of the mine leases the Oonah sequence consisting of flat-lying, thick dolomitised limestones co-existing with reasonably thick (20-30m) black phyllitic shales and fine grained sandstones. At Comstock the Upper Dolomite Unit (Poss1) of the Oonah

hosts the Allison's, Watson's and Main Lodes as well as the Boss Upper Sulphide and Oxide mineralisation. A distinctive black argillaceous phyllite unit underlies this dolomite, known as the Phyllite Marker Unit (Posb1). Beneath the Posb1 is the Lower Dolomite Unit (Posd1), heavily brecciated and up to 150m thick, which hosts the Boss Lower mineralisation. A second phyllite unit with distinctive quartz boudinage veining occurs below Posd1, which is underlain by a second dolomite unit Posd2. This dolomite overlies a mixed sequence of clastic and carbonate rocks with an increasing overprint of thermal metamorphism e.g. diopsidic skarns. There are ultramafic rocks within this lower package, some of which have the characteristic blackwall alteration associated with the Avebury Nickel deposit. The Oonah is truncated by the moderately north dipping Tenth Legion Fault. Below the fault lies a sequence of chloritic volcanics and gabbros that are part of the Cambrian Mclvor Complex. North of the Balstrup Fault lie the volcanoclastics and greywackes of the younger Crimson Creek Formation which have been down faulted to the north. These rocks produce a distinctive orange colour on weathering due to the oxidation of chlorite. The Upper Dolomite Unit (Poss1) is often characterised near surface by talc alteration (Wong, 2000), which may be the result of weathering of primary magnesite. The magnesium assay values would appear to indicate that the main magnesium mineral in the sub-surface

Poss1 is magnesite rather than talc. Iron carbonate, interpreted by H&S to be siderite, is distinctly associated with the stratabound base metal mineralisation at the top of the Lower Dolomite Unit (Posd1).

Deep weathering over the Boss area, locally >50m, has generated hematitic gossans, which are believed to have developed after weathering of massive sulphide bodies within the dolomites.

It has been possible to trace the Posb1 unit using drillhole information, including multi-element assays, from 357100mE to 358000mE. From there it is inferred to go further east to the edge of the mine leases based on the airborne EM geophysical work completed by ZZL in 1999. The shape of the Posb1 indicates that it forms a relatively flat-lying unit with undulation associated with open folding. A distinct anticline occurs in the central part, with the hinge line coincident with the Allison's Lode. The unit tends to dip north into the Balstrup Fault and gradually dips away to the west and east. At 357900mE there is a sudden drop in the unit which coincides with the inferred traces of surface faults from the 2002 mapping. This suggests a down-throw to the east although there are suggestions that the unit may rise up going further east, where there are substantial exposures of gossan.

The Tenth Legion Fault is exposed in the south of the mine leases and is believed to be a thrust fault that dips about 25° to the north. It is characterised by black matrix breccias with a seemingly strong shear fabric and rolled clasts (boudinage?), sometimes the rocks have been referred to as mylonites. Alternative authors, however, have suggested that these rocks are sedimentary breccias associated with depositional subsidence.

Underlying the Tenth Legion Fault is a series of strongly chloritised mafic volcanoclastics, andesites and mafic intrusives (gabbros) of presumably the Mclvor Mafic Complex. The Balstrup Fault is the dominant structural feature within AHL's Retention Licence. It is a normal fault, striking WNW-ENE with a 70° dip to the north. In Diamond drill core it is recognised as a brittle structure with clay gouges and fracturing of the rock. In some instances there are black matrix breccias similar to the Tenth Legion Fault. There is no significant mineralisation associated with the fault. There is some evidence for the fault to

post-date the main lead/zinc mineralisation of the Comstock area. There is also evidence for the fault to have small offsets associated with later NE striking structures. At the Boss there is some drillhole evidence for a parallel structure within the hanging wall of the main fault; this may be a separate fault or may be a bifurcation structure off the main fault. Bendall's Fault is a parallel structure to the Balstrup Fault. It was uncovered during the 2000 mining where it had mineralisation associated with it. However the fault itself was a series of narrow bifurcating planar structures and the mineralisation appeared to sit in the hanging wall to the fault. At the time it was felt that this mineralisation continued on into the Boss along the line of the fault. In the light of subsequent work this may not be the case and that the mineralisation caught up in the fault was from its truncation of the Allison's Lode.

The structure of the area is complicated by having flat lying beds being gently folded and disjoined by steeply dipping normal, wrench and possibly RC faulting. There are indications of other fault structures with NW; NNW and NE orientations (see Tear 2005a and 2000a). Most of the faulting is as brittle faults, i.e. clay gouges, fracturing and brecciation, and there is limited evidence of ductile shearing, usually confined to the phyllite units. The presence and effect of shallow dipping structures, perhaps parallel to or splay off the Tenth Legion Fault, is not known and can only be inferred to exist at this point. In addition flexural slip on major bedding planes, generally within the phyllite units is an unknown quantity. There is considerable deformation associated with the phyllite units.

The margin of the Heemskirk Granite lies approximately 3km west of the RL. It is known to have thermal aureole of about 1km. The Allison's Lode appears to be an axial planar sub-vertical 'fissure-fill' structure located in the anticlinal hinge of an upright, N to NNW striking open fold. Immediate host lithologies comprise silicified, talc-rich (supposedly) dolomites of the Poss1 unit, underlain by locally silicified carbonaceous phyllites, Posb1. Sporadic lineations infer a possible shallow plunge direction to the north for the lode, which matches the bed dip direction. The vein system appears to have a silicification envelope up to several metres away from the sulphide bodies, particularly evident in the carbonaceous phyllites. The exposed lode comprises an N to NNW striking sulphide vein system/structure up to 200m long by a maximum width of 20m. The first 5m of overburden is regarded as totally weathered, barren, sandy material that was mistakenly mapped in the past as sandstone. At the southern margin of the vein system there appears a broadening out of the structure although this may be attributable to dilation and dextral movement associated with the Bendall's Fault (Tear 2001). This fault system is a WNW structure that truncates the Allison's Lode structure and is parallel to the Balstrup Fault. At the Boss there are substantial exposures of hematitic gossan over relatively large areas. In the light of the flat-lying nature of the stratigraphy these are believed to stratabound gossans oxidised from massive sulphide bodies within the carbonate units.

### **2.3 Mineralisation**

The Comstock Mineral field consists of a series of lead/zinc vein-like structures mainly hosted by the Oonah Formation, which were the subject of substantial mining efforts in the late 19th Century. Mineralisation at the Comstock comprises massive to semi-massive sulphide and sulphide vein mineralisation hosted by the dolomite units. The main deposits within the AHL retention licences are

1. Allison's Lode
2. Watson's Lode
3. Main Lode
4. South Comstock Pit
5. Boss Lode
6. Balstrup Fault Mineralisation (aka the Sylvester Lode)

Deposits 1 to 3 are parallel mineralised structures with up to 500m of historical strike length e.g. the Main Lode. The South Comstock Pit was originally mined in 1989, but new mineralisation was discovered immediately west of it in 2005 as part of some routine excavation work. This was originally referred to as the West Lode with a Measured and Inferred Resource being allocated to it by Cottle (2005). The Balstrup Fault Mineralisation was also known as the Sylvester deposit (from RGC work). This was unfortunate naming, as there is a small mine in the northern mine lease which is also known as the Sylvester Mine. This latter deposit has been subject to some surface trenching in the past (no maps were available), which has uncovered significant zinc mineralisation as exhibited by the occurrence of mineralised boulders scattered about on the ground. ZZL planned to drill this deposit in 2006, hole collars were spotted but the drilling never eventuated. As a result of this name confusion the Sylvester Deposit was renamed by ZZL as the Balstrup Fault Mineralisation (BFM). It was thought to comprise a steeply dipping massive sulphide lode as part of the Balstrup Fault. However on closer inspection including examination of drill core, the mineralisation attributed to the BFM is actually hosted by carbonates in the fault's hanging wall and not necessarily in contact with the fault. This proposed deposit formed the bulk of the Comstock 2006 resource inventory and was based on 5 Diamond drill holes 400m apart. Cottle (2005) as a Competent Person signed off on this as an Inferred Resource. H&S are of the strong belief that there is insufficient data to identify a resource of any kind and that the drilling intercepts should be classified as exploration results. A more detailed explanation for this reasoning is included as an appendix in previous reporting, in the form of a file note sent to ZZL in 2007, mainly as a result of the interpretation of the 2007 drilling. The exposed lode at Allison's comprises an N to NNW striking sulphide vein system/structural zone that is up to 200m long by a maximum width of 20m. A series of parallel, semi-continuous sulphide zones consist of coarse grained sphalerite, galena and pyrite with a quartz (+calcite) gangue. Some individual sulphide veins are discontinuous and poddy in nature and there are lower grade sulphide dissemination/veinlet zones interstitial to the massive sulphide pods. The mineralisation and alteration appear to cease within the underlying Posb1 unit. Weathered brown sandy/clay material is found in the host carbonate unit, peripheral to and within the zinc mineralisation and has been identified as talc. This material forms an alteration halo to the main mineralisation and acts as a surface indicator of blind mineralisation. Similar steeply dipping vein-style mineralisation occurs at the Watson's and Main Lode areas. Watson's Lode is a steeply dipping narrow sulphide vein, (1-2m wide) with limited extent, approximately 50m west of the Allison's Lode. It is hosted in the magnesium-rich Poss1 unit, as for the Allison's Lode; the Watson's Lode has a similar orientation to the Allison's. The lode measures 100m long with a maximum interpreted base about 40m below surface. The lode is considerably narrower than the Allison's and has a reduced level of mineralisation continuity. The Main Lode is located 200m west of the Allison's Lode and is similar to the Watson's Lode in mineral style. The lode occurs in two separate zones, a north section and south section, which is mainly due to a lack of drilling; historical mapping and mining indicates the lode is continuous in this middle section. The host unit is the same magnesium-rich dolomite as per the Watson's and Allison's Lodes, with the

lode measuring 250m long with an interpreted base to the lode at a depth of 50m below surface. The lode is slightly more complex with there being a second narrow vein interpreted close to the original vein. In addition drilling has identified the old tailings from the original 19th Century mining, which is referred to in this report as the Main Lode Surface resource.

The most significant discovery at the Comstock in more recent times is at the Boss, beneath the outcropping gossans, 100m east of the Allison's Lode. Mineralisation at the Boss is considered to be stratabound as semi-massive to veined sulphide replacement style with sphalerite, galena and pyrite. The Boss Lower mineralisation is hosted by the dolomitic Posd1 unit, immediately below the Phyllite Marker Unit (Posb1) and covers an area of 400m long by 200 wide, at an average depth of 70m below surface. Thickness of the mineralisation can range from a minimum of 4m to a maximum estimated true width of 20m. At this stage it is bounded by the Balstrup Fault to the north and by Bendall's Fault in the south. Anomalous host rocks in the same stratigraphic position accompanied by characteristic siderite alteration were drilled as far west as the Main Lode (DDH SY130), whilst mineralisation is open to the east. At its northern end, near the Balstrup Fault, the mineralisation dips about 25-30° to the north. This 'roll over' effect is attributed to dextral movement on the fault and the possibility of a secondary parallel fault. Additionally two units of stratabound mineralisation, overlying each other, were encountered in the Poss1 unit. This constitutes the Boss Upper Sulphide and Oxide mineralisation and comprises a thick unit of interpreted oxidised material, with localised high grade supergene silver mineralisation, overlying but separated from, a thinner sulphide-rich unit. The oxide material at the Boss measures 300m by 150m by up to 60m thick and outcrops at surface, whilst the Boss Upper Sulphide mineralisation measures 150m by 150m by 5m at a depth of 50-60m below surface. The gossan units continue to the east for another 800m and reach close to the old Britannia Mine. Additionally one hole at the Boss, SY131, has recorded near surface, high grade silver mineralisation in jarosite material (possibly supergene related) of 7m @ 520g/t Ag from 7m down hole (Pb 0.4% and Zn 0.07%). Key aspects on the mode of formation for the mineralisation at the Comstock are included below:

- Generation of lead/zinc sulphide fluids, age unknown; could be Cambrian i.e. Mt Read Volcanics, Ordovician i.e. Gordon Limestone or Devonian i.e. Heemskirk Granite. Presumed at this stage to be Devonian as Pb-isotope data for the Allison's Lode confirms a Devonian lode style (Radonich 2002).
- Fluids introduced into the carbonate sequence causing mineral replacement; possibly ponding beneath the less replacive phyllite units e.g. Boss Lower. There is pervasive wall rock replacement associated with the lode mineralisation.
- Brittle fracturing in the carbonate allows for lode development; is this contemporaneous with the replacive mineralisation or a later stage product associated with deformation and possible granite intrusion?
- The 'mineralising structure' is unknown; it is not thought to be either the Balstrup Fault or the Tenth Legion Fault.

It is worth noting that there is significant base metal and massive magnetite mineralisation at depths of >450m. Some of this mineralisation was suggested by RGC to be part of the Balstrup Fault Mineralisation, although if the mineralisation is stratabound some of these intercepts line up in an entirely plausible flat-lying geological scenario.

### 3 EDGI Activities

#### 3.1 EDGI Exploration Activities

During the EDGI project period, 1 diamond drill hole, SY800, totalling 804.5m was completed at The Boss prospect, Comstock RL ( Table 1). SY800 was collared approximately 25m from the Trial Harbour Road on the edge of a rehabilitated and reclaimed area - formerly the dirty water dam at Comstock.

Core recovery was excellent throughout, the hole drilled fairly straight initially, with some cork-screwing and deflection to the west at depth; HQ diamond was drilled to 152.9m and NQ diamond to end of hole.

**Collar Information** [Cancel] [Apply Changes]

**Drillhole Name** SY800 **Parent Hole (for re-entries)** [ ]

**Property** RL4/2009 **Prospect** Balstrup

**Datum** MGA94 Zone55  **Primary Drill Type** Diamond

**Wedge Depth (m)** [ ] **Underground/Surface** Surface

**X** 357866 **Y** 5361102

**X Local Grid** [ ] **Y Local Grid** [ ]

**Coord. Accuracy** 4m **RL (m)** 304 **RL Accuracy** 4m

**Position Method** Handheld GPS  **Collar Dip** -80

**Collar Azimuth (Mag)** 167  **Collar Length (m)** 804.5

**Hole Complete Date** 29-JUN-2019 **Date Precision** Day

**QA Level** Complete and correct **Enter Date** 15/FEB/19

**Last Update Date** 16/OCT/19 **Last User** LVESKA

**Drill Comments**  
Completed EDGI Grant hole. Aimed at testing for the existence of a Renison-style mineralising system at Comstock. Recent drilling and MRT's granite modelling, together with historical data was also used.

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Figure 3: Collar details - hole SY800

Hole Name	GDA94 X	GDA94 Y	RL (m)	Azimuth (Mag)	Dip	Start (m)	Length (m)
SY800	357866	5361102	304	167	-80	0	804.5

*Table 1: Hole SY800 summary details*

SY800 was designed to provide further information regarding:

- the Balstrup 'deep structure' controlled mineralisation, especially the area around the intersection of Tenth Legion/Balstrup Faults
- further stratabound, flat-lying, replacement style sulphide economic mineralisation below -150m elevation
- alteration patterns associated with interpreted granite intrusion at depth, and
- stratigraphic information at depth



*Figure 4: SY800 Hole location, Boss Lower mineralisation projection in red.*



Figure 5: SY800 collar location, zoomed

### 3.2 Discussion of results

SY800 traversed both the Balstrup Fault Zone (494-506.5m), and later also what is interpreted to be the Tenth Legion Thrust/Fault (694-729.5m). The intersection of these two major structures met the important first objective of the hole, stated above.

Several brittle stockwork veined and massive pyrite zones were also intersected in the hole, with varying amounts of sphalerite, pyrrhotite and galena also present, notably:

- 460 – 464m (vein stockwork zone in siltstone) **4m @ 1.41% Pb, 0.94% Zn, 13ppm Ag**
- 503 – 506.5m (corresponding to the Balstrup Fault), **3.5m @ 2.3% Pb, 4.25% Zn, 49ppm Ag**
- 637.4 – 639.85m (Massive pyrite with 10% sphalerite and galena vein inclusion) **3m @ 4.3% Pb, 7.6% Zn, 35ppm Ag**
- 650.4 – 652.5m (pyrite-galena-sphalerite massive sulphide vein) **3.5m @ 6.7% Pb, 4.46% Zn, 47ppm Ag**

Depth From	Depth To	Legacy Lithology	Lithology	Lithology Description
0	.8	-	(CBS) black soil	Dark grey to black soil with humus material.
.8	158	-	(H) Shale and siltstone	Greywacke turbidite sequence of mostly volcanoclastic derived siltstones, occasionally grading up to fine-grained sandstone. Ferruginous iron-stained orange-brown coloured fractured structural zone from 11-13.5m and 35-47m. Base of total oxidation at approximately 15m. Base of partial oxidation approximately 48m. Minor disseminated medium to coarse-grained pyrite euhedra present within 11-13.5m structural zone, partially oxidised particularly within fractures. Cased-off to NQ at 152.9m. An 8m wide weakly-developed structural zone is present from 83.25-91m characterised by fracturing and quartz-calcite veining providing a local focus for increased weathering. Signs of hornfelsing of the sediments increasing down the interval, with tan coloured and indurated brittle-fractured zones present in places.
158	417.6	-	(MMF) hornfels	Greenish yellow to grey weakly hornfelsed sediments with fine wispy 2-3mm calcite veinlets common, wider calcite veins often having an Fe-rich ankerite selvage. Frequent brittle micro-fractures visible, sometimes with movement of a few mm visible. Upper contact of interval very gradational over several metres. 10cm calcite veins containing a few percent coarse-grained galena and sphalerite blebs centred on 159m and 167.25m. Interval has occasional greenish coloured bands containing small 1mm clots of chlorite.
417.6	457.7	-	(SSI) siltstone	Talc-carbonate altered siltstone characterised by 3-4mm calcite veined brittle fracture stockwork texture, calcite veins often with talcose selvages. First evidence down hole that the Balstrup Fault zone is close. Interval from 440m onwards more veined and appears more bleached in appearance due to intense calcite veining, some of the texture best described as breccia. Occasional very irregularly shaped thin wispy pyrite veinlets, largest of which occurs at 421.9 - 422.2m.
457.7	471.5	-	(SSI) siltstone	Pyrrhotitic brittle fracture stockwork zone. First clear occurrence of siltstone cataclasis texture at 460m, however some angular clast-supported breccia bands present a little earlier. This interval almost definitely represents a structural splay off the main Balstrup Fault zone. Narrow 20cm cataclasis/melange zones also present at 466.5m and 471.4m. 10-15cm band of galena and sphalerite-rich brittle fracture zone veining at 4615m, occasional blebs of sphalerite and galena within more pyrrhotite and pyrite material as described above.
471.5	503.3	-	(SSI) siltstone	Hornfelsed and silicified indurated siltstone. From 494.6m to 498m, a siltstone matrix-supported breccia band with vuggy Fe-rich carbonate cement/matrix occurs. The last metre of the interval contains abundant vuggy calcite breccia veins, which fractured readily during the drilling process. Occasional 2-3mm width fine sinewy pyrite-pyrrhotite-sphalerite veins. Balstrup Fault could be defined from 494-506.5m not including the brittle hanging wall zone.
503.3	506.4	-	(OMS) massive sulphide	Pyrite-sphalerite-galena massive sulphide vein. Corresponds to lithology change of Crimson Creek sediments to Oonah dolomite. Very coarse-grained pyrite euhedra present within a finer-grained sphalerite-rich groundmass.
506.4	568.1	-	(SDL) dolomite	Weakly skarnified and calc-silicate altered recrystallised dolomite. From start of interval to 528m, corresponding to the immediate footwall, the dolomite has significant magnetite and pyrrhotite with accessory pyrite present as strange almost spinifex-textured accumulations. The dolomite becomes more massive after this depth. Green calc-silicate minerals possibly epidote-actinolite occur in amorphous masses in close association with pyrrhotite and magnetite in this interval.
568.1	577.4	-	(SCI) carbonaceous siltstone	Transition unit of laminated carbonaceous siltstone and brecciated quartz-rich clasts. Some cataclasis breccia texture in places. Has a flooded bleached silica alteration texture.
577.4	591.35	-	(SBS) black shale	Calcite and pyrite veined black shale, veining is very irregularly shaped - thin wispy calcite veinlets often with a pyritic selvage. Some 1mm pyrite veins cross-cut the calcite veins.
591.35	631.1	-	(SCA) carbonate undiff	Talc-carbonate altered siltstone characterised by intense calcite veining and abundant graphitic stylolites. The upper contact, tray 135 photographed, supports the lithology being altered carbonaceous siltstone rather than dolomitic. Interval contains some significant pyrite-sphalerite-pyrrhotite-galena veins: 595 - 596.45m (semi-massive), 601.6 - 603m, 625.5 - 626.8m and a very talc-rich vein 630.65 - 631.1m with only 15% sulphides. A vuggy and weathered cataclasis structural zone present from 614.3 - 618.6m.
631.1	637.4	-	(SDL) dolomite	Weakly calc-silicate altered recrystallised dolomite with narrow and irregularly shaped pyrite-sphalerite veins in narrow 1-2mm brittle fractures, as well as coarse-grained veinlets to 150mm width. Some 1mm pyrite veins appear to follow stylolitic textures.
637.4	639.85	-	(OMS) massive sulphide	Massive pyrite with 10% sphalerite vein inclusion and only trace galena. Vein contacts are irregular but quite a shallow angle to the LCA indicating vein is quite steeply dipping.
639.85	650.4	-	(SDL) dolomite	Calc-silicate altered dolomite approaching marble. Narrow interbeds of silty material giving altered dolomite an impure character. Minor magnetite present as infill in very narrow 1mm irregularly shaped brittle fractures. Occasional coarse-grained pyrite-sphalerite veinlets to 250mm width.
650.4	652.5	-	(OMS) massive sulphide	Pyrite-galena-sphalerite massive sulphide vein. Upper 200mm of vein composed of very coarse-grained galena, some 8-10mm sub-euhedral crystal clusters present.
652.5	663.65	-	(SDL) dolomite	Calc-silicate altered dolomite approaching marble. Minor magnetite present as infill in very narrow 1mm irregularly shaped brittle fractures. Occasional coarse-grained pyrite-sphalerite veinlets to 25mm width.
663.65	694.15	-	(MMF) hornfels	Hornfelsed and calc-silicate altered sediments, mostly siltstone. Patchy irregularly shaped pyrrhotite veins of various widths up to 50mm. Creamy green coloured calc-silicate minerals tremolite-actinolite? present as a very fine-grained groundmass. Fine laminations almost parallel to the LCA at 670.3m. Vuggy 20mm coarse-grained siderite vein at end of interval. Note that the interval represents the hanging wall of a major structure.
694.15	747.8	-	(FZ) fault zone	Tenth Legion Fault melange zone in carbonaceous siltstone cataclasis. Fault tectonic fabric best described as a carbonaceous matrix-supported breccia with angular siliceous clasts commonly 10-15mm in size. Appears to be magnesite veining appearing for the first time in the hole within the structure itself and also comprising the bottom of the interval from 743.5 - 747.8m.
747.8	754	-	(SBS) black shale	Hornfelsed black shale with 5-10mm width medium-grained pyrite veining along the core axis and occasional thin wispy quartz veins to 3mm width.
754	804.5	-	(C) Calc-silicate rock	EOH. Magnesitic breccia zone, interval is an interbedded zone of magnesite, and variably hornfelsed black shale. Bottom of hole lithology could be described as a calc-silicate altered and hornfelsed dolomitic breccia with little magnesite after approximately 790m. Occasional bands of interfingered black shale present: 769.9 - 771.6m, 778.2 - 779.4m and 780.4 - 783.25m. The more magnesite-rich bands are often associated with irregularly shaped intergrowths of magnetite, pyrrhotite and pyrite. A narrow pyrrhotite, sphalerite and galena rich fracture zone occurs from 788.2 - 788.9m.

Figure 6: Geological summary of hole SY800

The hole traversed a fresh unweathered hanging-wall lithological succession, through the Balstrup Fault, then into a footwall succession before finally traversing what is interpreted as the Tenth Legion Fault towards the bottom of the hole.

The Balstrup Fault hanging-wall was characterised in the hole by a progressive change in order down hole from:

1. unaltered turbidite succession sediments
2. weakly hornfelsed sediments with calcite veinlets and chlorite clots
3. talc-carbonate altered siltstone
4. pyrrhotitic siltstone brittle fracture stockwork zone
5. hornfelsed and silicified indurated siltstone

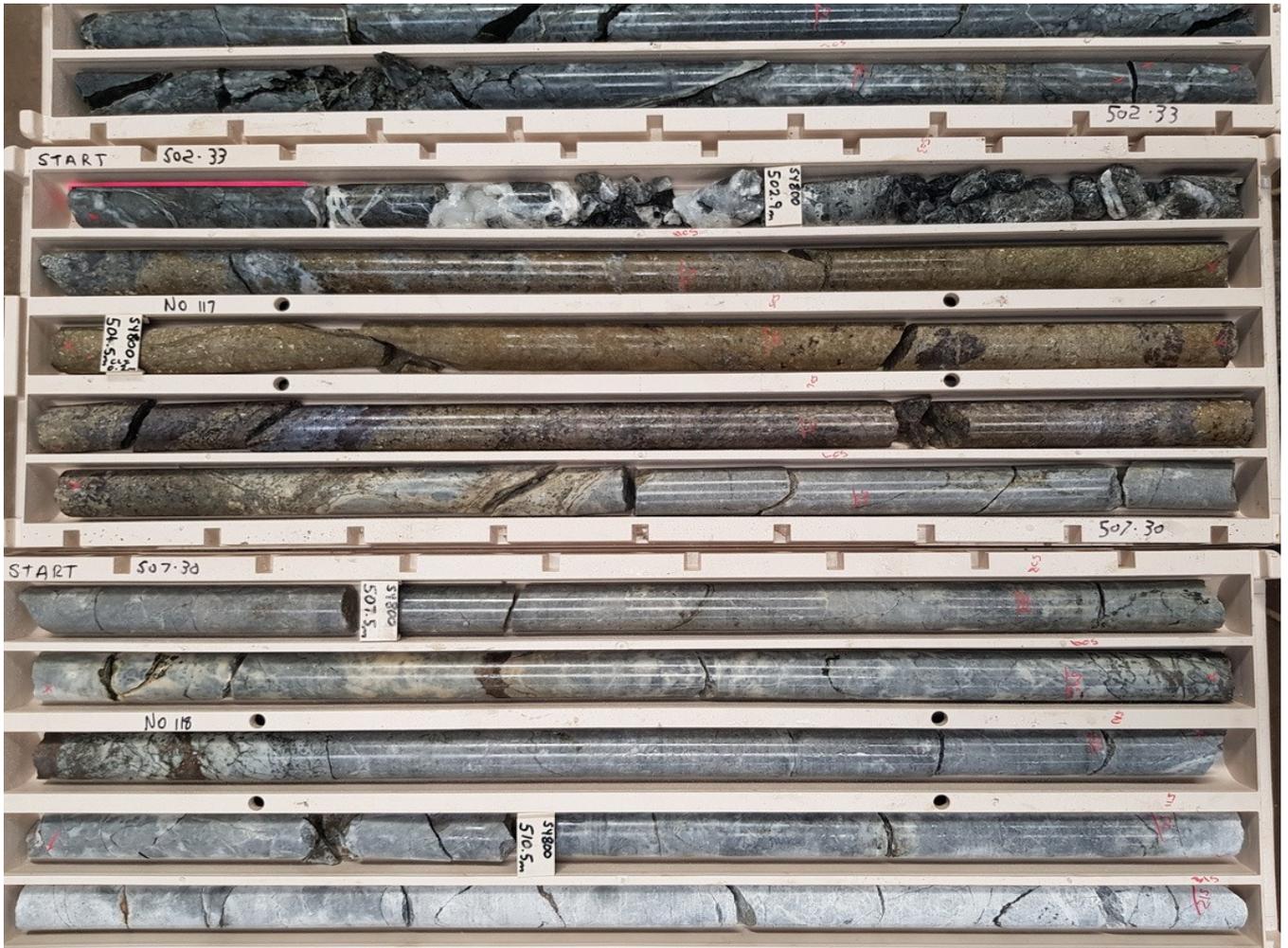


Figure 7: Balstrup Fault mineralisation – transition from siltstone to dolomite

In Figure 7 above, a pyrite-sphalerite-galena massive sulphide vein corresponds to the lithology change from silicified Crimson Creek sediments to Oonah dolomite. Very coarse-grained pyrite euhedra present within a finer-grained sphalerite-rich sulphidic vein.

Calc-silicate altered recrystallised dolomite is visible from 506.4m onwards in Figure 7, corresponding to the immediate footwall, the dolomite has significant magnetite and pyrrhotite content, with accessory pyrite present as strange almost spinifex-textured accumulations.



Figure 8: Spinifex-textured pyrrhotite in dolomite



Figure 9: Spinifex-textured pyrrhotite in dolomite skarn (525m)

The Balstrup Fault footwall (Tenth Legion Fault hanging-wall) lithologies consisted mainly of calc-silicate altered dolomite, hornfelsed carbonaceous siltstone, and black shale.



*Figure 10: Calcite and pyrite veined black shale (591m)*

The Tenth Legion Fault Zone was characterised by melange of carbonaceous siltstone. The fault tectonic fabric is best described as a carbonaceous matrix-supported breccia with angular siliceous clasts commonly 10-15mm in size.



Figure 11: Melange/cataclasite within Tenth Legion Fault zone (700m)

Below the Tenth Legion Fault Zone magnesian breccia was common, closely associated with variably hornfelsed black shale. The lithology at the end of the hole was best described as a calc-silicate altered and hornfelsed dolomitic breccia.



Figure 12: The End



*Figure 13: L-R: All smiles, Dr Joe Xie, Sarah Courtney(MP), Laurie Veska and Kevin Robinson at SY800 site*

## **4 Environmental and Rehabilitation Activities**

The drill pad site required almost no preparation for the drill rig due to it being located in an already flat and cleared area.

No rehabilitation activities have been undertaken at the drill site of SY800 at this time, The sump will be filled in during the process of planned clay-capping of the dirty-water dam area.

## 5 Conclusions and Recommendations

SY800 broadly met most of the objectives of the hole. The hole reached design-depth, traversed two major structures and provided further high-recovery intersects of stratabound, replacement style sulphide mineralisation.

The degree of hornfelsing of the dolomitic rock to marble at the end of the hole was quite intense, but without the interesting skarn mineral assemblages often seen in the shallower holes drilled at the Boss prospect nearby in the Balstrup Fault footwall lithologies. There were no minerals present near the end of the hole that would specifically indicate that a granite intrusive or associated mineralising system was nearby.

A number of 3-4m apparent-width notable Pb-Zn-Ag intersections were achieved in SY800, however none were encouraging enough to be deemed worthy of individual follow-up.

The relative prevalence of mineralised dolomite intervals encountered at much shallower depths at the nearby Boss prospect should keep the Company busy well into the future.

The complex structural nature of the geology in this major fault corridor should not be understated, there is ample opportunity for scientific or postgraduate research with much drill core available to interested parties.

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