Pillinger (EL31/2014) Annual Report on Exploration 2019

(to May 16th 2019)

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Summary

Pillinger EL31/2014 is prospective for Cambrian Volcanic Hosted Massive Sulphide (VHMS, Zn-Pb-Cu-Ag-Au) deposits and hybrids including Henty Gold style. Two large targeted VHMS end members being Rosebery (51.5Mt @ 12.1% Zn, 3.9% Pb, 0.50% Cu, 130g/t Ag, 1.9g/t Au) and Mount Lyell (311Mt @ 0.97% Cu and 0.5g/t Au). This includes potential for magnetite-Cu-Au mineralisation similar to that located on nearby Mt Darwin and at the Garfield Prospect. VHMS potential marked by anomalous base metals and alteration vectors in soils, silica – pyrite alteration with rock chips to 15g/t Au and favourable magnetic basalt / andesite association has been demonstrated on the adjacent Clark Grid, with the potential host horizon striking into the north east corner of EL31/2014.

GIS planning and interpretation continued utilising a variety of datasets to identify salient features for ground follow up, evolve the geological model and improve targeting of mineralisation. Exploration planning was undertaken, in part evaluating the co-exploration potential on the adjacent EL10/2018. Joint Venture search continued with approaches to several potential financiers to market the Pillinger EL31/2014 and adjacent EL10/2018 as a highly VHMS prospective bundle. Efforts were again unsuccessful, but marketing will continue in the coming tenure year.

Field work was planned to access as yet unexplained magnetic anomalies from the southwest of the tenement. However, no on ground work was undertaken, in part since bush fire potential was high during the planned field work window.

Introduction

This third annual report on Pillinger EL31/2014 details work undertaken to 16th May 2019. The Pillinger Exploration Licence (EL31/2014) is held by R Reid (50%) and B Koster (50%)..

To-date work investigating the potential extension of the likely VHMS host horizon and basalt package of the Clark Valley Grid has been undertaken. Initial GIS interpretation identified several magnetic anomalies in the tenement's south west having potential correlation with the Clark Grid host horizon basalts and a large EM anomaly in the north east corner warranted follow up.

The Pillinger tenement is little explored with scant geological mapping (including by Electrolytic Company of Australasia Limited and Mineral Resources Tasmania more regionally) having been undertaken. Stream sediment sampling is relatively extensive within Pillinger, but associated rock chip sampling and geology reporting is sparse, including only that of Mathison (1985). Favourably a 1995 aeromagnetics survey and regional aeromagnetics and radiometrics surveys cover the tenement. Intensive gridding surveys (geological mapping, soil sampling, Induced Polarisation and ground magnetics) and WTRMP (Western Tasmanian Regional Minerals Program) airborne electromagnetics extend north of the tenement boundary.

Access

Pillinger EL31/2014 covering 13km^2 lies approximately 30km south of Queenstown, west coast Tasmania. The principal access to the tenements north is via the 4WD track along South Mount Darwin Plateau, which can utilise the walking access track to the Clark River grid. Southern walking access is also possible from Farm Cove and Kelly Basin in Macquarie Harbour and the Bird River Track from the east. EZ Limited (Mathison, 1985) cut walking tracks to access the Clark River from the button grass to the west and north of the Kelly basin area. A likely now overgrown helipad was cleared near the intersection of the two main tracks. An historic logging track is known to loop north from Kelly Basin, but has not been located and is also likely overgrown and poorly located (Figure 1). This track has not been regularly used since approximately 1925, when the last train left Pillinger prior to railway closure. The rail had initially serviced the North Mount Lyell Company and was later used for timber hauling. This route extending north of the rail line between East and West Pillinger is yet to be investigated, but relatively clear forest understory exists in the inferred track start vicinity.

Access up the Clark River is best undertaken without recent rain, more remote exploration having to await drier weather during summer and autumn. Traversing the now overgrown track extending though and northwest of the historical Pillinger town ship is laborious compared to a better route staying close to the river, in relatively open forest with ferny understory. Walking time along the Clark River to the tenement edge, avoiding the lower approximately 400m of swampy ground closest to the river mouth, is approximately 2 1/4 hours. Similar timing is required to access the tenement margins along Hazel Creek. Reconnaissance clearly identifies that access tracks need to cut to enable efficient exploration work in the area.

Geology

The area is little mapped with what's known coming from MRT 250,000 scale mapping, possibly in part derived from EZ company work. The structurally complex geology of EL31/2014 comprises three principal rock types; the Middle Cambrian-aged Mount Read Volcanics (MRV), the Late Cambrian-aged Owen Group siliciclastics and uppermost Cambro-Ordovician Gordon Group (including limestone; Figure 2 & 3). The Mount Read Volcanics are largely mapped as Yolande River Sequence (YRS; Western Volcano-Sedimentary Sequence), which in a local regional context inter fingers with the Central Volcanic Complex (CVC) at or near it's top, beneath Tyndall Group (TG) quartz-feldspar phyric volcaniclastics (mapped on the eastern flank of Mt Sorell). A narrow band of CVC is aligned NW through the eastern portion of the tenement. The CVC/YRS - TG boundary represents a Volcanic Hosted Massive Sulphide (VHMS; Zn-Pb-Cu-Ag-Au) prospective stratigraphic position. The apparently greater accumulation of more siliceous and pelitic volcano-sedimentary rocks of the YRS within Pillinger relative to that in the Clark Valley to the north may indicate thicker accumulation in a Cambrian graben to the south west or folded repetition.

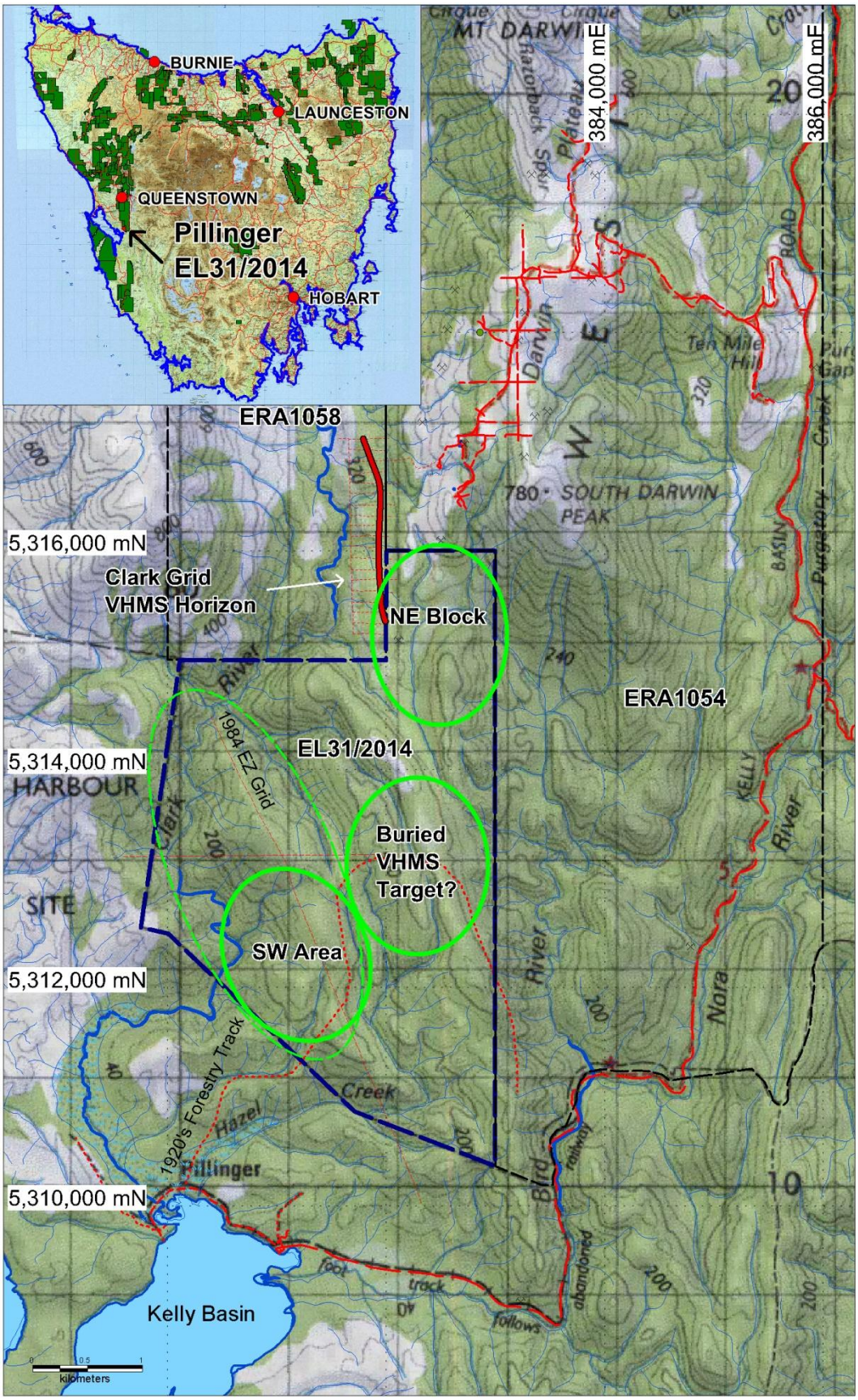

Figure 1: Location of EL31/2014, showing key field areas and access.

Cambrian granite outcrops on the South Darwin Plateau, proximal to the north east of Pillinger (EL31/2014) is associated with magnetite – Cu +/- Au mineralisation. A granite outlier is mapped by Loftus Hills (GSB16) in the tenement's NE Block / EM anomaly drainage on the spur down from South Mt Darwin. This occurrence is not mapped by MRT (Further discussion below). The granites location is very close to a Hummingbird EM anomaly, but is not likely related as granite on South Mt Darwin is largely low conductivity. Field investigation suggests that this occurrence could otherwise be a coarse grained crystal rich quartz-feldspar volcaniclastic (similar to the Comstock Tuff?).

TCR85_2460 provides some geological insight into the centre and western parts of the tenement. They describe outcrops of kaolinised rhyolitic tuff, sheared, chloritised and sericitised volcanic rock, bedded volcaniclastic sediments and andesitic(?) volcanic with minor pyrrhotite. All positive observations despite concluding low prospectivity at the time. Porphyritic gabbro located in the south west of the area maybe a sub volcanic intrusion, related to host horizon basalts.

The Gordon Group limestone strikes NE through the centre of the tenement and is a potential (but lower priority) Pb-Zn target for Irish or Mississippi Valley styles of mineralisation. A Pb-Zn prospect is known along strike southeast of the tenement and a fold closure in limestone to the west is base-metal anomalous.

Previous Work and Exploration History

Early History

The Jukes Darwin Mining Field, to the north of Pillinger is reported in GSB16 (Hills, 1914). This report mostly describes Cu, Au and magnetite mineralisation.

Old mining leases 3334 93M, 3335 93M, 4831 93M, 4778 93M and 5221 93M are noted in MRT records; being located to the north east and north of the Pillinger tenement.

The Mt Lyell Mining & Railway Company (1970's)

Howland-Rose (1978; TCR 84_2239) provides a summary of gradient array IP and ground magnetic surveys over the Clark Valley area. Phase 1 data reported ends at 00N, whereas Howland-Rose (1979; TCR 84_2242) reports data extending a further 600m south to line 6S, ending immediately within the north eastern 1km^2 block of Pillinger. A less powerful 3kw generator was used for the follow up survey, but was considered adequate. However, anomaly discrimination in the furthest south zone may not be quite as precise as the original survey (Howland-Rose, 1979).

Chargeability ranged from 10 to 70millivolts/volt. Resistivities range from 1500 to 20000 ohm-metres. Grid line spacing was wide at 200 to 400m.

Line 6S on the northern margin of the NE 1km2 block of Pillinger returned a significant response of 14millivolts/volt with a broad (or multiple) source within +/- 20m of that centre (Howland-Rose, 1979). High 2000 ohm-metres resistivity indicates the source is disseminated chargeable material, with estimated depth <50m. This zone "Y" was reported to be associated with a significantly lower magnetic response, concluding it was not magnetite related. Pyrite within black shale mapped in this area may partly explain the anomaly response.

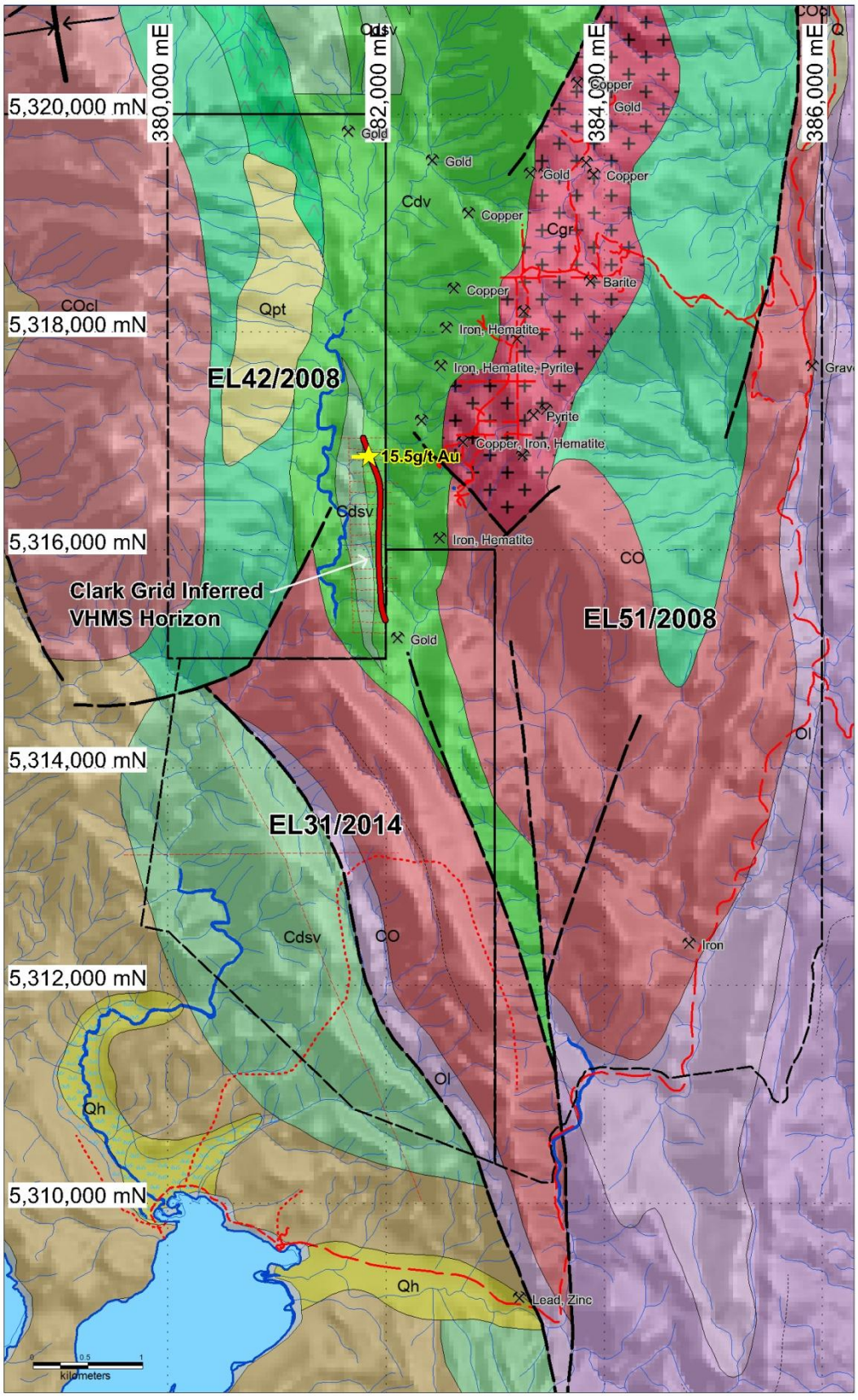

Figure 2: Regional geology of the Clark Valley and Pillinger areas, showing Mineral Resources Tasmania (MRT) 250k digital geology (see legend in Figure 3), known prospects and Shree Mineral's 15.5g/t Au in rock chip site.

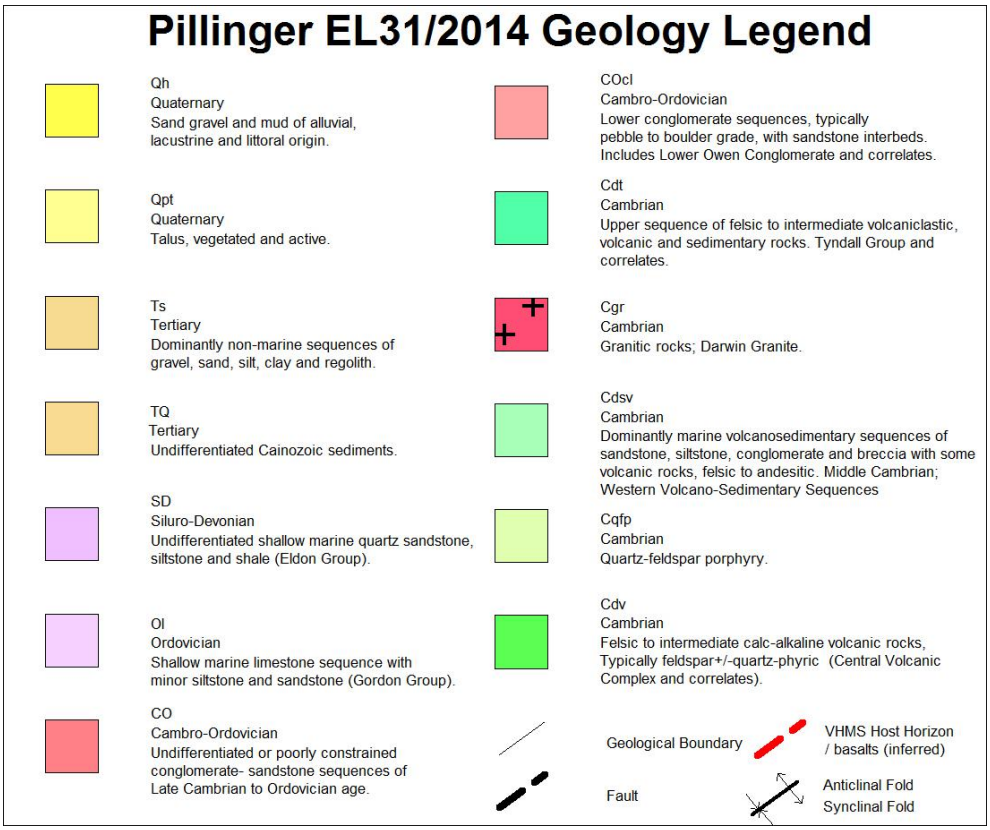

Figure 3: MRT 250k digital geology legend for the Clark Valley and Pillinger areas.

EZ. (1984-7)

The Electrolytic Zinc Company of Australasia undertook stream sediment surveys and reconnaissance geological mapping in the tenement area and surrounds. Their stream sediment programs mostly targeted Zn-Pb mineralisation in the Gordon Limestone, west of Pillinger, as well as Au in the Clark Valley to the north (eg. Mathison, 1985). EZ also assessed the VHMS mineralisation potential of the volcanics in the core and western portion of Pillinger.

Notably apple green sericite was found in panned concentrates (85-2460; SN65819, 59738), as well as bright green silicate from Hazel Creek (84-2181; SN59910), draining the south west magnetic anomalies. These occurrences possibly represents Fuchsite; a VHMS hangingwall indicator mineral.

BHP (1990-1)

A comprehensive previous exploration data review is provided in Cameron and Read (1991; TCR91-3252). Among this is the location of two 1957 Turan helicopter EM anomalies, coincident with the Owen / MRV contact on South Darwin. BHP undertook a ground electromagnetic UTEM survey in 1990 over the upper Clark Valley, but didn't extend south into the Clark Grid, finishing well outside Pillinger EL31/2014 on 17600N, approximately 1km north of the Shree Mineral's gold in rock chip anomaly.

RGC Exploration Pty. Ltd. (1992-3)

Undertook extensive geological mapping, rock chip and soil sampling identifying anomalous base metals in soils (to 880ppm Zn) on what is now in filled by the Clark Grid.

Aberfoyle (1995)

Aberfoyle conducted a helicopter aeromagnagnetic survey of the Clarke Valley and Mt Darwin in 1995. The survey defined a magnetic zone within the Central Volcanic Complex, which subsequently has been shown to correspond with basalts and anomalous base metal in soils on the Clark Grid. The helimag data was not processed beyond an initial assessment and is not reported upon by McNeill (1996) in his relinquishment report.

WTRMP (2002)

The 2002 WTRMP airborne electromagnetic and magnetic survey unfortunately covers only the northern boundary and top NE 1km2 block of the Pillinger tenement. The WTRMP also undertook a separate widespread aeromagnetics and radiometrics over the west coast, including the Pillinger area.

Zinico Resources – Zelos Resources - Gujurat NRE Resources (2004 –7)

Zelos cut but did not sample the Clark Grid (21 lines of 500m length and 100m spacing), which planned to assess RGC's anomalous base metals in soils, extending north of Pillinger EL31/2014.

Three discrete EM responses were identified by Hungerford (in Vanzino 2007) from WTRMP electromagnetics, within both the YRS and the CVC. 'Ground truthing' by way of reconnaissance stream sediment sampling and minor rock sampling was undertaken in drainages in the vicinity of each of these anomalies and returned poor results. Best gold reported was 20ppb, with copper to 60ppm, Pb 105ppm and Zn 145ppm from samples outside Pillinger EL31/2014.

Three data points following up "Anomaly B" within Pillinger EL31/2014 return low detectable gold to 3ppb from -80# samples. Vanzino (2007) commented that "The trunk stream in the centre of the anomaly is a low lying, braided and undefined drainage – basically a swamp with the density of vegetation one expects in a swamp! No outcrop was observed and quartz rich sands dominated with very little mud fraction available for sampling. Three poor quality stream sediments were collected. The observed topography concurs with Hungerford's suggestion that the EM anomalism is probably due to surficial responses". However, the anomaly also extends beyond surficial sediments, upslope toward the Owen / CVC contact, as further discussed below.

For ground follow up, Hungerford considered that TEM (Time Domain Electromagnetic) and IP (Induced Polarisation) surveys would both locate conductive black shales, with the IP being of greater benefit overall. Although, TEM might be easier to undertake and would provide more accurate estimates of conductors properties. Hungerford's images clearly show that BHP's UTEM survey stopped well north of Pillinger EL31/2014 and the Clark Grid.

Shree Minerals Ltd. 2011-15

In 2012, the Clark Grid immediately north of Pillinger EL31/2014 was soil sampled and mapped confirming a coherent zone of anomalous base metals in soils and identifying positive vectors to VHMS mineralisation. A 0.6g/t Au in composite rock chip sample was re-sampled in 2015, returning 15.5g/t Au. This sample is coincident an ~150m plus zone of silica-sericite-pyrite alteration and remains to be further followed up. Potential to find a Rosebery or Que-Hellyer like VHMS within the grid area was considered high (Reid, 2015). The inferred VHMS exhalative horizon trends into the north of Pillinger (EL31/2014).

Reid and Koster (2016 to date)

Identified unexplained magnetic anomalies of possibly similar affinity to the Clark inferred VHMS host horizon basalt. Three principal targets are the south western magnetic anomalies, NE block and a buried VHMS conceptual target located in the centre of the tenement. A regional interpretation evolved suggesting that the host horizon from the Clark River Grid, striking into the north east of Pillinger, maybe fault offset to the south into the centre of EL31/2014, where it's marked by elevated magnetics, possibly reflecting a source beneath the Owen Group (Figure 4).

Sampling in Pillinger's NE Block comprised 28 rock chips, 2 -80# stream sediment samples and 7 panned concentrates. Peak results were 1210ppm Zn and 0.05g/t Au in rock chip, as well as 0.475g/t Au in -80#.

A key outcome was the location and sampling of an extensive silicification zone (resistive?) at an interpreted structural intersection, in the vicinity of the NE Block EM conductor/anomaly. Rock chip analysis for gold by fire assay returned low level Au to 0.02ppm. Gold of irregular proximal to source form was found in the silica zones drainage, with up to 11 colours returned per panned concentrate sample. Potential for Henty style Au, including remobilised Devonian gold exists in this area.

Rock chips bearing low level gold (to 0.014g/t Au) were derived from a zone of lithic volcaniclastics, representing the strike extent of the Clark inferred VHMS horizon. Highly anomalous gold (0.475g/t Au) was in returned from a -80# stream sediment sample draining this area.

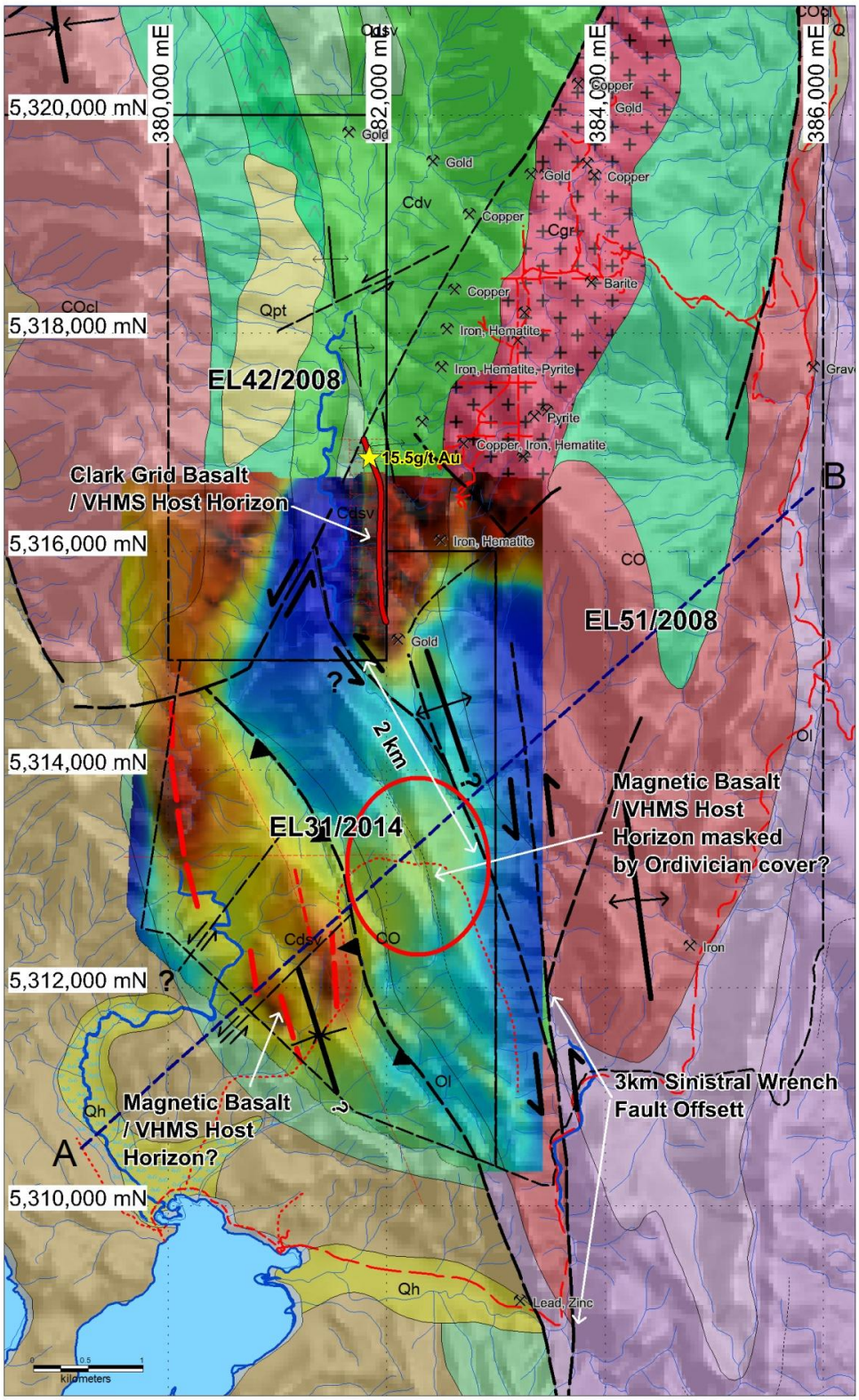

Figure 4: Regional geology of the Clark Valley and Pillinger areas, showing interpreted Geology/Structure, inferred basalt / VHMS host horizon (Red dash lines) and known prospects over clipped 1995 aeromagnetics grid, as well as MRT 250k digital geology (See Figure 3 for legend).

Work Conducted

Work conducted during the year to 16/05/2018 included Joint Venture search and GIS-based planning and interpretation. Exploration planning was undertaken, in part evaluating the co-exploration potential with the adjacent EL10/2018, but primarily focused upon as yet unexplained magnetic anomalies in the southwest of the tenement. Minor work was undertaken on the adjacent EL10/2018, but planned field work was not undertaken with available field time coinciding with dangerous bushfire weather conditions.

A search for potential Joint Venture financiers, marketing Pillinger EL31/2014 with the adjacent held EL10/2018 area as a highly VHMS prospective bundle continued. Efforts were unsuccessful at the time, but further marketing is planned for the coming tenure year with improved market conditions.

Proposed Exploration

Proposed exploration on EL31/2014 aims to discover high value Cambrian Volcanic Hosted Massive Sulphide (VHMS, Zn-Pb-Cu-Ag-Au) deposits and hybrids. Two large targeted VHMS end members are Rosebery (51.5Mt @ 12.1% Zn, 3.9% Pb, 0.50% Cu, 130g/t Ag, 1.9g/t Au) and Mount Lyell (311Mt @ 0.97% Cu and 0.5g/t Au). Potential also exists for Henty Gold-style (5.7Mt @ 8.4g/t Au).

The exploration work program on EL31/2014 is in part planned to be concurrently undertaken on the adjacent EL10/2018; detailed below. Further joint venture financial input will be sought for planned extensive exploration outlined below.

Planned field work on EL31/2014 aims to assess concepts detailed in last year's annual report. Continued geological mapping, accompanied by rock chip and stream sediment sampling as well as informally GPS located soil sampling is planned to better understand the geology and consequently VHMS targeting. A good linking track net work is required to facilitate further work.

Soil sampling to cover the likely extension of the Clark Grid exhalative horizon in the north east is warranted to follow up 0.475g/t Au in 80# stream sediment sampling coincident with the projection of the Clark Valley Inferred VHMS host horizon into the Pillinger tenements NE. Soil sampling covering the unexplained magnetic anomalies in the south west of the tenement is also a priority.

Scope exists to undertake further stream sediment sampling in the Pillinger area to fill small gaps in the overall coverage. Among these is the vicinity of the Au prospect in the NE and magnetic anomaly drainages in the southwest. TCR84_2181 reports stream sediment data from the southern portion of Pillinger only, but identifies anomalous Cu in stream sediments forming a tapering trail downstream from two of the southernmost magnetic anomaly drainages. These creeks were not sampled in the relatively extensive program reported in TCR85_2460 and have been sampled in recent follow up.

Select main tributary and previously elevated sample sites could be re-sampled to calibrate and compare to new data. A number of potential sites worth sampling to better understand the stream sediment metal distribution have been identified. Panned concentrates and -80# sampling can be readily undertaken at each site. Despite their effectiveness for Au sampling, BLEG samples are less favourably collected given the weight to be carried.

Planned Exploration Concurrent with EL10/2018

Exploration concurrently on EL31/2014 and EL10/2018 is planned to target the inferred Clark Grid VHMS host horizon and extensions into EL31/2014. As well as that outlined above, exploration work is likely to include:-

Phase 1 – Target upgrade / generation and JV search; Clark Grid (2019/20)

- Soil augering infill at 50m spacing between existing Clark grids locally; including at least 2 by 200m (6550 & 6650N) lines testing the inferred host horizon package.
- Extend soil sampling further east into EL31/2014 along existing (EL10/2018) Clark grids near focused area.
- Soil auger infill on Au anomalous inferred exhalative horizon
- Hand trenching targeting soil auger highs
- Complete geological mapping and rock chip sampling of the southern end of the Clark Grid, as well as tenement wide assessment.
- Continued geological field work to support GIS modeling
- Marketing to attract JV partner(s) to significantly increase financial input and progress to additional surveys required to best test the Clark Grid and environs.

Phase 2 – Continued Target upgrade / generation via 3D_IP and drilling (2019-2020)

- Re-establish / clear existing Clark Grid and extend into EL31/2014 to facilitate geophysical surveys
    - Extend grid to the south and into south east across the ERA/tenement boundary into the adjoining EL31/2014
    - Extend grid west to enable better IP penetration to depth on the assumed west dipping target VHMS horizon, including potential fold repeats
- *2D dipole-dipole surveys with 3D inversion on select grids or a* 3D Induced Polarisation survey, both aiming to define potential ore zone and pyritic halo (potential search to 400m+ depth)
- Extend existing ground magnetics to cover grid additions
- Fixed loop ground EM
- 3+ diamond drill holes for ~1000m to assess best 3D IP, geological and geochemical targets
- Down Hole EM to improve drill targeting

References

Cameron, J. and Read, J., 1991. Joint Report on Exploration Licences 102/87 Queenstown and 55/89, Mt Darwin, N.W. Tasmania for the year ending 21st March 1991. BHP Ltd. Tasmanian Company Report 91-3252 BHP 91-3132

Gemmell, J. B and Fulton, R., 1998. Alteration Model for the Hellyer VHMS deposit, western Tasmania. In Studies of VHMS-related alteration: geochemical and mineralogical vectors to ore. May 1998. CODES: AMIRA / ARC Project P439.

Halley, S, W., 1993. Combined Annual Report on EL102/1987, EL12/1992 and EL55/1989. RGC Exploration Pty. Ltd. Tasmanian Company Report 93_3426.

Hills, L., 1914. The Jukes-Darwin Mining Field. Geological Survey Bulletin No. 16. Tasmania Department of Mines.

Howland-Rose, A. W., 1979. Comments on Further Induced Polarisation and Total Magnetic Field Surveys over the Clark River Grid, Near Queenstown, Tasmania on Behalf of The Mount Lyell Mining and Railway Company Ltd. Tasmanian Company Report 84-2246.

Howland-Rose, A. W., 1978. A Report on a Gradient Array Electrical Induced Polarisation and Total Magnetic Field Survey over the Clark River Grid, Near Queenstown, Tasmania on Behalf of The Mount Lyell Mining and Railway Company Ltd. Tasmanian Company Report 84-2239.

Large, R. R., McPhie, J., Gemmell, J. B., Herrmann, W., and Davidson, G. J., 2001, The Spectrum of Ore Deposit Types, Volcanic Environments, Alteration Halos, and Related Exploration Vectors in Submarine Volcanic Successions: Some Examples from Australia. Economic Geology v.96, p. 913-938.

Mathison, I., 1984. Part of Exploration Licence 31/83 "Macquarie", Hazel Creek Area. Progress Report on Exploration Activity 1st October 1983 to 30th March 1984. Tasmanian Company Report 85_2181.

Mathison, I., 1985. Report on Exploration October 1984 to June 1985, Exploration Licence 31/82 Macquarie. Tasmanian Company Report 85_2460.

McNeill, A.W., 1996. Relinquishment Report EL 51/94 Clark Valley by Aberfoyle Resources Limited. Tasmanian Company Report 96_3894

Reid, R. O., 2014. EL42/2008 – Mt Sorell, 2014 Work Program Report. In Pal, M., 2014. Annual Report on EL42/2008 Exploration. Shree Minerals Ltd. Tasmanian Company Report.

Reid, R. O., 2015. EL42/2008 – Mt Sorell, Clark Valley Field Work 2015. In Loyalka, S and Reid., R., 2015. Annual Report for the Period 18/11/2014 to 17/11/2015, Mt Sorell – EL42/2008. Shree Minerals Ltd. Tasmanian Company Report 15_7308.

Vanzino., L., 2007. Annual Report for EL42/2008. Gujurat NRE Resources. Tasmanian Company Report.

Appendix

List of Appended Digital Files

EL312014_201905_01_ListOfAppendedDigitalData.txt

EL312014_201905_02_Annual_Report.pdf