



EL 33/2006, BULGOBAC RIVER

FINAL REPORT FOR THE PERIOD

APRIL 2007 - SEPTEMBER 2009

Author: L F Stewart
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1. SUMMARY

This report details all work undertaken on exploration licence 33/2006, Bulgobac River during its term of tenure. The principal exploration targets sought within the licence area are Hellyer or Rosebery-type volcanic hosted Pb-Zn-Cu-Ag-Au massive sulphide deposits

Work completed during Year 1 of the licence comprised:

- Four diamond drill holes (BHD7 to BHD-10) in the Sock Creek area for a total of 1480 metres.
- Geological logging and assaying of core.
- Cutting of 4.1 line km of loop access around these new drillholes for DHEM
- DHEM surveys on all drill holes in two surveys

There was no new work undertaken on the licence during Year 2, however the downhole EM report for the four diamond drillholes (BHD7 to BHD-10) at the Sock Creek area (for a total of 1480 metres) was received. The downhole EM did not provide any further targets warranting follow-up.

Post a Year 3 technical review of the results of exploration to date on the licence, it was recommended that the licence be relinquished.

2. INTRODUCTION

This report details work undertaken on exploration licence 33/2006, Bulgobac River (Figure 1), between April 2007 and August 2009, when the exploration licence was relinquished.

The Bulgobac River licence covers part of the Cambrian Mount Read Volcanics to the southwest of the Que River and Hellyer Mines in Western Tasmania (Figure 2). The principal exploration targets sought within the licence area are Hellyer or Rosebery-type volcanic hosted Pb-Zn-Cu-Ag-Au massive sulphide deposits. Correlates (the Sock Creek Volcanics) of the Que-Hellyer Volcanics, which host the Que River and Hellyer mines, extend across the licence area.

Access into the tenement is provided by forestry tracks extending west and then southwest from the High Point on the Murchison Highway (A10). The main Bulgobac River track from High Point has been reopened for 4WD vehicles to approximately 5391800mN, 384800mE (AGD66) after which access is by foot only. An historic exploration track from the Bulgobac River track has been reopened for 4WD access to the SCS5 drill site at 374525mE, 5390970mN. Foot access is available to the southern part of the tenement via grid lines trending NW from the Murchison Highway near Animal Creek.

3. LAND TENURE

EL 33/2006, Bulgobac River, covering 14 sq. km, was granted to Zinifex Australia Limited on 18th April 2007 for a period of 5 years (Figure 1). EL 33/2006 covers ground that fell vacant on the expiry of EL 30/2000 (Pasminco/Zinifex) in August 2006. An application for the extension of EL30/2000 was submitted to MRT in January 2006. However, due to the lack of a significant result from drillhole SCS5, this application was withdrawn in June 2006 and the licence lapsed soon after (Skirka & McNeill, 2006).

Land covered by EL33/2006 is all Crown Land designated as State/Multiple Use Forest and MDC (Forestry Commission) Informal Reserves, all of which are available for exploration under the Mineral Resources Development Act 1995.

An objection to the granting of EL 33/2006 was lodged on December 1, 2006 (by the Tarkine Coalition) and referred to a mediation session (on January 15, 2007) between the interested parties with MRT acting as moderator. The issues were successfully resolved at this meeting and the tenement granted on April 18, 2007.

On July 18th 2008 the name of Zinifex Australia Limited was changed to OZ Minerals Australia Ltd as a result of a corporate merger between Zinifex Ltd and Oxiana Ltd. In June 2009 China Minmetals Non-Ferrous Metals Co Ltd acquired from OZ Minerals Ltd a 100% indirect interest (through its subsidiary Album Investment Pty Ltd) in MMG Australia Limited (previously OZ Minerals Australia Ltd) the holder of the tenement."

4. GEOLOGY

EL 33/2006 covers two main groups of the Cambrian Mt Read Volcanics - the Central Volcanic Complex (CVC), and correlates of the Dundas Group, including the Que-Hellyer Volcanics (Komyshan, 1986; Corbett and McNeill, 1986; Figure 2).

The CVC outcrop in the far southeastern part of the EL and comprises rhyodacitic lavas and volcanoclastics. These rocks are assigned to the Mt Black Volcanics.

The Dundas Group and correlates conformably overly the CVC on a gradational west facing and dipping contact, and are shown as Cycle 2 (Tyndall Group) rocks on Figure 2 (Corbett and McNeill, 1986). The lower part of the Dundas Group comprises the Black Harry Beds and Animal Creek Greywacke; sediment dominated sequences that pass up into the Sock Creek Volcanics, a complex of shales, intrusive quartz-feldspar porphyries and dacitic to basaltic lavas with minor volcanoclastics. The Sock Creek Volcanics are geochemically distinct to the Que-Hellyer Volcanics, but are considered to be their time equivalents south and west of the Mt Charter Fault. Overlying the Sock Creek Volcanics are equivalents of the Southwell Subgroup (felsic volcanoclastics and sediments).

The Palaeozoic rocks are unconformably overlain by Tertiary basalt, in the north of the tenement, and/or Quaternary glacials, to the west and south.

Major structures on the EL include the N-S trending Mt Charter Fault, in the northeast corner of the tenement. The regional magnetic and gravity data highlight the presence of several major, apparently deep-seated, unmapped or poorly mapped structures trending broadly E-W.

Two ?Cambrian zinc-dominated and gold/silver-poor sulphide occurrences are known on the EL. These are:

- Sphalerite with lesser pyrite-galena-chalcopyrite in net-veins on the contact between quartz-feldspar porphyry and black shale at Sock Creek (best intersection of 1.7m @ 10% Zn, with a general tenor around 2-5% Zn over 5-10m.).
- Weak disseminated sphalerite in black shale at Sock Creek South (best intersection of 1m @ 2.5% Zn).

The geology of the tenement area can be described in detail as below, taken from Skirka & McNeill 2006:

4.1 Stratigraphy

Cambrian lithologies include the dacitic Sock Creek lavas, rhyolitic quartz feldspar porphyry intrusives (QFP), siltstone, and micaceous - feldspathic wackes (Animal Creek Greywacke) and felsic volcanoclastic sandstones. Dolerite mapped by Barwick (1991) occurs as boulders in glacials and Tertiary basalt and is restricted to the western margin of the grid.

The sequence is interpreted as west facing with shallow to moderate dips to the northwest. Small wavelength folds have been described by Purvis (1993) in the vicinity of the Sock Creek Fault.

4.1.1 Cambrian

From east to west the sequence includes:

- Dark bluish grey, fine grained to very fine grained, siliceous volcanoclastic siltstone/sandstone (Ebh). Distinct basaltic appearance with typical conchoidal fracture. Includes minor fine grained to medium grained, micaceous sandstone and matrix supported coarse grained volcanoclastic lithic wacke. Interpreted Black Harry Beds correlate.
- Dark grey siltstone and micaceous, feldspathic wackes (Eag). Siltstones are cleaved and thickly bedded; the latter is frequently difficult to see. Mn wad in streams appears to be associated with this lithology. These lithologies form the upper part of the Animal Creek Greywacke.
- Dacite lavas (Edi), Barwick's 1991 lithogeochemistry defines the lavas as mildly peralkaline intermediate – felsic, trachyte – comendites. Lavas are texturally variable and include amygdaloidal, fine-grained aphyric, perlitic and quartz feldspar porphyritic flows. Amygdales are elongate, aligned and filled with quartz and or chlorite. In the southern part of the mapped area the Dacite lavas include mixed unit (Exv) of lava breccia and quartz-feldspar-phyric epiclastics.
- Amygdaloidal basalt and basaltic hyaloclastite (Eb). This unit outcrops poorly in the southwestern part of the licence and can be correlated with basaltic lithologies intersected in drillholes at Sock Creek South. Whole Rock geochemistry results from this unit suggests a correlation with the Hellyer-Que River sequence.
- Grey siltstone and sericitized quartz crystal rich volcanoclastic sandstone (Esh), this equates with Purvis's epiclastic unit between the dacites and QFP, the prospective horizon at Sock Creek Prospect.
- Rhyolitic quartz feldspar porphyry (Eqfp). Barwick (1991) described the porphyry as a typical late stage MRV calcalkaline rhyolite. Variably porphyritic with glassy – fine to medium grained crystalline groundmass. Interpreted as a sill emplaced within the basal section of a siltstone horizon i.e. the siltstone at Sock Creek Prospect may have been contiguous with that in Bulgobac River in the western part of the grid. However Purvis (1993) considered it extrusive based on peperitic contacts with siltstone in Sock Creek drill cores.
- Siltstone and crystal sandstone of Bulgobac River (Esh and Exv). Siltstones are not unlike those on the SE flank of the grid but are associated with feldspar > quartz crystal volcanoclastic sandstone rather than micaceous greywacke.

4.1.2 Tertiary

A remnant of a Tertiary basalt flow is located on the western end of 7000N and on the nearby access track. The basalt is fine grained to slightly plagioclase and olivine porphyritic.

4.1.3 Quaternary

A small area of gravel to boulder size glacials has been preserved between lines 7000N - 7200N / 2350E. The basal section is composed of mixed provenance, well rounded cobbles in clayey matrix and is exposed on the road at 386475E 5392,900N. 75m SE along this road cobble to ~5m boulder size deposits of granite, harnessed basic – intermediate rocks occur. The dolerite described by Barwick 1991 is part of the glacials. The source area for the glacials is a granite contact aureole with Cambrian age mafic – intermediate volcanics / intrusives, most likely on the eastern flank of the Meredith Granite

4.2 Structure

All lithologies strike NE and dip NW at shallow to moderate dips, cleavage is moderately well developed with steep NE trend. At the Sock Creek Prospect Purvis (1993) has identified small wavelength, NE trending syncline / drag folds associated with the Sock Creek Fault. A prominent set of NW trending sub parallel faults between lines 6600 – 7000N equates with Barwick's X Fault / Collins Cross Fault (Purvis, 1993) and has been interpreted to represent a splay of the Mt Charter Fault (see Purvis, 1993 and Corbett and Komyshan, 1989). McNeill and Poltock (2004) interpreted the fault as sinistral with a horizontal displacement of ~400m, further east Corbett and Komyshan (1989) interpreted it as a steep north dipping normal fault with significant but unspecified throw.

The Sock Creek fault is sub-parallel to stratigraphy and has only been identified as isolated occurrences of sheared volcanics and siltstone. Silicified and quartz veined siltstone at 7400N / 2150E and 7600N / 2075E may represent the northern continuation of the fault.

4.3 Mineralisation

No significant mineralization or alteration has been noted in the recent mapping (Skirka & McNeill, 2006). Previous mapping has identified the following points of interest;

- Quartz vein stockwork in dacite on lines 5800 – 6200N ~2700E.
- Trace pyrrhotite / arsenopyrite 7200N 2925E.
- Traces of pyrite in siltstones and greywacke.
- Leached limonitic quartzose float at 7200N 2385E.

The Sock Creek Prospect lies within the grid but has very limited surface expression. Mineralization has been described by Purvis (1993) as vein style with sphalerite dominant and subordinate pyrite, galena and chalcopyrite. Veining is hosted within the quench brecciated QFP contact with black shales at the intersection of the Sock Creek and Collins Cross Faults. For a more detailed description of the mineralisation refer to Purvis (1993).

5. PREVIOUS EXPLORATION

The area of EL 33/2006 Bulgobac River has a long history of ‘modern’ exploration. From 1963 until 1989 the current tenement area was part of Comstaff’s EL 5/63. Exploration undertaken by Comstaff and JV partners Preussag (post-1977) and BHP (post-1985) is summarised in Table 1.

After the statutory relinquishment of EL 5/63, Pasminco were granted EL 37/89 Bulgobac Hill and commenced exploration in the area in 1990. Work undertaken by Pasminco between 1990 and 2000 is detailed in Table 2. Work completed by Pasminco/Zinifex since the granting of EL 30/2000 is summarised in Table 3, and the first year of work completed on the current tenement is summarised in Table 4.

Note that the north eastern part of EL 33/2006 overlaps with the western part of the High Point Prospect. However, the majority of this prospect is on vacant ground to the east and previous exploration will not be discussed in this report (see McNeill and Simpson, 2000, for a summary).

Reporting Period	Work Completed
1970-1971 (Chisholm, 1971)	-80# stream sediment sampling on 150m intervals, minor soil sampling on access roads; weak anomalies located.
1971-1974	- costeaning on imperial grid; geological mapping, soil sampling – poorly documented and primary data not located.
1974-1976 (Keane and Orr, 1976)	- Diamond drilling on metric grid; 14 holes total for 2326m; intersected Sp-Gn-Cpy vein mineralisation; best intersection 1.7m@ 10.19% Zn in SK1
1975 (Butt et al., 1976)	- Area flown with INPUT airborne EM. No significant anomalies in the current licence area.
1977 (Hopwood, 1977)	- Drill core re-logged (SK1-6, 10 and 11), prospect geology reviewed and concluded that low potential for large tonnage deposit.
1978 (Orr, 1978)	- Reviewed previous work on the Sock Creek area and recommended further stream sediment and soil sampling and EM.
1979 (Hall, 1979a,b)	- Further review of Sock Creek prospect; concluded that mineralisation does not represent a major prospect and no further work was recommended.
1985-1986 (Anon, 1986)	- Bulk Cyanide leach and –80# stream sediment samples collected over licence area. No significant anomalies located.
1986-1987 (Anon, 1987)	- Cutting of grid for UTEM survey; Drill holes re-logged; summary drill logs and cross sections are presented.
1987-1988 (Anon, 1988)	- UTEM survey located Zone G – Sock Creek South; followed-up by a fixed loop SIROTEM and IP surveys and Drilling of DDH SCS1-3 (352m) intersecting weak Zn mineralisation (best: 1m @ 2.55% Zn). DHEM completed in SCS2 and 3.
1988-1989 (Wilde and Kerr, 1989)	- UTEM over the Southern extent of Sock Creek South; DDH SCS4 (201.4m) was drilled to test EM anomaly; DHEM completed.

Table 1: Exploration on the area of EL 33/2006 prior to 1990

Reporting Period	Work Completed
1990-91 (Lorrigan, 1991)	- Photogrammetry to produce accurate base maps, high resolution aeromagnetic survey, collection of physical properties data from existing drill core (SK1-12), Relogging of Sock Creek South drill core and volcanological/lithogeochemical review of the prospect.
1991-92 (Purvis, 1992)	- Geological mapping, additional gravity data were collected. An Honours thesis entitled "Geology and mineralisation of the Sock Creek and High Point Areas, Western Tasmania" (Barwick, 1991) was completed.
1992-93 (Purvis, 1993)	- At Sock Creek Previous drilling, UTEM data and the Geology of the prospect were reviewed and new geological cross-sections compiled, infill gravity data was collected and a diamond drill hole (BHD4, 617m) completed as a deep test of the mineralised zone.
1993-94 (Purvis, 1994)	DHEM survey of BHD4 (Sock Creek); review of previous work indicated potential for low grade/ tonnage mineralisation at Sock Creek.
1994-95 (Purvis, 1995)	- Completion of analysis of stratigraphy & volcanic facies in western part of Que-Hellyer Basin, using lithogeochem & petrological data from 19 drill holes.
1995-96 (McGunnigle, 1996; Purvis, 1996)	- ML application (depth limited to 100m) over Sock Creek prospect by J.G. Purvis resulting in drilling of two holes (SC1 & SC2) with minor Pb -Zn intersections.
1996-97 (Basford and Murphy, 1997)	- Geological & geochemical data review. Minor grid cutting (4.4 line km) and soil sampling on northern section of licence as part of a program on EL 19/94.

Table 2: Exploration on the area of EL 33/2006 after 1990

Reporting Period	Work Completed
2001-02 (McNeill, 2002)	- Previous exploration data reviewed and digitally compiled; old DDH collars surveyed in AMG coordinates; 5 km line cutting completed at Sock Creek prospect for soil sampling program.
2002-03 (McNeill, 2003)	- 3 line km of grid were cut and this and the 5 km cut previously was partial leach soil sampled. Two anomalous zones, requiring some follow-up work, were located.
2003-04 (McNeill and Poltock, 2004)	- 6.8 line km of grid were cut and partial leach soil sampled. -Geological mapping of all grid cut since the granting of EL 30/2000.
2004-05 (McNeill and Skirka, 2005)	- Cutting of 9.0 line km of new grid and surveying of this grid with DGPS. - Partial leach soil sampling of the new grid (423 samples including standards and duplicates). - Additional geological mapping in the northern part of the license area.
2005-06 (Skirka and McNeill, 2006)	- Cutting of 9.9 line km of new grid. - Partial leach soil sampling of the new grid (418 samples including standards and duplicates). - Geological mapping of the 2004/05 Sock Creek Grid, this new grid and also the lower sections of the Bulgobac River. - One diamond drillhole (SCS5: 523m) at the Sock Creek South prospect - Downhole EM surveying of SCS5

Table 3: Exploration on EL 30/2000

2007-08 (Hicks, 2008)	- Four diamond drillholes (BHD-7 to BHD-10 for 1480m) at Sock Creek - Geological logging and assaying of core - Cutting of 4.1 line kms of loop access around these 4 holes - Downhole EM surveying of all four drillholes
2008-09 (Hicks, 2009)	NIL
2009-2010 (This Report)	NIL

Table 4: Exploration on EL 33/2006

6. WORK COMPLETED EL 33/2006, BULGOBAC CREEK

6.1 2007-2008 REPORTING PERIOD

Work completed comprised:

- Four diamond drill holes (BHD7 - BHD-10) at the Sock Creek area for a total of 1480 metres.
- Geological logging and assaying of core.
- Cutting of 4.1 line km of loop access around these new drill holes for DHEM
- DHEM surveys on all drill holes in two surveys.

6.1.1 *Diamond Drilling*

Four diamond drillholes were completed at the Sock Creek South area during the reporting period for a total of 1480m. The location of these four drillholes is shown in Figure 3.

BHD-7

Drillhole BHD-7 was collared at 385,570mE, 5,391,940mN (AMG66_zone55) on 19/04/2007 and completed to 363.6m on 31/05/2007. The hole was designed to test a large gap in favourable stratigraphy between SCS5 and BHD4. Drillhole collar and survey data are contained in Appendix 1a, sampling and assay data included in Appendix 1b and a detailed geological log included in Appendix 1c. Codes for all holes logged follow Appendix 1c. A summary log of the BHD-7 is presented in Table 5.

The drill hole failed to intersect any significant mineralisation, despite fully testing the anticipated stratigraphic sequence. Minor amounts of pyrite were observed in most intervals (refer to Appendix 1c).

From (m)	To (m)	Description
0	46.5	Quartz – Feldspar Porphyry.
46.5	73.9	Polymict volcanoclastic conglomerate with felsic and mafic clasts (possible poorly sorted mass flow).
73.9	95.5	Feldspar phyric dacitic lava breccia and lava.
95.5	239.4	Feldspar phyric dacitic lava, with perlitic to massive to vesicular textures. Includes several 10-15m intervals of autobrecciated dacite.
239.4	241.6	Sedimentary hiatus between volcanic phases - grey-black siltstone and shale with some re-working of dacite. Depositional lower contact.
241.6	280.9	Rhyodacite - feld-qtz phyric. Unmineralised
280.9	309.4	Clay-filled shear zone within Rhyodacite, strong sericite-silica-carbonate-chlorite alteration
309.4	335	Silicified Rhyodacite
335	337.1	Disrupted black shale and siltstone (outlier of Animal Creek Greywacke)
337.1	339	Silicified Rhyodacite
339	363.6	Micaceous greywacke (Animal Creek Greywacke) with minor interbedded volcanoclastic siltstone bands.

Table 4: Summary Log for BHD-7

Thirty one samples (including one standard) were analysed at Amdel, Adelaide for Pb, Zn, Cu, Ag, As, Fe, Mn, Bi, Co, Mo, Cd (by ICP), Au (by ppb fire assay) and Ba and Sn (by XRF).

There were no elevated results from BHD-7 to report.

BHD-8

Drillhole BHD-8 was collared at 386,810mE, 5,393,095mN (AMG66_55) on 05/06/2007 and completed at 398.4m on 19/07/2007. The hole was sited to test the potential of the Sock Creek Fault as a possible Cambrian growth structure, midway between this fault and the Mt Charter Fault to the northeast. Drillhole collar and survey data are contained in Appendix 2a, sampling and assay data are included in Appendix 2b and a detailed geological log is included in Appendix 2c. A summary log of the drill hole is presented in Table 5 below:

The drill hole failed to intersect any significant mineralisation, despite fully testing the anticipated stratigraphic sequence.

From (m)	To (m)	Description
0	20.2	Weathered quartz-feldspar Porphyry.
20.2	25.0	Black Shale unit - possible Que River Shale
25.0	75.9	Graded mass flow volcanoclastic unit
75.9	201.1	Feldspar phyric to aphyric dacitic lava and lava breccia (hyaloclastite?) - weakly altered and unmineralised.
201.1	230.4	Feldspar-phyric rhyodacitic lava
230.4	235.4	Sedimentary hiatus between volcanic phases - grey-black siltstone and shale with some re-working. Peperitic lower contact.
235.4	239.9	Amygdaloidal Basalt sill
239.9	245.4	Similar sedimentary interlude as per 230.4 to 235.4m. Peperitic lower contact into rhyodacitic volcanics
245.4	303.6	Massive feldspar-phyric Rhyodacite lava. Weakly altered and increasingly aphyric with depth.
303.6	398.4	Micaceous greywacke (Animal Creek Greywacke) with minor interbedded volcanoclastic siltstone bands and black shale bands

Table 5: Summary Log for BHD-8

Twenty three samples (including one standard) were analysed at Genalysis, Perth for Ag, As, Ba, Bi, Co, Cr, Cu, Fe, Mn, Mo, Pb, Sb, Sn and Zn (by ICPOES or ICP/MS), and Au by fire assay.

Best results from BHD-8 were under 500ppm Zn, 30ppm Pb, and 30ppm Cu in one metre sample widths.

BHD-9

Drillhole BHD-9 was collared at 386,430mE, 5392750mN (AMG66_55) on 24/07/2007 and completed at 419.3m on 7/03/2007. This drill hole was designed to test the stratigraphic position adjacent to, but on the NE (or downthrown, basinal side) of the Sock Creek structure where deep drilling is absent. Drillhole collar and survey data are contained in Appendix 3a, sampling and assay data are included in Appendix 3b and a detailed geological log is included in Appendix 3c. A summary log of the drill hole is presented in Table 6 below:

The drillhole failed to intersect any significant mineralisation, and only very minor sulphides were observed in the core.

From (m)	To (m)	Description
0	53.15	Weathered quartz-feldspar Porphyry.
53.15	67.7	Black Shale unit (possible Que River Shale) and volcanoclastic siltstone
67.7	96.5	Graded mass flow volcanoclastic unit - finer top through to coarse polymict breccia base
96.5	188.5	Feldspar phyric to aphyric dacitic lava and lava breccia (hyaloclastite?) - weakly altered and unmineralised. Alternating ~20m zones of more massive lava and lava breccia.
188.5	313.6	Feldspar-phyric rhyodacitic lava and lava breccia (hyaloclastic). Contact into the above unit marked by 0.5m of peperitic black shale matrix.
313.6	364.9	Massive, weakly porphyritic Rhyodacite lava or intrusive. Weakly altered (except for patchy strong albite-silica alteration) and unmineralised.
364.9	369.5	Micaceous greywacke (Animal Creek Greywacke) with minor interbedded volcanoclastic siltstone bands and black shale bands
369.5	392.3	Massive, aphyric Rhyodacite ?intrusive. Moderately silica altered, auto-brecciated in places and unmineralised.
392.3	419.3	Micaceous greywacke (Animal Creek Greywacke) with minor interbedded volcanoclastic siltstone bands and black shale bands

Table 6: Summary Log for BHD-9

Twenty eight samples (including one standard) were analysed at Genalysis, Perth for Ag, As, Ba, Bi, Co, Cr, Cu, Fe, Mn, Mo, Pb, Sb, Sn and Zn (by ICPOES or ICP/MS), and Au by fire assay.

Best results from BHD-9 were low, with Zn to 700ppm, Pb to 175ppm, Cu to 65ppm and weakly elevated indicator elements, all in the interval 364-372 metres.

BHD-10

Drillhole BHD-10 was collared at 386,290E, 5390615mN (AMG66_55) on 03/10/2007 and completed at 300.0m on 29/10/2007. BHD-10 was positioned to test the contact between the Black Harry Beds (BHB) and the CVC volcanics, in an area of elevated partial leach soil geochemistry. Drillhole collar and survey data are contained in Appendix 4a, sampling and assay data are included in Appendix 4b and a detailed

geological log is included in Appendix 4c. A summary log of the drillhole is presented in Table 7 below:

The drillhole intersected several low-grade zones of mineralisation with minor sphalerite observed throughout the Black Harry Beds. These thin irregular stringer type veinlets of sphalerite are thought to explain the surface partial leach soil geochemical anomaly in the vicinity of this hole. The best mineralisation was observed in late clay filled faults within the BHB. The CVC was unmineralised but pyritic in places.

From (m)	To (m)	Description
0	88.0	Well bedded volcanoclastic siltstone with lesser sandstone and shale interbeds, micaceous in places. Unmineralised.. Black Harry Beds (BHB)
88.0	97.4	Volcanoclastic grit to conglomerate (crystal-rich, polymict) - ?mass flow
97.4	119.5	Sorted volcanoclastic package - siltstone through to gritty breccia. Sphalerite disseminations, blebs and veinlets common.
119.5	202.0	Ashy siltstone with minor volcanoclastic sandstone and grit (BHB). Sphalerite disseminations, blebs and veinlets common.
202.0	205.0	Fault zone. Rehealed, silicified broken siltstone and clay pug. Anomalous levels of galena noted.
205.0	255.5	Mass flow sequence - volcanoclastic siltstone top on coarser sandstone., grit and breccia. Trace sulphides.
255.5	300.0	Central Volcanic Complex (CVC) volcanics - feldspar-pyritic dacitic lava. Unmineralised.

Table 7: Summary Log for BHD-10

Seventy two samples (including two standards) were analysed at Genalysis, Perth for Ag, As, Ba, Bi, Co, Cr, Cu, Fe, Mn, Mo, Pb, Sb, Sn and Zn (by ICPOES or ICP/MS), and Au by fire assay.

Best results from BHD-10 were in three well defined zones: 7m from 97m @ 0.24% Zn, including 5m 0.18% Pb, 1 g/t Ag & 0.2% Ba associated with a graded volcanoclastic mass flow; 7m from 109m @ 0.30% Zn, 0.18% Pb associated with finer grained volcanoclastic sediments, and 2 metres from 202m @ 0.5% Pb, 18.7g/t Ag, and 0.05% Cu, including a one metre interval at 0.74% Pb, 31.8g/t Ag, and 67ppm Bi associated with a broken puggy fault within the Black Harry Beds siltstone.

6.1.2 DHEM

During October 2007, Outer Rim Exploration completed a downhole EM survey on drillholes BHD7 to BHD9. A second survey was completed in February 2008 to read BHD-10 and the cross-hole components of BHD-7. A single transmitter loop was used on each hole, and either single or multi-component data was collected at 20m intervals over the length of the drillholes. The operations report and results of the 2007 survey are contained in Appendices 5a and 5b, and the same for the 2008 survey in Appendices 6a and 6b.

Data collected from this survey were reviewed by consultant geophysicist Jovan Silic, both in the field for some holes and at the end of production days (by emailed data) for others. No anomalies that could be attributed to massive sulphide mineralisation were identified.

6.2 2008-2009 REPORTING PERIOD

Work completed during the second year of tenure focussed on assessing the results of the four diamond drillhole (BHD-7 to BHD-10) and subsequent DHEM surveys completed in the previous reporting period.

6.2.1 DHEM

During October 2007, Outer Rim Exploration completed a downhole EM survey on drillholes BHD7 to BHD9. A second survey was completed in February 2008 to read BHD-10 and the cross-hole components of BHD-7. A single transmitter loop was used on each hole, and either single or multi-component data was collected at 20m intervals over the length of the drillholes. The operations report and results of the 2007 survey, and the same for the 2008 survey are detailed in Hicks, 2008

Consultant geophysicist Jovan Silic reviewed data collected from this second survey, both in the field for some holes and at the end of production days (by emailed data) for others.

No anomalies that could be attributed to massive sulphide mineralisation were identified in the preliminary data, and this was confirmed during interpretation of the final data from both surveys.

7. CONCLUSIONS & RECOMMENDATIONS

A program of diamond drilling and DHEM surveying was completed during the life of EL33/2006. This work focussed on exploring three target areas:

- 1) The gap in deeper drilling along the northeast striking contact between the Central Volcanic Complex and Southwell sub-group correlates between Sock Creek South and the Sock Creek Fault (hole BHD-7)
- 2) A structural position NE of the Sock Creek Fault (holes BHD-8 & BHD-9)
- 3) Anomalous partial leach soil geochemistry sitting on the contact between the CVC and BHB southwest of the Mt Charter fault (BHD-10)

There was no suitable host lithology intersected in holes BHD-7 to BHD-9, with correlates of the Que-Hellyer Volcanics hangingwall volcanics typically overlain directly onto footwall correlates. Low to trace levels of mineralisation was observed in these holes, and alteration was generally of a weak nature.

Elevated partial leach soil geochemistry reported previously in the vicinity of hole BHD-10 is attributed to the anomalously high, yet uneconomic, levels of sphalerite+/-galena veinlets in the Black Harry Beds and some upgrading in local brittle structures.

No recommendations for future work on the tenement could be made after final interpretations of dhEM data.

The tenement was consequently recommended for relinquishment.

8. ENVIRONMENT AND REHABILITATION

Surface disturbance activities undertaken comprised:

- Four drill pads each with in-ground sumps at the BHD7 to BHD10 drill sites.
- Restoration of the Bulgobac River Track from High Point and reopening of historic exploration tracks to drill sites at BHD-8, BHD-9 and BHD-10.

Rehabilitation of these tracks, pads and sumps was completed after the exploration program described above. The main Sock Creek track was gated from its offtake at the Murchison Highway in February 2008.

Pre and post rehabilitation documentation is attached as Appendices 7a and 7b respectively.

9. KEYWORDS & LOCALITY

Keywords

SOCK CREEK, BULGOBAC RIVER, DRILLHOLES, ZINC, VHMS, VOLCANICS, QUE-HELLYER VOLCANICS, MOUNT READ VOLCANICS, GEOLOGY, DHEM,

Locality

1:250,000	BURNIE SK55-3
1:100,000	SOPHIA 8014
1:25,000	CHARTER 3839, BLOCK 3838

10. REFERENCES

- Anon, 1986. Exploration Licence 5/63, Comstaff JV, NW Tasmania. Report on the year ended 30th June 1986. Unpub. BHP report (**TCR86-2571**).
- Anon, 1987. Exploration Licence 5/63, Comstaff JV, NW Tasmania. Report on the year ended 30th June 1987. Unpub. BHP report (**TCR87-2690**).
- Anon, 1988. Exploration Licence 5/63, Comstaff JV, NW Tasmania. Report on exploration in area 3 for the year ended 30th June 1988. Unpub. BHP report (**TCR88-2824**).
- Barwick, D., 1991. Geology and mineralisation of the Sock Creek and High Point Areas, Western Tasmania. Unpub. BSc (Hons) Thesis, University of Tasmania.
- Basford, P.W and Murphy, F.C., 1997. Bulgobac Hill EL 37/89 Annual Report for the Period Ending August 1997. Unpub. Pasminco Exploration Report, VC165 (**TCR97-4041**).
- Butt, G., Hansen, J., and Finney, W., 1975. Interpretation report, airborne electromagnetic (INPUT) survey of the Comstaff South lease, Tasmania, Australia. Unpub. Report to Australian Anglo American Ltd (**TCR85-2397**).
- Chisholm, T., 1971. 1971 Winter field season report. Unpub. Report to Australian Anglo American Ltd (**TCR71-0806**).
- Corbett, K.D. and Komyshan, P., 1989. Geology of the Mt Charter-Hellyer area. MRVP Report 1, Tasmania Mines Dept, 39pp.
- Corbett, K.D. and McNeill, A.W., 1986. Geology of the Rosebery - Mt Block Area. MRVP Map 2, Tasmania Mines Dept.
- Hall, D.B., 1979a. Sock Creek Prospect review. Unpub Comstaff Pty Ltd Report 9705 (**TCR79-1358**).
- Hall, D.B., 1979b. Bulgobac-Que Region, review of geochemistry. Unpub Comstaff Pty Ltd Report 9707 (**TCR79-1364**).
- Hicks, D.J., 2008. Bulgobac River EL 33/2006, First Annual Report for the period ending 18th April, 2008. Unpub. Zinifex Exploration Report BH91
- Hicks, D.J., 2009. Bulgobac River EL 33/2006, Second Annual Report for the period ending 18th April, 2008. Unpub. Zinifex Exploration Report
- Hopwood, T., 1977. A brief assessment of the Sock Creek and Chester-Pinnacles prospects, Tasmania. Unpub report to Comstaff Pty. Ltd. (**TCR85-2415**).
- Keane, E., and Orr, D.B., 1976. Drill Logs and Assay Results, Diamond Drill Holes SK-1 to SK-14 (1974-1976, Sock Creek Prospect). Unpub. Comstaff Pty Ltd. Report (**TCR 85-2424**).

- Komyshan, P., 1986. Geology of the Mt Charter-Hellyer area. MRVP Map 1, Tasmania Mines Dept.
- Lorrigan, A.N., 1991. EL 37/89 Bulgobac Hill, Annual Report, March 1990 – January 1991. Unpub. Pasminco Exploration Report, T91-2 (**TCR91-3225**).
- McGunnigle, N.K., 1996. Bulgobac EL 37/89 Annual Report for the Period Ending July 1996. Unpub. Pasminco Exploration Report TA-25 (**TCR96-3908**).
- McNeill, A.W., 2002. Sock Creek EL 30/2000, Annual Report for the period ending January 23rd 2002. Unpub. Pasminco Exploration Report BH76.
- McNeill, A.W., 2003. Sock Creek EL 30/2000, Annual Report for the period ending January 23rd 2003. Unpub. Pasminco Exploration Report BH79.
- McNeill, A.W. and Poltock, R.A., 2003. Sock Creek EL 30/2000, Annual Report for the period ending January 23rd 2004. Unpub. Pasminco Exploration Report BH83.
- McNeill, A.W. and Simpson, K.L., 2000. Bulgobac Hill EL 37/89, Annual and Final relinquishment Report for the period ending 31st July 2000. Unpub. Pasminco Exploration Report VC308 (**TCR00-4479**).
- McNeill, A.W. and Skirka, M., 2005. Sock Creek EL 30/2000, Annual Report for the period ending January 23rd 2005. Unpub. Pasminco Exploration Report BH86.
- Murphy, F.C., 1997. Bulgobac River EL 19/94 Annual Report Period ending September 1997. Unpub. Pasminco Exploration Report VC170 (**TCR97-4063**).
- Orr, D.B., 1978. Appendix 3 – Six monthly report to the Department of Mines Tasmania, geological assessment of the Comstaff licence areas. Unpub. Australian Anglo American Report (**TCR78-1316**).
- Purvis, J.G., 1992. EL 37/89 Bulgobac Hill Annual Report for the Period 3 February 1991 to 2 February 1992. Unpub. Pasminco Exploration Report T92-2 (**TCR92-3327**).
- Purvis, J.G., 1993. EL 37/89 Bulgobac Hill Annual Report for the Period February 1992 to July 1993. Unpub. Pasminco Exploration Report T93-10 (**TCR93-3478**).
- Purvis, J.G., 1994. EL 37/89 Bulgobac Hill Annual Report, August 1993 - August 1994. Unpub. Pasminco Exploration Report T94-6 (**TCR94-3607**).
- Purvis, J.G., 1995. EL 37/89 Bulgobac Hill Annual Report, August 1994 - August 1995. Unpub. Pasminco Exploration Report T95-8 (**TCR95-3757**).
- Purvis, J.G., 1996. ML Application 4M/96, Sock Creek. Report on drilling at Sock Creek, Western Tasmania, March 1996. Unpub. Report to Pasminco Exploration (**TCR97-3959**).
- Skirka, M., & McNeill, A.W., 2006. Sock Creek EL 30/2000, Fifth & Final Annual Report for the period ending 30th May, 2006. Unpub. Zinifex Exploration Report BH88.

Wilde, A.R., and Kerr, T.L., 1989. Exploration Licence 5/63, Comstaff JV, NW Tasmania, Final Report, May 1989. Unpub. BHP report (**TCR89-2968**).