GOLDFIELDS EXPLORATION

ACN 008 560 978

Annual and Final Report
Dec 2000 - Dec 2001

Tasmanian Gold Project

Basin Lake

EL 14/93

HELD BY: **Goldfields Exploration Pty Ltd**

MANAGER & OPERATOR: **Goldfields Exploration Pty Ltd**

AUTHOR(s): Michael Vicary

07, January, 2002

PROSPECTS: Basin Lake

MAP SHEETS:	**1:250,000:**	**1:100,000: Sophia**
GEOGRAPHIC COORDS	**Min East: 380000**	**Max East: 382000**
	Min North: 5351000	**Max North: 5357000**

COMMODITY(s): Au, Basemetals

KEY WORDS: Tyndall Group, Anthony Road Andesite, Central Volcanic Sequence,

Distribution:

- **Goldfields Exploration Information Centre Reference:**
- **Goldfields Exploration - Zeehan:**
- **Mineral Resources Tasmania:**

SUMMARY

The Basin Lake EL has had a long history of exploration. In 1999 it was decided to trial inversion of existing dipole - dipole IP data to help in the evaluation of reprocessed CSAMT data. The inversion of the IP data proved a highly effectual exploration technique to depths of about 300m below surface.

In mid 2000 a new dipole-dipole IP survey was contacted over the prospective parts of the Basin Lake and Anthony EL's. The results of this survey highlight the potential of the Basin Lake and Langdon alteration zones and suggests that further diamond drilling is warranted.

In December 2001, a detailed review of Goldfield's exploration tenements in western Tasmania was completed. The remaining targets within the Basin Lake EL were downgraded and it was recommended that the EL be relinquished.

CONTENTS

1 INTRODUCTION

EL 14/93 - Basin Lake was initially acquired by Renison Limited and was explored by RGC Exploration, both wholly owned subsidiaries of RGC Limited. In mid 2000, the tenement was transferred to Goldfields Exploration following the merger of RGC with Westralian Sands to form Iluka Resources.

The licence is located in western Tasmania approximately 12 km north of Queenstown, and is situated on the flank of the Tyndall Range (Figure 1). It was granted on January 14, 1994 with an initial area of 8 sq km. In January 1995 a further 3 sq km was incorporated into the EL making a total area of 11 sq km. In January 1999, the EL underwent a 50% Partial Relinquishment. It has a current area of 6 sq km.

The EL is highly prospective for Henty style Au and Mt Lyell style Cu - Au mineralisation.

1.1 Location and Access

The major access to the EL is via the sealed Anthony Road, which runs alongside and dissects the tenement approximately 12 km east of the junction with the Zeehan Highway. Access within the tenement is provided by a gravel vehicular track that follows a HEC power line close to the eastern EL boundary. A series of grid lines and rehabilitated tracks provide access by foot within the tenement.

1.2 Topography and Vegetation

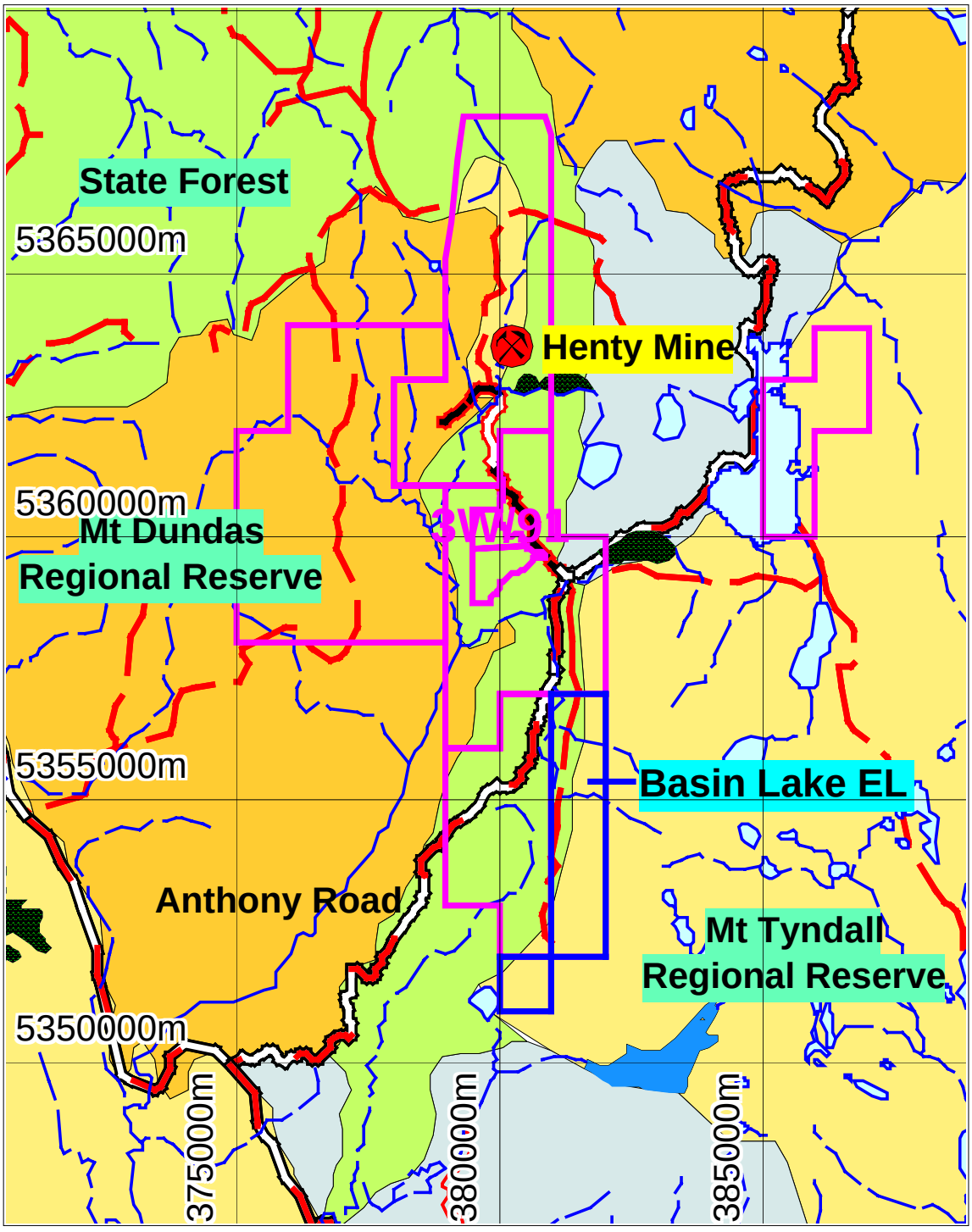
The Basin Lake EL lies along the peneplain between the steep, north - south trending Tyndall Range (1000m high) in the east and the 300m deep Henty Gorge to the west. The peneplain is between 450m and 550m ASL. The vegetation consists predominantly of button grass plains and light tea tree scrub with some patches of medium eucalypt forest and rainforest. The area has been extensively glaciated and reliable outcrop is restricted to road cuttings and topographic highs in the north and west of the EL. The EL is largely covered by glacial moraine and outwash.

1.3 Tenure

The EL comprises: Crown Land (Deferred Forest Land)
Crown Land
Land Vested in HEC.

A large portion of the EL is within the Tyndall Range Regional Reserve (Figure 1).

Figure 1 EL 14/93 Location Map and Land Tenure



1.4 Aims

The Mount Read Volcanics are host to several world class gold rich base metal mineral deposits at Rosebery, Hellyer, Que River, Hercules, and Mount Lyell and to gold mineralisation at the Goldfields owned Henty Mine. The Henty Mine is the only gold only producer in Western Tasmania, all the other deposits produce gold as a by-product of base metal treatment. In June 2000, the Henty Mine had an inferred Resource of 1,373,000 tonnes @ 10.3 g/t Au (452,900 ounces).

Goldfield's Tasmanian exploration program is targeted at the discovery of a Henty style gold and polymetallic gold rich base metal mineral deposits in the Cambrian Mount Read Volcanics. The principal aim of the exploration program is to find additional Au resources to supplement production at the Henty Mine or to define a resource that could be developed as a stand alone operation.

Goldfields Exploration is actively exploring the southern portion of the Mount Read Volcanics in the Henty, South Henty, Basin Lake and Red Hills areas. Exploration to date has focused on systematic drill testing the Henty Horizon, which is defined as a zone of mineralisation, alteration and carbonate developed at the contact between the basal Tyndall Group and the underlying Central Volcanic Sequence. The exploration program has been highly successful with an inferred gold resource of 731000 tonnes @ 7.6 g/t Au delineated at Mount Julia in the south of the Henty Mine Lease.

1.5 Exploration Model

Recent exploration in the southern Mount Read Volcanics has lead to the development of an integrated exploration model for the genesis of Henty and Mt Lyell style mineralisation. (Figure 2). Such deposits are considered to represent the submarine equivalents to porphyry copper - high sulphidation - epithermal deposits. Henty style deposits form in the highest levels and margins of the system and have the best potential for gold mineralisation. The high sulphidation - porphyry copper deposits form at a deeper level and although generally base metal rich can still host significant Au resources.

The critical components of the Henty / Mt Lyell exploration model are outlined below:-

A. Position underlying the Lynchford Tuff

The Lynchford Tuff (or Lynchford Formation) is the basal unit of the Tyndall Group. The dominant facies is a feldspar rich volcaniclastic sandstone with subordinate basalt, carbonate horizons and quartz feldspar phyric intrusives / lavas. It overlies and can be interbedded with dacitic pumice breccias and lavas of the Central Volcanic Sequence.

The base of the Lynchford Tuff represents a major exhalite horizon (the Henty Horizon) as indicated by mineralisation at Henty, Comstock, Lynchford, Red Hills, Howards Anomaly and Beatrice.

B. Proximity to major faults

There is a close spatial association between exhalitive mineralisation at the Henty Horizon and major faults. The Henty, Howards Anomaly and Comstock deposits are located near the intersection of the Henty Horizon with the regional (N-S) Henty and Great Lyell Faults. The intersection of second order (E-W) faults with the Henty Horizon is a primary control on mineralisation at Lynchford and Comstock.

The regional (N-S) and second order (E-W) faults were active growth structures during Cambrian volcanism and mineralisation and focused the accent of deep seated hydrothermal fluids to the inferred seafloor position at the Henty Horizon.

C. Proximity to "Suite 2" porphyries and other related rock types.

Exploration at Mt Lyell, Garfield, Basin Lake, Anthony and South Henty has highlighted the close spatial association of "Suite 2" quartz feldspar porphyry intrusives and feldspar hornblende phyric andesites. These subvolcanic intrusives and their eruptive equivalents are considered to be the source of the magmatic dominated fluids which characterise Henty and Mt Lyell type deposits (Halley, 1996, Callaghan, 1998, Street, 1999 and Willliams, 2000).

They range in composition from medium to high calc-alkaline to highly evolved shoshonitic and tholeiitic compositions (Crawford, Corbett and Everard, 1992).

There is good field evidence in the Henty - South Henty area that intrusion of the Suite 2 to Suite 3 rock types is synchronous with the deposition of the Lynchford Tuff.

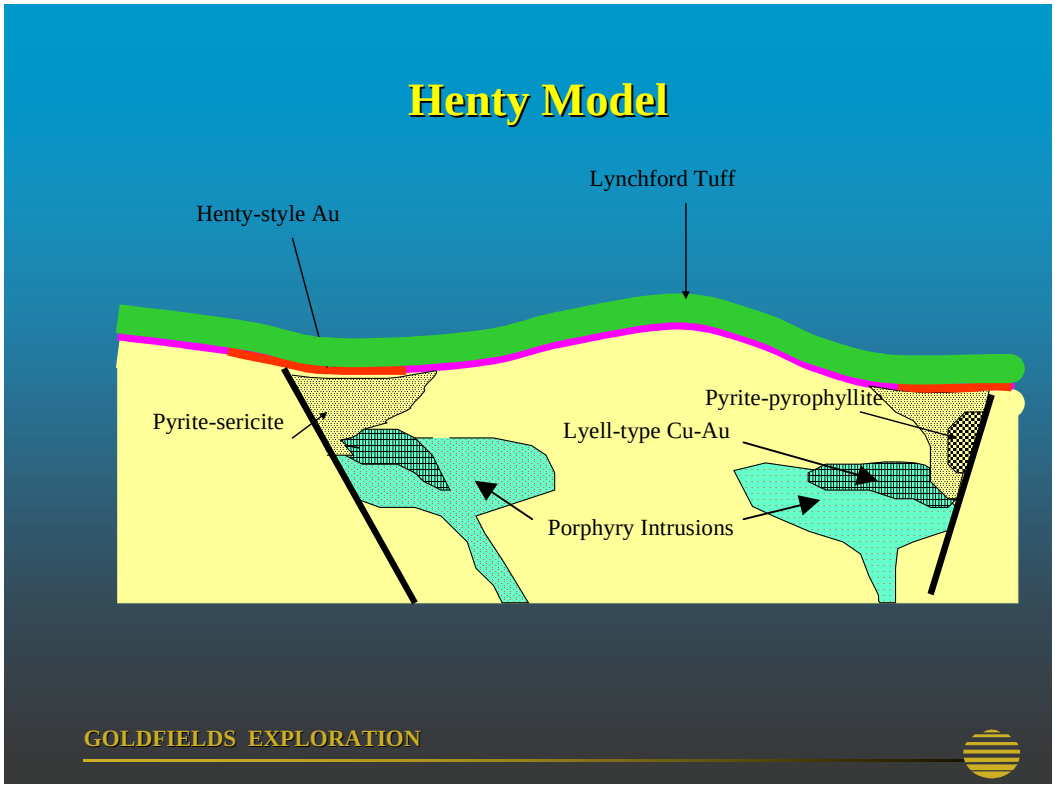
D. Associated Footwall Style Alteration.

Sub-seafloor alteration in the Central Volcanic Sequence is wide spread in the southern Mount Read Volcanics and hosts mineralisation at Mt Lyell, Basin Lake, Anthony and South Henty. There are two principal types:- pyrite-sericite and pyrite-pyrophyllite. The latter forming under more acid conditions.

These alteration zones represent the feeder zones to the overlying exhalitive mineralisation at the Henty Horizon or seafloor position.

Deposits of this type commonly display features that are typically associated with High Sulphidation porphyry style mineralisation (Low δ34S values, pyrophyllite-kaolinite-alunite, enargite-tennantite etc). They are usually Cu rich in contrast to mineralisation forming at the overlying seafloor position, which generally have epithermal characteristics (Au and Ag rich).

Figure 2 Henty Model



2 PREVIOUS EXPLORATION (Modified from Donaldson, 1993)

Exploration prior to 1983 is discussed comprehensively by Fitzgerald in Purvis et al 1983 and is presented below.

The first detailed exploration of Basin Lake was carried out by Pickands Mather between 1965 and 1971. Following an initial reconnaissance, they gridded the Mt Read Volcanics-Owen Conglomerate contact for some eleven miles north of the Mt Lyell Mine Lease and surveyed this using a dipole-dipole IP array. The strongest anomaly was located north east of Basin Lake over an area covered by glacial moraine. Two vertical holes (BL801 and BL802) were drilled to test this anomaly, the second being abandoned before reaching target. Pickands Mather ran a Turam EM survey over this zone following the inconclusive drilling, and delineated a linear anomaly just west of the IP anomaly. The response was attributed to pyritic black shales intersected in the upper part of BL801. They carried out no further work here, partly it appears because of serious drilling problems in penetrating the thick glacial over-burden.

The northern part of the Basin Lake area was covered by dipole-dipole IP surveys in 1967-68 over the East Tyndall grid, within Mt Lyell's E.L. 9/66. Two anomalous zones were outlined and two drill targets were identified. These anomalies were resurveyed by gradient array IP in 1973-74 which reaffirmed the drill target in the north western zone. In-fill grids were cut and resurveyed by gradient array IP in the following year which detailed the north west zone into five anomalies. One of these was tested by hole TYN002 drilled in 1975, but subsequent reinterpretation indicates that the anomaly has not been explained. Costeaning and a second drill hole, were recommended to test other anomalies within this zone but the program was not carried out because of budget restrictions at the time.

The rest of the Basin Lake area was pegged by Mt Lyell in 1971 as part of E.L. 41/71 but gridding and detailed exploration did not commence until 1974. The grid was initially mapped and surveyed by gradient array IP and magnetics. Primary anomalies were followed-up by

soil geochemistry and infill IP surveys, and two holes (BL001 and 002) were completed in 1978 in the vicinity of the Pickands Mather drillholes. The holes intersected minor base metal mineralisation in a felsic tuffaceous sequence.

Following the results of testing at Howard's Anomaly to the north, the area was further evaluated for possible extensions to the zone. Additional dipole-dipole IP, magnetic and soil geochemistry surveys were carried out and two holes (BL003 and 004) were drilled in 1981.

The most significant result to date at Basin Lake was the discovery in BL004 of a strongly altered and pyritic sequence of epiclastics enclosing a lens of massive pyrite up to 2.5m thick. However, base metal values were low. Additional dipole-dipole IP and Genie EM surveys were carried out in 1982, along with reassaying of drill core and sulphidic outcrops for gold. Work completed after the writing of the summary above includes the drilling of two diamond drill holes and a geophysical review. BL005 was drilled in 1984 to test the southern extension of the massive pyrite and an IP anomaly, results were negative. The other drill hole was drilled by the Mines Department in 1984 (Corbett, 1985) at the Leech Hill sericite-pyrite alteration zone and intersected minor base metal sulphide in altered andesitic volcanics (Fitzgerald and Pease, 1985).

During the 1985 to 1986 season some mapping was undertaken as well as UTEM and SIROTEM geophysical surveys. These surveys along with previous geophysical data outlined three anomalies that required follow-up work. Results for the Bradshaws Road and Leech Hill pyrite zone were discouraging (Fitzgerald and Cartwright, 1986).

In the following season, 1986/87, minor mapping, drilling and downhole EM surveys were undertaken. Drill holes TYN004 and TYN005 did not intersect any significant mineralisation and downhole EM surveys of TYN004, TYN005 and BL004 indicated that no new significant conductors were present. It was concluded that, although the Basin Lake area had been extensively covered by geophysical surveys and that the diamond drilling was quite widely spaced, it was difficult to identify any further targets for further investigation (Fitzgerald, 1987). The lease covering the Basin Lake area was relinquished in 1987.

The ground within EL 14/93 was held by an Aberfoyle - Billiton Joint Venture as EL 103/87 from 1987 until it was relinquished in April 1993. Work done included limited geological mapping, a limited ground magnetics and CSAMT survey on lines 349000N - 353000N, a gravity survey on line 350200N, and a six loop 59 line km UTEM survey (Richardson, 1993). Diamond drill hole BLD 89-3 was drilled to test a CSAMT anomaly adjacent to the Great Lyell Fault. The hole was collared in a sequence of rhyolitic to dacitic lavas and volcaniclastics (Tyndall Group) and intersected the Great Lyell Fault at 358.6m. A base metal poor alteration zone with disseminated pyrite was intersected from 130 to 230m and was considered to be the source of the CSAMT anomaly. The downhole EM survey of BLD89-3 by Billiton indicated the presence of an off hole conductor centred around 210m. The hole was later resurveyed by Aberfoyle and the anomaly confirmed. However revaluation of the data suggested that it may be due to a surface conductor tested by drillhole BL002 and no further work was recommended.

3 WORK COMPLETED WITHIN EL14/93

EL 14/93 was acquired by RGC after a successful tender for ETA 323. The EL was granted to Renison Limited on the 14th January 1994. In mid 2000, the tenement was transferred to Goldfields Exploration following the merger of RGC with Westralian Sands to form Iluka Resources.

The work completed by RGC Exploration / Goldfields Exploration since acquiring EL 14/93 - Basin Lake in 1994 is summarised in Table 1. Digital data supplied to MRT on a CD accompanying this report is tabled in Appendix 1.

There was no exploration completed in EL 14/93 - Basin Lake during the period December 2000 - December 2001. The total expenditure on EL 14/93 since January 1994 was $1118623.

4. DISCUSSION and RECOMMENDATIONS

The results presented in Vicary, 1998c and Hill and Vicary, 1999 have suggested that the Basin Lake and Anthony areas have high potential for high sulphidation porphyry style mineralisation similar to that present at Mt Lyell. This is supported by the presence of an enargite bearing glacial erratic which is assumed to be derived from a local alteration system characterised by the presence of the acid sulphate assemblage pyrophyllite and pyrite. The existence of such an alteration system has been proven by drill holes TYN011, TYN015, BL001, and BLD89-3 (the Basin Lake alteration zone) (Vicary, 1999) on the Basin Lake EL and drill holes BL004, TYN017 and TYN018 (the Langdon alteration zone) on the Anthony EL.

The enargite bearing glacial erratic is located at the contact between two distinct glacial formations and near a major change in thickness of glacial cover. The overlying formation contains predominantly Owen derived clasts. In contrast the lower formation is dominated by clasts of Cambrian age. Mapping and drill core logging has established that the lower formation is generally in contact with Cambrian bedrock and less than 15m thick. The erratic has been blasted during road construction and was initially about 4m in diameter. The size of the boulder and the proximity to bed rock suggest that the boulder has not been transported far from it's source. A feature of the erratic is the present of quartz phenocrysts. Quartz phenocrysts are uncommon in the Basin Lake – Anthony area being restricted to a phase of the Anthony Road Andesite (the Basin Lake or Suite II Porphyry). Significantly this unit hosts the pyrophyllite – pyrite alteration at the Basin Lake alteration zone.

The Langdon and Basin Lake Prospects were the subject of a mineralogical and geochemical study by Williams, 2000. He has confirmed many of the above observations and has highlighted the high sulphidation of the nature of the alteration zone

The Langdon Prospect is defined by a chargeability high anomaly on early gradient IP array surveys. The Basin Lake alteration zone was located under thick glacial cover and had negligible IP response. It is apparent that gradient array IP was an ineffectual exploration method over areas of thick glacial cover.

Much of the Basin Lake – Anthony area was covered by an extensive CSAMT survey in the late 1980's by Billiton (Creagh and Hungerford, 1990). Mike Asten of Flagstaff Geoconsultants was contracted to re-evaluate this data using modern inversion techniques. The results of this study are presented in Asten, 1999. To provide a means to evaluate anomalies several lines of old dipole – dipole data were also inverted. In contrast to the reprocessing the CSAMT data the inversion of the dipole – dipole IP data was shown to be a highly effectual technique to define anomalies in the depth range 0 to 300m. It proved that the dipole – dipole IP inversion was an effectual exploration technique in the Basin Lake – Anthony area.

Add table

Since most of the prospective area in the Basin Lake – Anthony area had not been covered by dipole – dipole IP a new survey using 100m dipoles was commenced in July 2000. The aim of this survey was to identify potential targets to be tested by drilling. The survey highlighted both the Basin Lake and Langdon Prospects as zones of anomalous chargeability and several potential drill targets were identified.

In December 2001, a detailed review of Goldfields exploration tenements was completed. The remaining targets within the Basin Lake EL were downgraded and it was recommended that the EL be relinquished.

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