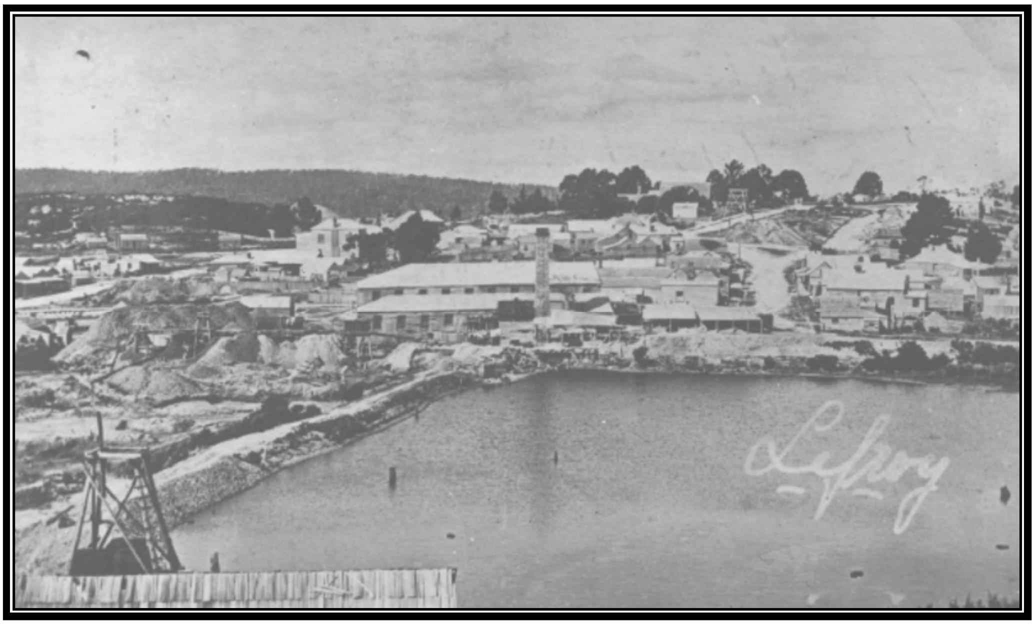
Lefroy Resources Limited

LEFROY PROJECT AREA

ELs 35/2001, 2/2002, 43/2003, 44/2003, 45/2003

Combined Annual Report



AUGUST 2005

LEFROY PROJECT AREA
ELs 35/2001, 2/2002, 43/2003, 44/2003, 45/2003 – Annual Report

CONTENTS

FIGURES

TABLES

APPENDICES

SUMMARY

The Lefroy Goldfield, located in north east Tasmania, was mined for approximately 200,000 ounces of gold at spectacular grades (30-60g/t) in the late 19th century. The Lefroy Goldfield is characterised by around 30 close spaced gold-bearing reefs.

Orientation drilling which commenced in November 2004 successfully intersected significant mineralisation at three high-grade reef targets, below historically mined gold “lodes”, confirming that high-grade gold continues beneath the old workings at the Lefroy Goldfields. This program was subsequently expanded to further assess the potential of these lodes.

This subsequent drilling has shown that conceptually, mineralised structures at the Lefroy Goldfield are of sufficient magnitude to host a million-plus ounce resource, and the potential for the Lefroy Goldfield to yield multiple economic deposits that could be exploited in a single mining campaign also exists (reported in 2005 March Quarterly Report). Work has commenced on establishing a JORC compliant resource for these lodes. This work as included metallurgical studies, a review of resource estimation methodologies successfully used at other Australian lode-style gold deposits, retrieval and 3D modelling of historic production records.

Geological modelling and a geo-statistical review are in progress aimed at determining the best means of advancing the projects to gain a JORC compliant resource.

Due to the structural controls on mineralisation and their complexity, previous workers at Lefroy have recognised the need for detailed structural work to be carried out. A structural model for mineralisation was developed (supplied as Appendix 1) and was applied to a detailed interpretation of the airborne geophysical data acquired in September 2004. The airborne geophysical survey included low level aero-magnetics, radio-metrics and a DTM was completed over the Lefroy Goldfield and its surrounds. A number of targets were generated.

A ground geophysics orientation program was completed over old workings at Lefroy, aimed at providing a suitable method to be used over the EL into the future.

LEF has completed recovering data and information from various government archives and agencies in Tasmania, providing an important insight into grades and tons recovered from Lefroy in the early days of the Goldfield’s history. Hard copy and digital data has also been supplied by the previous tenement holders, and has been verified and combined into the Company’s digital database. This information includes drilling, soil and rock chip sampling, mapping and interpretation work.

To date reconnaissance work and initial surveying and logistical studies have been carried out. Data compilation has commenced with LEF incorporating existing data into a 2D and 3D GIS (Geographic Information System) environment. Work includes the compilation of historic plans from the 1800s, government mapping and open file company information, old drill

holes, soil geochemistry and rock chip data and remote sensing. This information will be combined with remote information such as airborne photography, satellite imagery and regional geophysics, allowing spatial interrogation through multiple datasets.

These tenements are considered to have good potential to host significant gold mineralisation. LEF is developing a good understanding of the mineralisation at its Lefroy project area and is developing sound exploration techniques that will be directly applicable in the north eastern Goldfields of Tasmania.

INTRODUCTION

Lefroy Resources Limited (LEF) holds a 100% owned exploration land package in the north eastern Goldfields of Tasmania. This consolidated tenement package contains at least three separate mineralised structures. In 2004 LEF acquired the Exploration Leases 43/2003, 44/2003 and 45/2003, further expanding Lefroy Resources' tenement portfolio. These have proven to be important assets due to the regional extent of the Lefroy gold deposition.

In 2004 LEF commenced exploration activity on key target areas focusing on the historic Lefroy Goldfield (ELs 2/2002 and 35/2001, both held by LEF). The Company is focused on the discovery and development of high grade lode-style gold deposits. Initial drilling was aimed at testing the potential for economic mineralisation beneath the historical workings and elsewhere within the tenements, as there remains significant potential for sub-surface high grade shoots that have gone undetected in the past.

The Lefroy Goldfield extends for at least 5 kilometres through the old gold-rush town of Lefroy, 40 kilometres north of Launceston. The Lefroy Goldfield contains many historic workings and shafts located on approximately 30 gold reefs which were mined and subsequently abandoned in the late 1800's.

These tenements are considered to have good potential to host significant gold mineralisation. LEF is developing a good understanding of the mineralisation at its Lefroy project area and is developing sound exploration techniques that will be directly applicable in the north eastern Goldfields of Tasmania.

LOCATION

The Project Area is situated in north eastern Tasmania (Figure 1). The total project area is 770 square kilometres, with 99% of the area granted until 2009. ELs 43/2003, 44/2003 and 45/2003 were granted to LEF on 15/10/04, for a five year duration, until 2009. The area is flanked by the Tamar River to the west, Noland Bay (Bass Strait) to the north, the town of Lebrina to the east, and the Tasman Highway to the south.

Tenements cover Crown Land, Commonwealth Government Land, State Forest and private property. Terrain is moderately undulating, and the Lefroy Gold Field can be accessed via sealed roads.

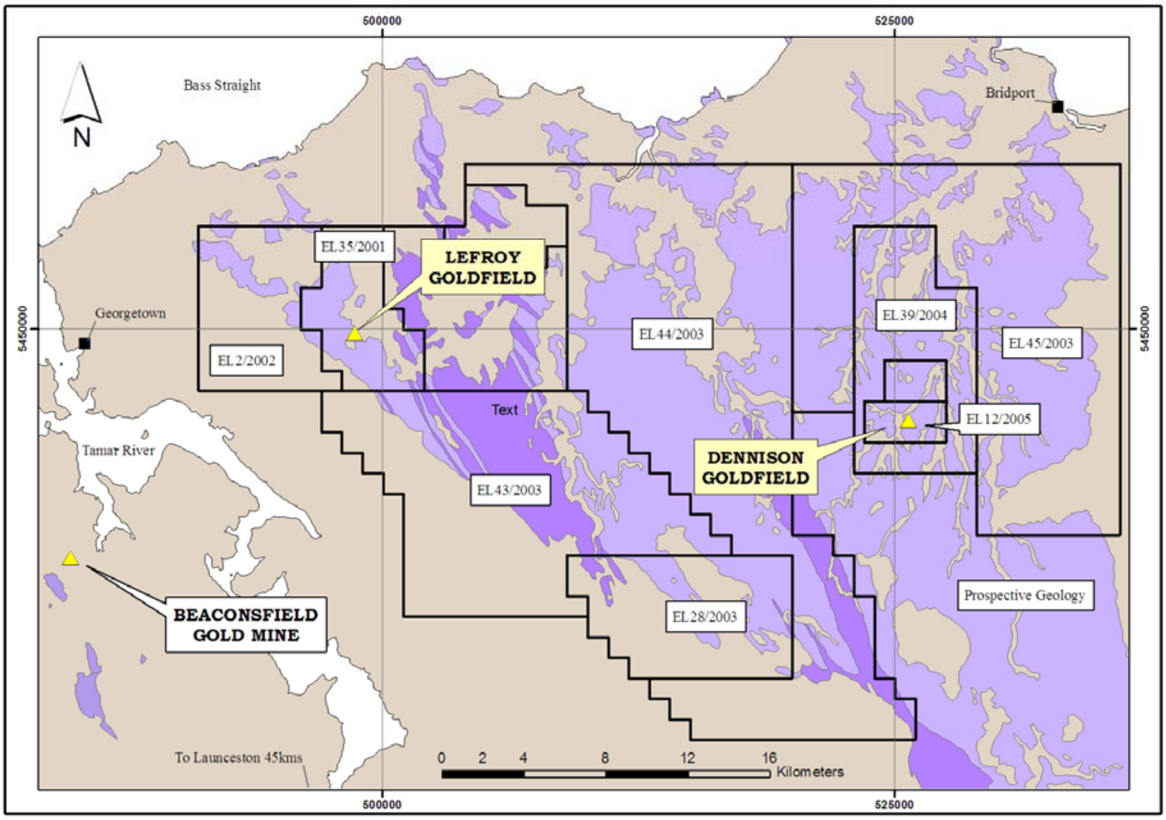


Figure 1. *Tenement Location Plan.*

LAND TENURE

Exploration Licence 35/2001 was granted to Lefroy Resources on the 18th August 2004. The Licence was originally allocated to Sapphire Trading Limited on 10th October 2003, and then transferred to Lefroy Resources. The EL carries a tenure period of 5 years, expiring in October 2008.

The licence carries a minimum expenditure commitment of $100,000 for the first 2 years. It covers 42 square kilometres and covers Crown Land (excluded from lease), Public Reserve, MDC Informal Reserve, State Forest and Private Property.

Exploration Licence 2/2002 was granted to Lefroy Resources on the 17th September 2004. The EL carries a tenure period of 5 years, expiring in September 2009.

The Licence carries a minimum expenditure commitment of $39,000 for the first 2 years. It covers 52 square kilometres and covers Crown Land, Public Reserve, MDC Informal Reserve, State Forest and Private Property.

Exploration Licenses 43/2003, 44/2003 and 45/2003 were granted to Lefroy Resources on the 15th October 2004. The ELs carry a tenure period of 5 years, expiring in October 2009.

The Licences carry a combined minimum expenditure commitment of $420,750 ($104,250, $177,750, $138,750 respectively) for the first 2 years. They cover 561 square kilometres (139km^{2}, 237km^{2} and 185 km^{2} respectively) and include Crown Land, Public Reserve, MDC Informal Reserve, State Forest and Private Property.

GEOLOGY

The majority of the tenement area is underlain by the Mathinna Super group turbidites of Cambrian to Ordovician age, with minor amounts of tertiary basalt and quaternary sands and alluvium. Siltstones and sandstones dominate the Mathinna Super group rocks in these tenements.

Structurally the Mathinna Group sediments are broadly folded in sub-horizontal NNW trending fold axes, although there is only sparse structural data available from the Mines Department mapping.

Mineralisation

Gold mineralisation occurs in ENE trending quartz reefs, veins or stock-works and shears associated with NNW trending shear systems. Mineralisation is typically associated with pyrite and/or arsenopyrite or galena. Occurrences of disseminated gold with secondary mica and varying degrees of iron enrichment within sandstone units have also been noted.

Gold mineralisation in the Lefroy Gold Field occurs in quartz veins and reefs along a series of parallel east-west fault planes and shear zones *(Russell and van Moort, 2003).* These structures have been traced for up to 10 kilometres *(Purvis, 1998)* and are frequently 10-20 metres wide. Some zones are up to 60 metres wide, with gold quartz “lodes” occurring anywhere within the shear *(Bottrill et al 1994).*

These shear zones are frequently mineralised and continue at depth: Drilling at the Lefroy Gold Field has intersected these zones down to 380 metres *(Reed 2002)*, and a Government report from 1935 points to high grades (50g/t) at 244 metres, indicating mineralised zones containing high grade ore continue down dip.

Ore zones are both structurally and stratigraphically controlled (Purvis, 1998) and often offset by faulting. Gold mineralisation can be associated with vuggy quartz on the margins of shear fractures. Gold is found in association with sulphide minerals (pyrite, arsenopyrite and chalcopyrite) and highest gold grades generally occur with pyritic ore. Mineralised quartz zones are variable in width, and typically range from 1-4 metres. Records indicate that average grades mined range from 30-60g/t, with some ore zones containing much higher grades (over 600g/t). There are also significant similarities in geology and gold mineralisation at the Lefroy and the Bendigo/Ballarat Gold Fields in Victoria *(Bottrill et al, 1994).*

PREVIOUS EXPLORATION

The Lefroy Goldfield extends for at least 5 kilometres through the old gold-rush town of Lefroy, 40 kilometres north of Launceston. The Lefroy Goldfield contains many historic workings and shafts located on approximately 30 gold reefs which were mined and subsequently abandoned in the late 1800's. Records indicate that the average mined grade of the field was in excess of 30g/t Au.

Reports suggest that as mining in the old goldfield progressed to depth, the ore became sulphidic and without the benefit of appropriate metallurgical technology many mines were closed as mill recoveries decreased. This factor combined with water infiltration and increasing mining costs forced the eventual closure of the field. These high-grade gold lodes and shoots are a primary target for the Company, which is focusing its initial efforts on delineating and drill testing targets around the old workings and their potential extensions.

Previous exploration between 1966 and 1985 focused on the deep alluvial lead potential of the field, and despite fairly encouraging results, there was no follow up. In 1994 the operators of the Beaconsfield Goldmine commenced testing the Volunteer area for a low-grade bulk mineralisation near surface. The Volunteer deep high grade lode potential was eventually tested with four diamond drill holes and two sister holes before the tenements were surrendered due to financial difficulties. Deviation of these drill holes was a problem and resulted in the targets not being properly tested. One hole did however hit a splay from a reef assaying 40cm @ 6.37g/t Au from 255.75m below the old workings.

To the east of the Lefroy goldfield mining commenced at the Denison Goldfield in the 1870s and continued until about 1911 *(Coroneos, 1993)*. The most successful operation on the field was the Alacrity mine that produced 10.3 kg of gold at an average grade of 48g/t Au *(Bottrill, 1994)*. The Alacrity mine worked a 0.3 to 0.45m vein to a depth of 60m with levels at 32, 46 and 60 metres. Two narrow veins where mined at the Sir William Denison Mine to a depth of 30m. Reid *(1926)* reports several crushings that averaged 45.5, 46.7 and 243g/t Au. At the Wiangatta mine a narrow vein was mined to a depth of about 80m and averaged 68.4g/t Au.

Other mines in the area include;

- The Royal Treasury: produced 32 tonne at an average grade of 6g/t Au,
- The Brooklyn: average grade of 6g/t Au,
- The Star: averaged grade 7.5g/t Au.

Most of the mines reported vein orientations trending ENE and dipping steeply, predominantly to the North West, except for Wiangatta which dipped to the south east.

Historical exploration and work carried out within the Denison Area include:

- Regional stream sediment surveys were carried out by Billiton *(Randell, 1991)* and CRA *(Broadbent, 1982)*. Billiton also completed a more detailed survey in the Denison area. Minus 80 mesh As and BLEG Au anomalies were reported with no apparent follow up undertaken.

- BP Minerals (1983) flew an aeromagnetic survey over the area. This data was incorporated with additional data flown by the Tasmanian government into the NETGOLD project and together with regional gravity data.

- Argyle minerals *(Cromer, 1986, 1987a,b)* carried out trenching and rock chip sampling and drilled 6 shallow holes at the Denison Goldfield.

During 1995/2003 Anglo Australian Resources NL completed several phases of exploration in the Denison Area which included activities:

- Interpretation of Satellite imagery.
- Rock Chip and mine dump sampling from the Globe, Sir William Denison and South Globe workings.
- One RC drill hole (SWD1) totalling 114.5m testing beneath the Sir William Denison workings.
- 1284 conventional soil samples collected on the local Denison grid (designed to cover all the historical workings).
- 2 trenches at Sir William Denison and 9 trenches at East Denison.
- 525 Auger like samples, near bedrock soil samples on the East Denison grid.
- Interpretation of aeromagnetic, radiometric and gravity data
- 146 MMI soil samples at East Denison.
- Rock chip sampling along NE trending structural corridor and follow up soil sampling at Little Ballroom and Tip prospects.
- Trenching at the tip prospect
- 32 RC drill holes completed for a total of 2100m.
- Initial Resource Reporting of ~10, 000oz @ 2g/T was estimated. No value was officially established and reported.

EXPLORATION

Regional Data Compilation

LEF has recovered data and information from various government archives and agencies in Tasmania. This work has provided an important insight into exploration previously conducted on the tenement and surrounding areas. This data is now being verified and is being combined into LEFs digital 2D and 3D GIS (Geographic Information System) database.

Software platforms being utilised include:

- ArcGIS (with Geosoft Target Extension)
- Micromine Modules and Fracsis

Work includes the compilation of historic plans from the 1800's, government mapping and open file company information, old drill holes, soil geochemistry and rock chip data and remote sensing. This information is being combined with remote information such as airborne photography, satellite imagery and regional geophysics, allowing spatial interrogation and drill target selection. All the data results can be found on the accompanying CD, Appendix 3.

Field Reconnaissance

Field reconnaissance was undertaken. This work primarily was focused on determining specific logistical issues for further exploration and assessment of previous exploration activity and evidence of historical mining. The shaft collar of the Pinafore Main shaft was also located using an excavator.

Surface Geochemistry

A soil geochemistry sampling program targeting the northern and southern strike extensions of the Lefroy goldfield is in progress. This program is testing the area between the Pinafore and Perpetual areas in the north, and the area along the Volunteer – Monarch – Land o' Cakes area.

To date a total of 449 samples collected. An estimated additional 1300 samples are planned.

Soil samples have been collected on a 100mE x 25mN sample density.

Location control is by flagged baseline, GPS and compass and tape, as deemed appropriate. An un-sieved sample was collected using a power and/or hand auger from a depth of 50-70cm targeting the B-horizon. Approximately 1 to 1.5kg of material was collected per sample.

Recorded for each site was depth of sample, soil profile, soil colour, quartz content and any other relevant information e.g. location of mullock heaps was also mapped.

Samples are being analysed by Genalysis Laboratories – Perth for the following elements;

- Au: 1ppb by fire assay digestion with graphite furnace finish method (B/ETA).
- As (1ppm), Ag (1ppm), Cu (1ppm), Pb (1ppm), Zn (1ppm), Sb (2ppm) by B/SAAS

No results had been received for these samples during the reporting period, a sample location plan for the area north of Pinafore to the Perpetual limb is provided as Figure 2.

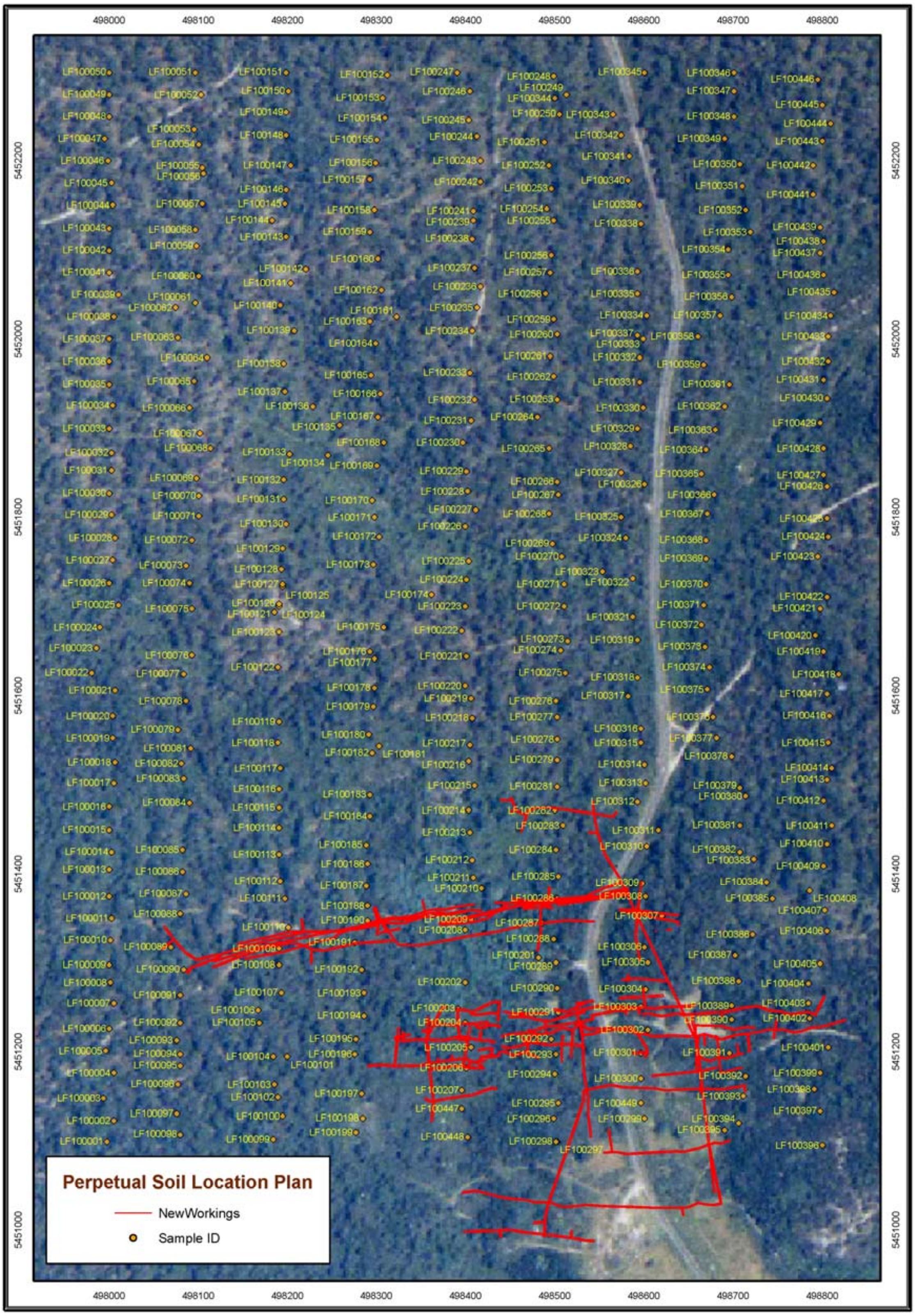


Figure 2. *Perpetual Soil Location Plan.*

Geophysics (Airborne)

As previously reported (Annual Technical Report 2004) an airborne geophysical survey (aero-magnetics, radio-metrics and DTM) was completed over the Lefroy Goldfield and its surrounds. UTS (Universal Tracking Systems Pty Ltd) of Perth was contracted and provided a fixed-wing Fletcher FU24 single engine, piston aircraft. The low level survey was completed for approximately 1,800 line kilometres. The survey was flown at 50 metre line spacing and provided greatly improved resolution when compared to the existing State Government data acquired at 200m line spacing as part of the Western Tasmanian Regional Mineral Program (WTRMP). An interpretation and targeting report has been compiled from the UTS report and can be found in Appendix 4 (ELCombined_200506_20_report).

Detailed interpretation of the airborne geophysical survey was undertaken. A detailed structural and stratigraphic map was compiled. In addition zones of interest with respect to gold exploration where identified and ranked, as shown in Figure 4.

This work identified that the Lefroy mineralised system comprises a quartz vein array, of D3 age, arranged in a ladder style along a NNW-trending D1-D2 structural corridor. Individual E-W auriferous quartz veins formed as a result of wrench faulting in a stress regime in which $\sigma 2$ was vertical at the close of the Mid-Devonian Tabberabberan Orogeny.

D3 "saddle reefs" - formed as a result of tightening of pre-existing folds in the D1 fold-thrust zone – controlled high-grade gold shoots at the Native Youth. The 45° W plunge of the gold shoot at the Volunteer is principally due to the intersection of D2-D3 faults with the steeply S-dipping reef.

Targets have been generated from this study based on:

- D_3 being the favourable deformation event
- Zones of intense deformation are favourable for mineralisation
- Sandstone being the favourable wall rock lithology
- Jogs in shears, or displaced sandstone beds are favourable zones

Three types of targets were generated:

- Extensions to existing workings based on the structural model (T1)
- Regional targets based on the aero-magnetics and the structural model (T2)
- Conceptual particularly based on the Beaconsfield model (T3) (shown in Figure 3)

Each target was ranked in priority based on the structural model with decreasing confidence in the target selection:

- Rank 1 is of high priority with numerous indicators of potential success
- Rank 2 has less pointers to success, but with at least two

positive properties

- Rank 3 has at least one positive property

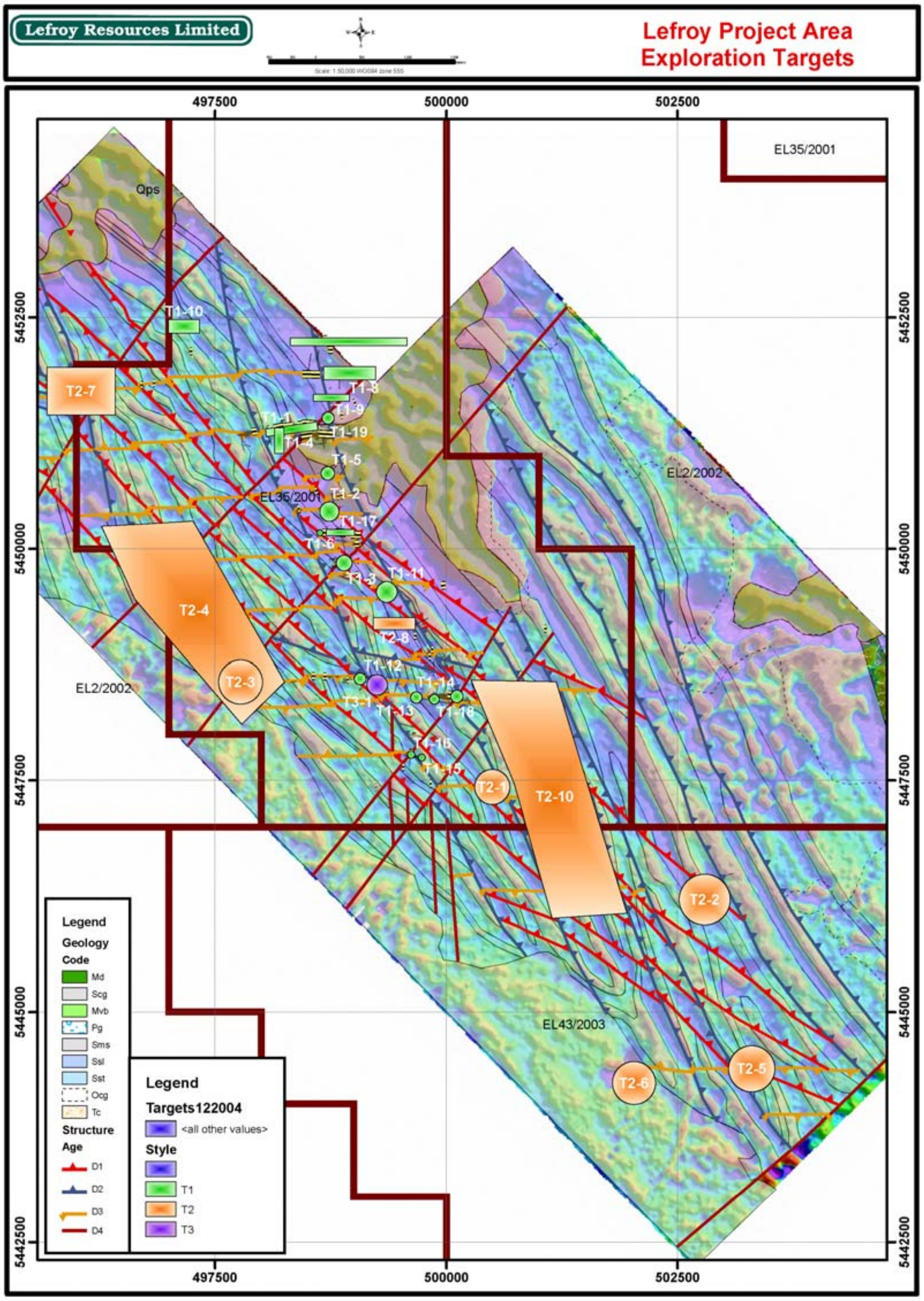


Figure 3. *Map showing T2 and T3 targets.*

Extension to existing workings (T1)

Chum Line of Workings (T1-1)

The Chum Reef is one of the longest and most continuous reefs in the Lefroy field and consists largely of gold-bearing quartz with minor pyrite and stibnite. It has been worked to a maximum depth of 500 feet and from the mine plans appears to have been stoped out almost continually over the explored length and depth. The mineralisation is deposited within an E-W fissure lode formed in D_3. The main lode has a westerly plunge, but local extension zones plunge easterly.

The easterly continuation to the Pinafore line of workings has been excluded as the D_4 fault appears to cut off the lode.

The recommended intercepts are 498440E, -100m; 498120E, -130m and 498440E, -130m. It is estimated that this target will require 500m of RC drilling and up to 75m of diamond tails. It is recommended that a pseudo log of the holes be prepared from the database prior to drilling. The target has a rank of 1.

Morning Star (T1-2)

This reef has been worked to a depth of 130m in the Morning Star Mine. Satisfactory gold values were obtained to the east of the shaft in the upper levels and to the west in the lower levels. The available information suggests a west plunging ore-body which became unpayable at the 130m level. The mineralisation is located in bends on the main lodes producing west plunging shoots.

The Morning Star was drilled without any great success in 1937 (4 holes). Hole 4A hit 10.6 m of lode (not true thickness) at 172m. The program was not considered an adequate test of the reef potential because of the early drilling methods employed (AXT core) and the poor sample medium used (e.g. cuttings).

It is recommended that two holes be drilled below the Morning Star to intersect the down plunge position of the shoot. The recommended intercept locations are 498695E, -120m and 498615E, -160m. The target will require about 350m of RC drilling and 60m of diamond tail. The target has a rank of 1.

Golden Crown (T1-3)

This reef is unusual as it trends NE, which is closer to the true extensional direction in the far field stress direction (e.g. Tasmania Reef at Beaconsfield). It is a short reef and occurs in strongly fractured siltstone and slate, with numerous irregular quartz veins. The longitudinal section of the reef indicates two near-vertical shoots of ore to a maximum depth of about 100m. The structural model indicates these deposits are extension vein arrays in D_3; the lodes are brecciated and steeply east plunging.

The recommended hole is designed to intersect the mineralisation at about 498910E, -140m where the lode could be up to 20m. The target will require about 160m of RC drilling and a 25m tail. The ranking on this target is 1.

Pinafore (T1-4)
The Pinafore Reef comprises a series of quartz veins in a wide fault zone, and is generally obscured by overlying Tertiary gravel and basalt. It has been worked extensively to a depth of 90m with fair success. The reef was tested in depth by underground mining to ~400m (1200 feet), small pockets of fairly rich ore occurring at 246m and 332m. Extensive driving and crosscutting was carried out at 370m and five lodes were intersected, all proving unpayable. The Pinafore is a lode style deposit in D_3.

It is recommended that a fence of holes be drilled centred on 498230E, 5451210N with the objective of intersecting a new shoot adjacent to sandstone within the D_3 lode shear. Approximately 600m of RC drilling will be required to test this target, but no diamond tails are recommended. The ranking for this target is 2-3.

Golden Era (T1-5)
The reef had been developed to a depth of 74m. Gold grades were high in the east drive developed on the main lode and 29 tons of ore were removed for a grade of 3.3 oz/ton! The auriferous quartz extended underfoot but the mine was closed due to water problems and lack of capital.

The Golden Era was drilled in 1936 without success (4 holes). Best indications (DDH 13) were traces of Au + Ag in cuttings at 83m and 105m depth. Rich stone was reported beneath the lowest level at 76m.

The Golden Era target is directed at an east or steep plunging dilatational breccia on a D_3 extension structure. Two RC holes are recommended centred on 498720E, 5450820N for about 300m and diamond tails up to 50m. This target is ranked 2.

Excelsior (T1-6)
Little is known about the Excelsior reef, which forms the western end of the City of Launceston and Native Youth Reef. It dips N and is not affected by subsequent faulting.

This deposit is a D_3 lode style with a westerly plunge of mineralisation. The objective of the planned holes is to test the down plunge extension of the mineralisation. One hole is recommended entered on 498605E, 5450170N. It is recommended this be drilled with RC for approximately 130m. The target is ranked 2.

Equila (T1-7)
Equila is a lode style deposit with well-developed D_3 shears adjacent to sandstone units. It is recommended that the target be examined using RAB drilling across the D_3 structure. Up to 250m of RAB drilling entered on 498820E, 5451885N will be required for the Rank 3 target.

Perpetual (T1-8)
The Perpetual Reef is an S-dipping D_3 shear system that has three distinct lines of lode to it. It was cut off at its western end by a D_4 fault. The S reef is a shear zone, whilst the N reef is likely to be a shear vein that is narrow but rich in gold. The Recruit Reef is the western extension of the Perpetual Reef. The lode passes beneath the Tertiary gravels and basalt. It is a well-developed D_3 target with sandstone host rocks. It is recommended a RAB

drilling program be centred on 498500E, 5452230N and that up to 250m of drilling be undertaken. The target is ranked 2.

White Pinafore (T1-9)
There is little information on this reef; it apparently passed under deep gravels at its western end and was never followed. There was a D_4 (?) fault between the 40 m and 61m levels that displaced the reef. The White Pinafore lode is the extension of a D_3 lode shear where it intersects sandstone at about 498760E, 5451620N. It is recommended a program of RAB drilling be undertaken for a total of 250m. This target has been assigned a rank of 3.

Far East Recruit (T1-10)
This reef dips S and is an extension of the Perpetual Reef system to the east. It is a faulted reef (i.e. it contains slickenside and brecciated reef). The Far East Recruit and western Equila lode is the extension of a D_3 lode shear where it intersects sandstone at about 487700E, 5451885N. It is recommended a program of RAB drilling be undertaken for about 250m. This target has been assigned a rank of 3.

Wallis (T1-11)
The target is situated at the intersection of compressive and dilatational shears in D_3. There is magnetic low, indicating sandstone and we expect the target to be shallow. Two RC holes are proposed in the vicinity of 499360E, 5449550N for a total depth of 150m. The target is ranked 3.

Land O'Cakes- Waverley (T1-12)
This target is a D_3 lode in a left hand bend that may indicate dilation on the lode. Two holes are recommended to test the Rank 2 target for about 160m of drilling. This target is ranked 2.

West Volunteer Extended (T1-13)
The target is in the position of an extensional shear within the Volunteer Extended D_3 lode shear. The target is ranked 3.

East Volunteer (T1-14)
Two relatively shallow RC holes (140 metres) are designed to target the up-plunge extension of the D_3 Volunteer Reef. The rationale for these holes is that the eastern end of the Volunteer is not well explored and the E-pitching "arm" has yet to be located *(Purvis 1998)*. Ranking 2.

Monarch East (T1-15)
This target is a dilatational bend in an E-W D_3 shear and the eastern end of the Monarch underground workings (see below). The presumed plunge is steep easterly. One or two RC holes for a total of 150m are recommended. Ranking 1.

Monarch (T1-16)
There were extensive workings on the Monarch Mine. The main shaft was sunk to 122 metres. The reef hit a shallow-dipping fault (probably D_3) in the upper workings; the lode was picked up again in the New Monarch mine, where the grades were considerably better than above the fault. The western end of the reef was also cut off by a D4 fault. Ranking 2.

The target is a dilatational bend in the D_3 reef below the old workings at approximately 499,650E, 5,447,760N. The host rock is sandstone inferred from the magnetics. One hole (100m) is recommended. Ranking 2.

Native Youth (T1-17)
This target is a deep extension to the Native Youth based on the prediction that the split in the reef at higher levels will repeat at depth below 250 m depth. Native Youth is a D_3 shear array with shears intersecting to produce a westerly plunge. Requires confirmatory geophysics to produce a drillable target. 500m of diamond drilling is assigned to this target. Ranking 1.

West Volunteer Branch (T1-18)
There is a potential dilatational D_3 shear at West Volunteer. Two holes (total 500 metres) designed to test the E-plunging extensional model. Oriented core measurements required. Ranking 2.

Chum (T1-19)
Chum and Never-Go-Bung D_3 mineralised shears appear to intersect at depth (see Figure 10 in Appendix 1 – Lefroy Structural Model). 500m of diamond drilling has been earmarked for this target, which is an extensional D_3 E & W plunging shoot geometry. CSAMT geophysics is required (500m). Ranking 1.

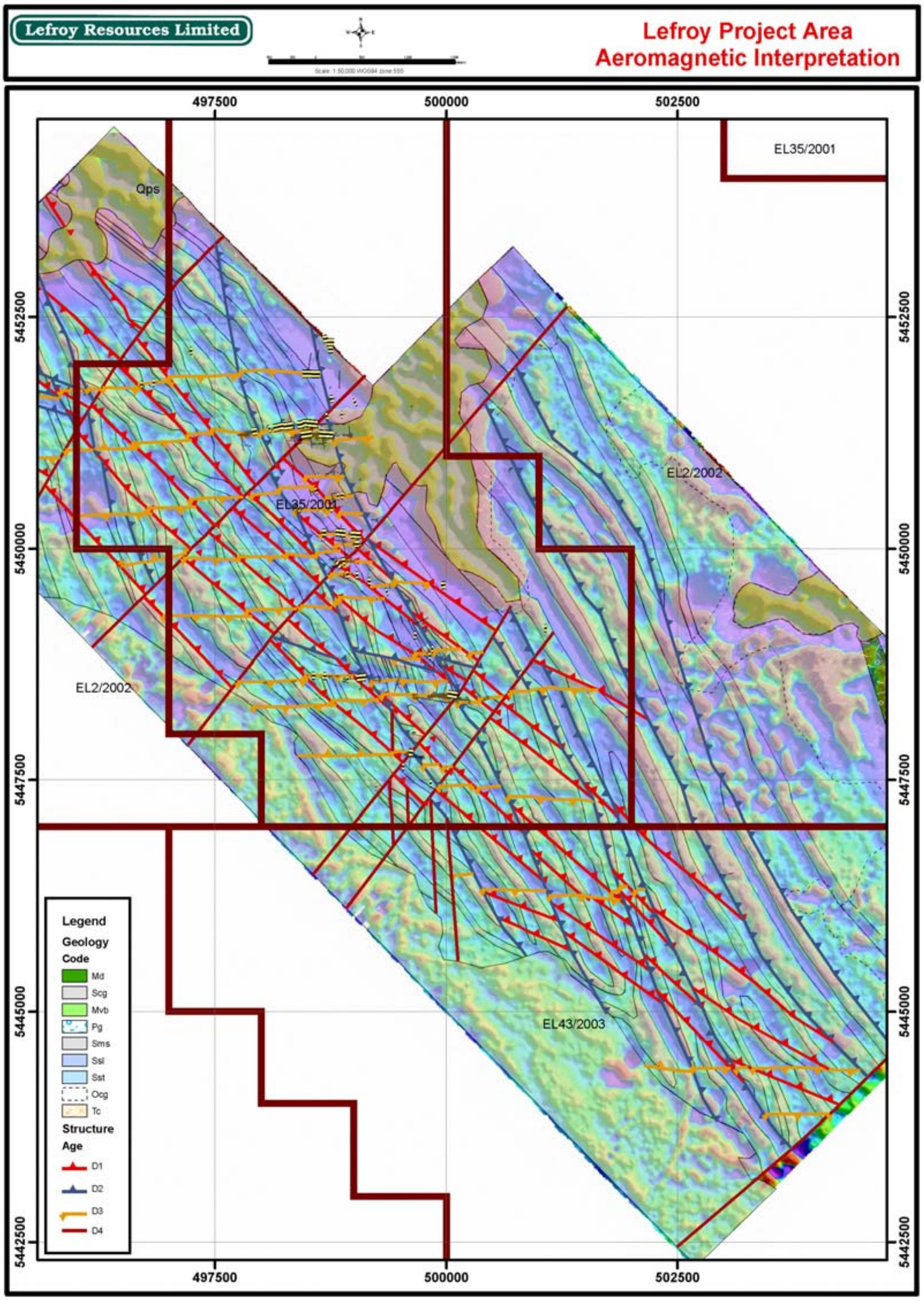


Figure 4. *Aeromagnetic Interpretation of the Lefroy Area.*

Grass roots targets based on regional airborne magnetic image and structural model (T2)

SW Corner Volunteer "Compartment" (T2-1)
Shear zones partition the stratigraphy into compartments in the Lefroy district. The structural compartment situated immediately SE of the Volunteer mine appears to have controlled the flow of mineralising crustal fluids (the Volunteer deposit lies at the NW tip of this structure). The target consists of an E-W D_3 structure with a right-step, the definition of the edge of the compartment through magnetic images and the presence of sandstones. Ranking 1

Native Industry (T2-2)
This target lies near the Native Industry mine on a set of parallel E-W D_3 shears. Sandstone is inferred to be the host rock. Ranking 2

West Land O'Cakes (T2-3)
This target is the western extension of the Land O'Cakes structure where there is a considerable amount of sandstone indicated from the magnetics and a disruptive potentially mineralised shear. It lies on a major $D_{2\text{-}3}$ shear. Ranking 2

SW Curries River/Rifleman (T2-4)
This is an extensive target area that lies southwest of the Curries River doubles as a target zone, i.e. D_1 structure, "broken up" sandstone signature from magnetics and an E-W D_3 shear, as well as the other arm of the conceptual D_3 structure that opened up the D_1 transfer (see T2-10, below). An auger geochemical programme is recommended. Ranking 1

Den (T2-5)
The Den has the first record of gold in the district. No production was recorded. This target lies on a D_1 structure, an E-W D_3 shear with disrupted sandstone beds. Ranking 2

Den West (T2-6)
This target lies on the same E-W D_3 shear as T2-5 but lies under Permian cover. Ranking 3

Comrades West (T2-7)
This target lies on an E-W D_3 shear, which is the extension of the Equila RAB target. There is a weak D_1 structure present and sandstone is present. This target also lies along the western D_3 wrench corridor (along strike from T2-4). Ranking 2

Windermere (T2-8)
The Windermere reef was a small, irregular D_3 reef that dips south. This is a soils target in a "periodicity" gap in the mineralised structures between the Volunteer and Native Youth reefs. The magnetics indicate a low (sandstone host) in a region where the trends are rotated. Ranking 3

Orlando West (T2-9)
Little is known about the Orlando other than there were many shafts sunk in the vicinity of the lode and gold had been reported from these. This target

is based on soil geochemical signature, a magnetic low and an intersection of D2 northerly and D_4 NW-trending shears. Ranking 3

"Eastern Shear" (T2-10)
This is the conceptual play that requires there to be a major eastern flanking D_3 structure(s) that controlled the opening of the D_1transfer fault during mineralisation. It is a soils target -40m samples along 400 spaced lines. Ranking 1

Conceptual targets based on the Beaconsfield model (T3)

"Basement Shear" (T3-1)

An outstanding feature of the TMI image and the combined radiometric images is a major change in the crustal conditions along a west-northwesterly trend just north of the Volunteer mine. Interesting observations about this structure are:

- There is no obvious stratigraphic change across the structure
- TMI indicates the magnetic feature is not deep <300m
- Radiometrics indicate there is some chemical change that is reflected in the surface rocks
- The structure is toward the cooler end of the field from known mineral zonations at Lefroy
- Beaconsfield appears to be developed in a prominent structure approximately parallel to this feature

It is likely this feature is a basement fault at a depth of less than 1km. There is an expectation that this structure will provide geochemical anomalism on all of the faults in the cover sequence above it. Consequently there is expected to be anomalism showing up on both of the regional soil geochemical projects identified (T2-10 & T2-4). Once the results of the geochemistry are received refinements may be possible, but it appears the most likely spot, with a mild inflexion, for a mineralized structure in the basement is at about 499000E, 5448500N. The target depth will be approximately 0.5-1.5km.

Geophysics (Ground)

Integrated Geophysical Solutions (IGS) were contracted by LEF to carry out orientation geophysical trials in and around some of the historical gold workings at Lefroy. The techniques implemented in the study were; Gradient IP/ Resistivity, Fixed-loop TEM and Controlled-source audio-magnetotellurics (CSAMT).

The IP/Resistivity demonstrated no strongly anomalous zones, however it was noted that the several smaller perturbations that exist could be of significance. The CSAMT testing identified interference from nearby powerlines, as well as a north-south orientated anomaly 6km to the east of the initial target zone. FLTEM methods again experienced interference, and the resulting data integrity is therefore questionable. The recommendation from this study is for further test work to be carried out in order to omit the background "noise". The report accompanying this study is attached in Appendix 2.

Drilling

Since the commencement of drilling in November 2004, the Company has successfully completed approximately 5,998 metres of RC drilling and 2049.1 metres of diamond drilling (Figure 7).

Initial drilling targeted 11 prospective areas within a mineralised corridor striking through the old gold-rush town of Lefroy, NE Tasmania.

As a result of positive interpretation of results received in this initial phase of drilling the Company expanded the original 2004 drilling program focusing on the Pinafore and Native Youth lodes.

The Pinafore and Native Youth Reefs have been primary targets for the extended program, with drilling aiming to extend mineralisation along the strike and at depth (Figures 5 and 6). Results from the initial drilling determined that significant mineralisation exists below these workings.

A series of holes have also been cased for future down-hole geophysical test work. These include; LFD031, LFD035, LFD036, LFD037A, LFD041, LFD043, LFD048. These holes have been cased with 50mm PVC Class 9 pipe.

Methodology

Table 1. Drill-hole Statistics

Hole Prefix	Type	No.	Metres	Assays	Company
LFC	RC	44	5998	7305	Lefroy Resources
LFD	DD	10	2049.1	2057	Lefroy Resources
Total		**54**	**8047.1**		

Drill specifications:

- G&K 850 with onboard Sullair compressor
- air capacity, 900 CFM x 350 PSI
- deck engine, Detroit
- depth capacity, 204 metres RC
- depth capacity, 800 metres NQ2
- angles, vertical to 55 degrees
- prime mover, Mercedes 4 x 2
- auxiliary compressor XRH 350DD, 300 PSI x 750 CFM
- hurricane booster compressor 750 PSI

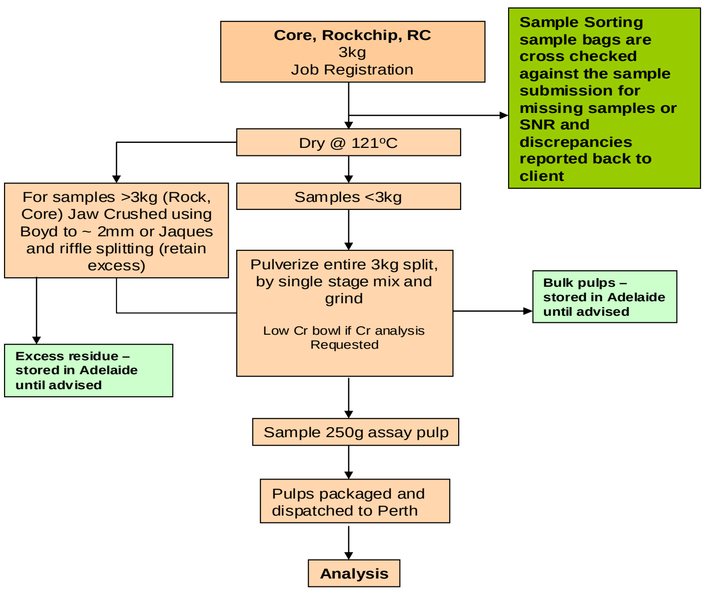
Diamond holes were drilled using NQ2 (50mm) inside HQ-cased RC pre-collars.

Assaying Techniques

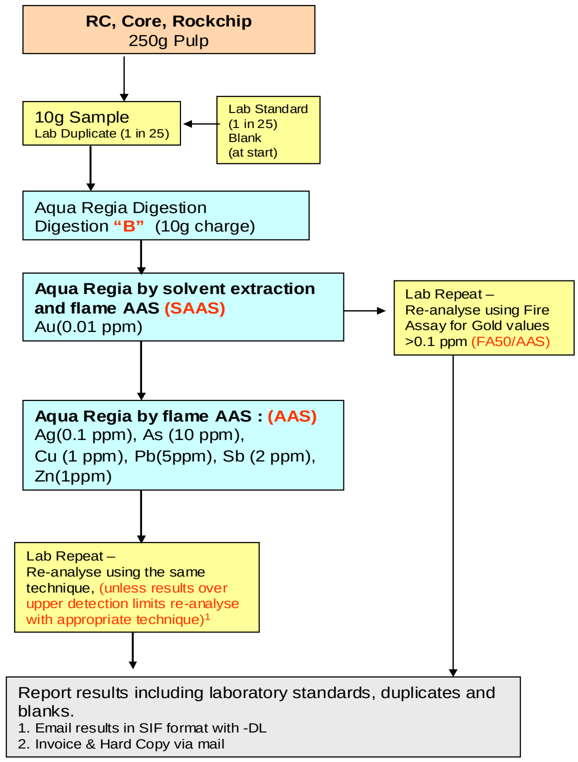
The following are the sampling collection procedures and analytical techniques for drilling at the Lefroy Goldfields:

- 1m rifle split samples weighing approximately 3-4kg are sent to Genalysis Laboratory Services – Adelaide for sample preparation. A series of control standards are submitted with each batch in the ratio of approximately 1 in 25.
- All samples submitted for preparation are prepared in total. The whole sampled is dried, crushed as required (rock/core), single stage mix and four minute grind (SSMG) to nominal 85% passing 75 micron. QC laser sizing on every 25th pulp and % passing 75 micron are reported with results.
- One in every 25 samples were duplicated, and 6% of selected samples have Au repeats after the first pass and blanks and internal control standards carried out for one in every 26 samples.
- The pulps are sent to Perth Genalysis for analysis.
- All assays are routinely assayed for Au by Aqua-Regia digest and analysed by Flame Atomic Absorption Spectrometry firstly with any results returning values greater the 0.1 re-assayed by Fire Assay. Multi-element analysis (Cu, Pb, Zn, As, Sb, Ag) is also undertaken. Each batch is the assessed for samples that have not been analysed for Au by Fire Assay. Significant Zones of elevated gold mineralisation are then Screen Fired.
- The flow charts below and on the following page detail the sample preparation and analytical techniques used by Genalysis.

Adelaide Sample Preparation Flow Sheet - Core, Rockchip, RC



Analytical Flow Sheet – RC, Core, Rockchip



Down-hole Survey Control

Collar locations were surveyed by hand-held GPS. Down hole surveys were single shot dip only for RC holes and single shot dip and azimuth for diamond holes. Surveys were conducted every 50 metres, at the end of each hole and at the start of each diamond tail. Surveys were conducted at closer intervals for some holes to establish the rate of dip deviation. A few RC holes were later surveyed using a multi-shot instrument. Weakly magnetic Tertiary basalts and rare pyrrhotite-bearing magnetic Mathinna Group intervals are present at Lefroy.

RC Hole Deviation

Hole deviation has been an ongoing problem at Lefroy and accounted for most RC holes drilled in the first half of the program deviating and missing their targets. It was discovered the by using a slimline bottom hole assembly and premier hammer, deviation could be controlled to allow successful hitting of drill targets.

Sampling and Logging Procedures

Reverse circulation

Every dry sample was put through a 3-tiered riffle splitter. Each bag collected a metre of sample at the cyclone and was then tipped into the splitter. When emptied, that bag was placed under the splitter to catch the next metre. Sample bag contamination should therefore be limited to the subsequent metre. The split portion for assay was collected in a pre-numbered calico bag. Wet or moist samples were not put through the splitter, they were spear-sampled. Standards were included every 50 samples initially and then at the rate of about 1 per 100 after the first few thousand metres. A blank was sent with every second standard.

Diamond
All diamond NQ2 core was halved and assayed. Coherent core was cut with a diamond saw along the long axis of the S_0/S_1 ellipse where possible. Incoherent core, e.g. fault gouge, was sampled with a spoon. The sample interval used for non-mineralised intervals was 1.5 or 1 metres. Some sub-metre samples were taken to test specific lithologies or quartz veins. Within mineralised zones sub-metre or metre (or rarely longer) assay intervals were used to determine variations in metal distribution due to lithological, structural, vein-related or alteration controls. Where no long ellipse was present, core was cut in such a way as to equally divide any in-homogeneities.

Results

Best results include (previously reported):

Pinafore Reef

- LFC023A: 4 metres @ 12.0g/t Au (including 1 metre @ 42.36g/t Au)
- LFC018: 6 metres @ 5.38g/t Au (including 1 metre @ 20.58g/t Au)
- LFC018: 7 metres @ 2.66g/t Au (including 1 metre @ 8.39g/t Au)
- LFC045: 10 metres @ 2.41g/t Au (including 1 metre @13.62g/t Au)
- LFC045: 3 metres @ 3.45g/t Au (including 1 metre @7.94g/t Au)

Native Youth Reef

- LFC021 – 10 metres @ 3.03g/t Au (including 3 metres @ 4.99g/t Au)
- LFC022 – 14 metres @ 3.38g/t Au (including 3 metres @ 8.13g/t Au)
- LFC044 – 17 metres @ 4.49g/t Au (including 1 metre @ 19.00g/t Au and 2 metres @ 9.28Au)

The Pinafore and Native Youth Reefs are located approximately 1,000 metres apart, and are two of the largest historically mined reefs in the Lefroy Goldfield. They were mined prior to 1900 for approximately 55,000 and 25,000oz of gold respectively, to around 130 metres. Average recovered grades are within the range of 30-60g/t, with some spectacular crushings yielding ore at over 70oz (2100g/t) at the Native Youth Reef.

Drilling beneath the old workings in the March Quarter has shown that conceptually, mineralised structures at the Lefroy Goldfield are of sufficient magnitude to host a million-plus ounce resource, and the potential for the Lefroy Goldfield to yield multiple economic deposits that could be exploited in a single mining campaign also exists (reported in 2005 March Quarterly Report). Figures 5 and 6 show the drilling at the Pinafore/ Chum Lodes and the Native Youth lode.

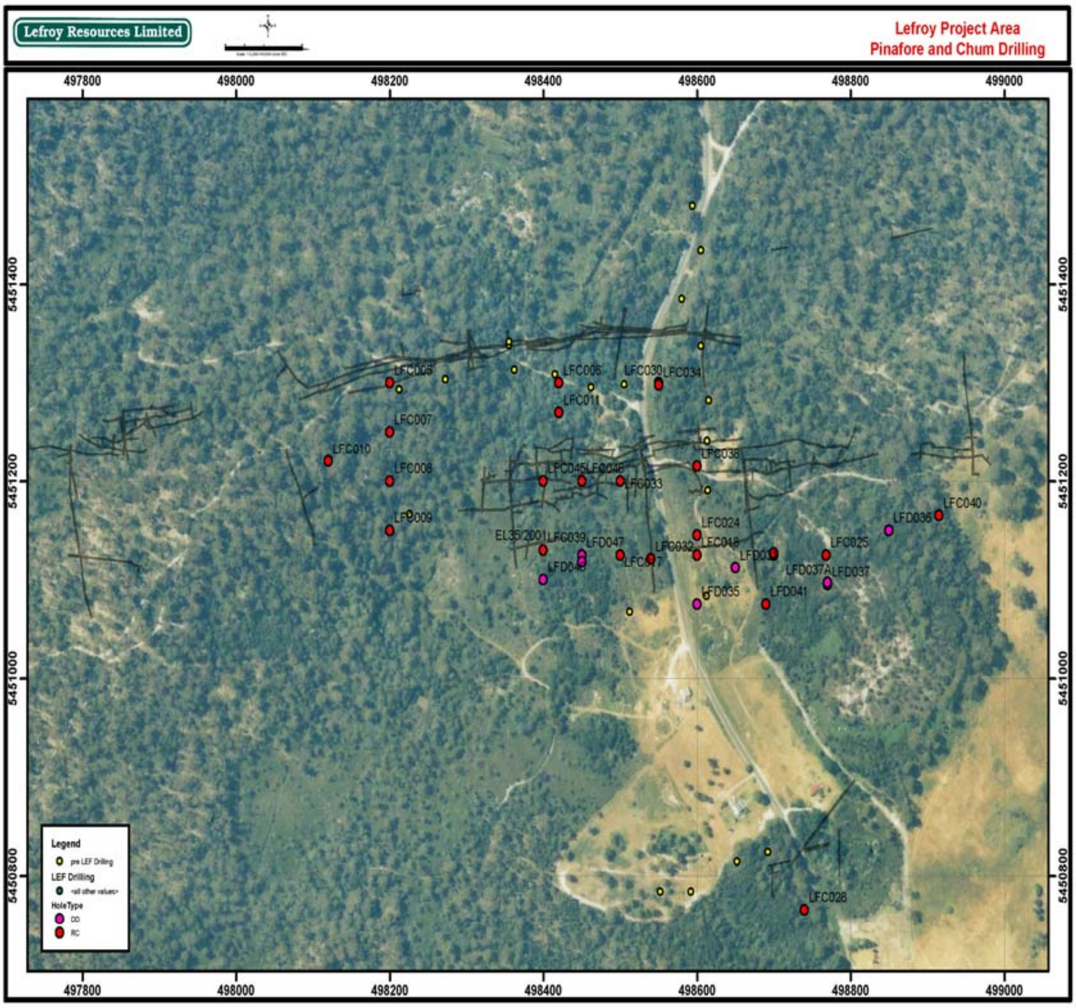


__Figure 5.__ Drilling locations at the Pinafore and Chum lodes.

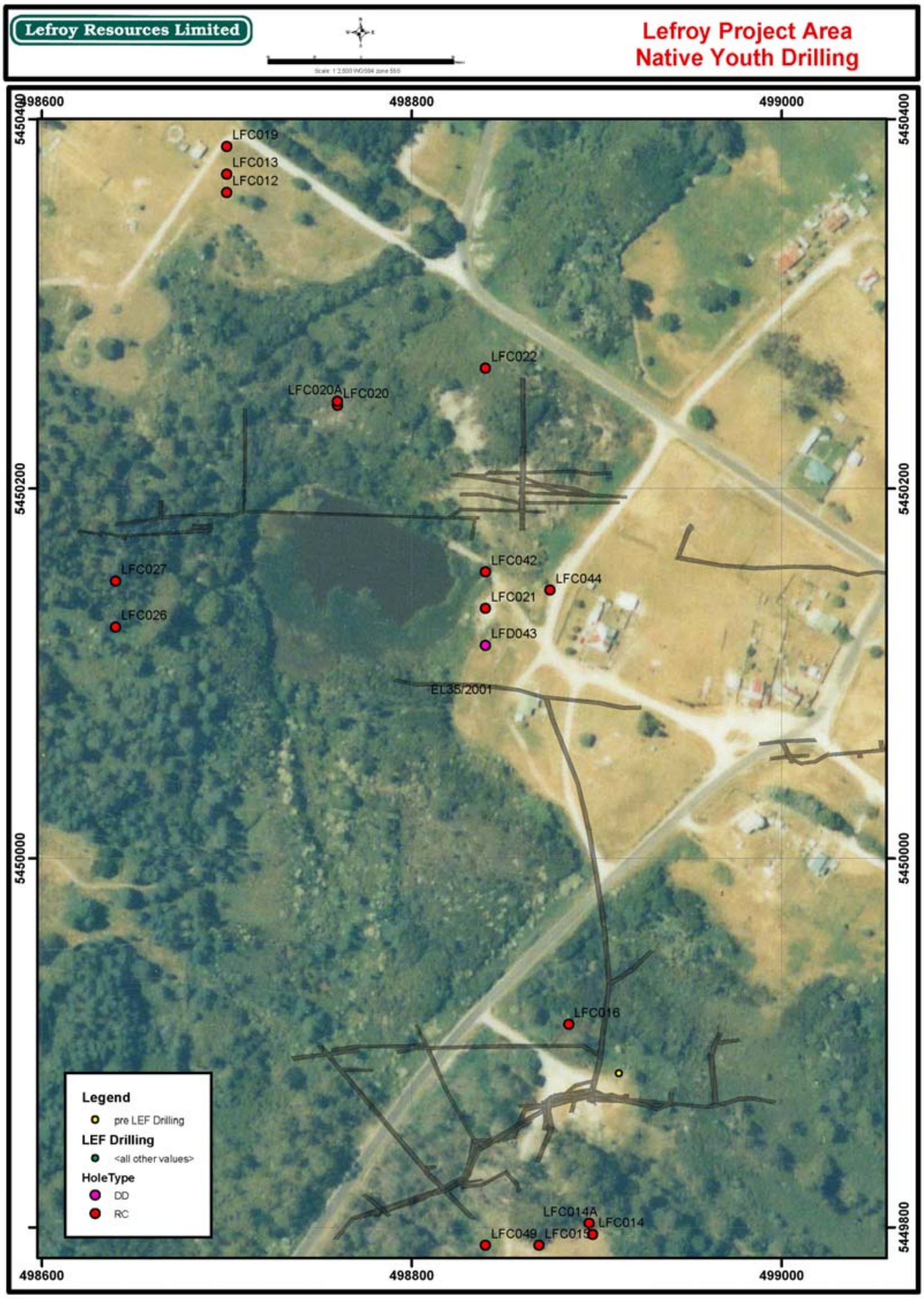


Figure 6. *Drilling locations at the Native Youth lode.*

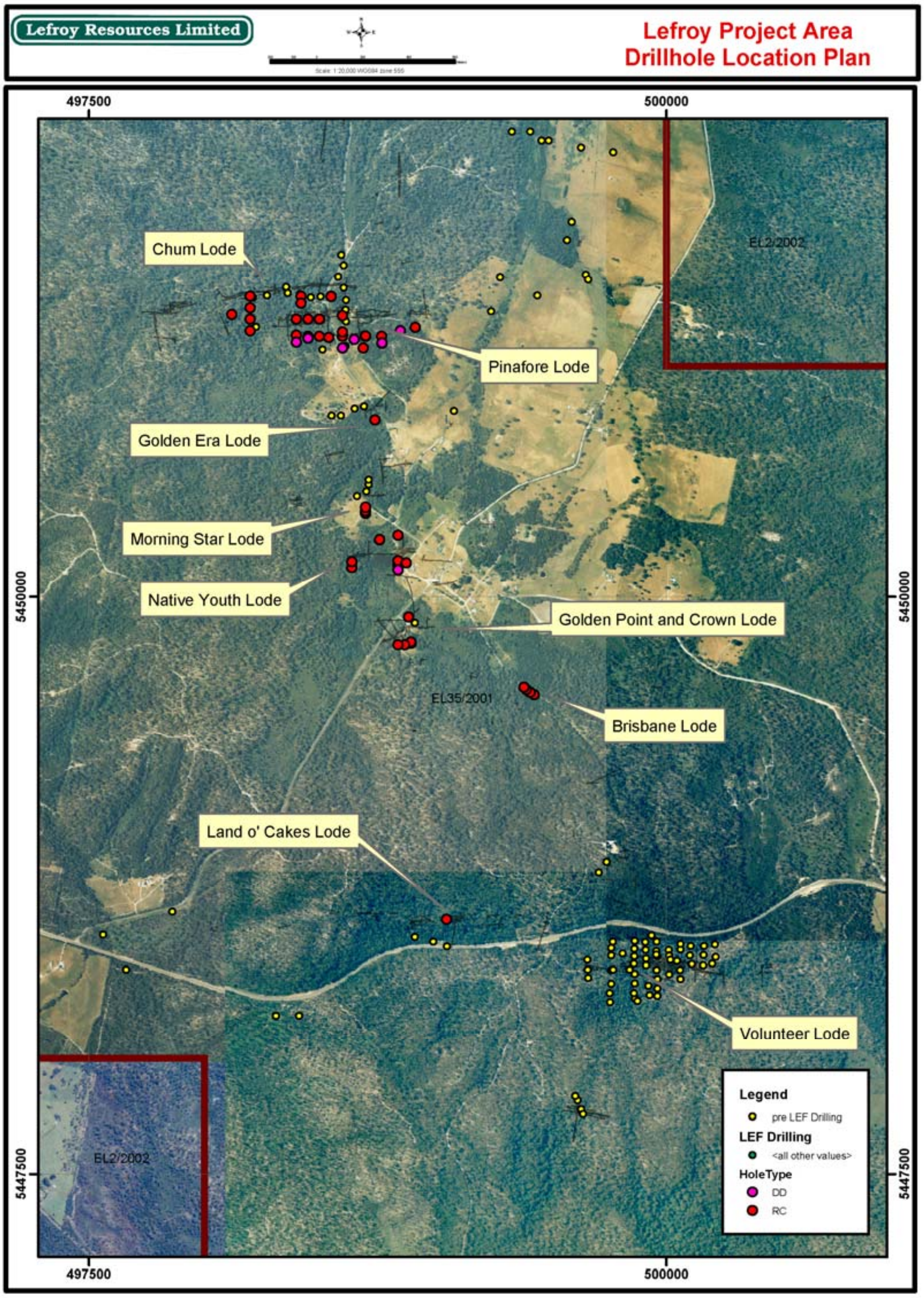


Figure 7. *Summary of Drill-hole locations at Lefroy.*

Metallurgical Test Work

Preliminary gold diagnostic test work of the Pinafore reef was completed by IML (Independent Metallurgical Laboratories). This work has shown that a high proportion of gold may be gravity recoverable. Results from this work can be found in Appendix 3.

Conclusions from this study are as follows:

- Gravity recoverable gold (i.e. Hg soluble) accounts for ~85% of total gold
- Extractable gold by conventional cyanidation and grinding accounts for ~8.5% of total gold
- The remaining gold (~6.5%) is predominantly sulphide locked
- The large discrepancy between head assay (5.37g/t) and calculated head assay (~13g/t) is most likely due to the abundance of free gold
- The same amount of extra gold obtained by fine grind and Hcl digest (~1.5%) implies that gold has been liberated from non-sulphide, acid soluble minerals

Further test work and metallurgical studies are needed to accurately represent the lode.

PIMA Research

Kim Denwer was contracted by LEF to carry out PIMA (Portable Infrared Mineral Analyser) testing on chip samples from three percussion holes (LFC017, LFC018, LFC024). The purpose of this investigation was to determine any alteration minerals within the samples, and if there were any alteration variations both within and between holes.

The results from this study are inconclusive due to the limited sample population that was studied. A larger data set would be required to gain additional understanding of the process. At this stage LEF is not intending to undertake this work based on the nature of the study and its relevance to the lithology at Lefroy. The full report from this investigation can be viewed in Appendix 4.

3D Modelling and Interpretation

A review of resource estimation methodology successfully used at other Australian lode-style gold deposits has determined that resource work must be supported by detailed modelling of historical production, and a clear understanding of the geological factors constraining the ore-zone. To this end detailed work has commenced to capture the historical production data required, and the Company has applied additional resources to undertake this activity. Computer based 3D “wire-frame” modelling of the ore zone of the Pinafore, Native Youth and Chum Reefs are complete. Detailed modelling of the Volunteer lode is scheduled.

This information in combination with the drilling and metallurgical data has been presented to an independent consultancy for review and comment on obtaining a JORC compliant resource.

Rehabilitation

Drill site rehabilitation is continuing in accordance with the Mineral Exploration Code of Practice provided by Mineral Resources Tasmania. Work undertaken includes:

- rubbish removal
- hole capping
- sumps filled in
- weed control
- vegetation repositioning
- track closure
- re-contouring of drill pads
- RC sample bag removal and farming at a nominated location on 16M/1991

Monitoring of rehabilitation sites is ongoing.

DISCUSSION

Initial data compilation and desktop planning, resulting in an integrated GIS database has served as valuable base on which exploration strategies and planning for the project can be undertaken. It will be regularly added to and updated as information becomes available. The structural model was incorporated into an integrated interpretation and formed the framework for drill target picking in 2005/2006.

The results of the resource estimation work carried out by independent consultants will prove to be imperative to the future work carried out at Lefroy. The soil sampling and geochemical surveys will provide additional information regarding anomalies in the area, and the significance they may have on the gold productivity of the region. Remote surveys will also contribute to the overall understanding of the area.

The drilling program, whilst very satisfactory, still presents the need for an additional program in order to broaden the scope of study. The modelling and interpretation of the goldfield is an ongoing process, and will provide Lefroy Resources with a concise understanding of the area.

CONCLUSIONS & RECOMMENDATIONS

The Financial Year of 2005 has shown to be an active exploration year over the main tenements 35/2001 and 2/2002. Extensive drilling, remote surveying, in-field test work and in-office desktop studies have been carried out, in an attempt to reach Lefroy Resource's primary objective; to define significant zones of mineralisation, particularly at depth. This is hoped to be achieved by generating a robust structural model and an understanding of the many geological controls on the goldfield.

These tenements are considered to have good potential to host significant gold mineralisation. LEF is developing a good understanding of the mineralisation at its Lefroy project area and is developing sound exploration techniques that will be directly applicable in the north eastern Goldfields of Tasmania.

LEF have established that high grade mineralisation continues below at least two reef structures at Lefroy. Grades and ore zone thickness are highly encouraging and further drilling is recommended to a) test other reefs within the goldfield and b) establish a resource.

EXPENDITURE

Expenditure at EL35/2001, EL2/2002, EL43/2003, EL44/2003 and EL45/2003 during the year August 2004 to August 2005 was as follows:

Table 2. *Expenditure at EL35/2001, 2/2002, 43/2003, 44/2003 and 45/2003.*

EXPENDITURE	**Amount**
GIS & Data	$ 70,553
Field Work (Mapping, Geochemistry, Rock Chip, Surveying, Analysis)	$ 4,005
Geophysics (Airborne and Ground)	$ 75,491
Drilling (RC/Diamond)	$ 628,078
Administration/ General Exploration	$ 396,734
TOTAL	**$1,174,861**

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APPENDICES

APPENDIX 1.

LEFROY GOLDFIELD
STRUCTURAL MODEL

LEFROY STRUCTURAL MODEL

LOCATION

1:25,000 Topographic Map Sheets:
Bell Bay 4844, Retreat 5044, Weymouth 5045, Low Head 4845

1:50,00 Geological Map Series:
Beaconsfield, Pipers River

PREPARED FOR
LEFROY RESOURCES LIMITED

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(with contributions from John Baxter)

DATE:

1st October 2004

LIST OF CONTENTS

LIST OF FIGURES

Figure 10	N-S Cross–section through the Lefroy Quartz reefs (looking west). The fault lodes are marked (F) and the quartz lodes (Q). Note the convergence of the two types beneath the Native Youth (from Groves 1965).
Figure 11	**Longitudinal section through the Volunteer, showing the secondary shear model and the potential for further ore shoots at depth (from Chisolm 2004).**

1.0 SUMMARY

The Lefroy mineralised system comprises a quartz vein array, of D3 age, arranged in a ladder style along a NNW-trending D1-D2 structural corridor. Individual E-W auriferous quartz veins formed as a result of wrench faulting in a stress regime in which $\sigma 2$ was vertical at the close of the Mid-Devonian Tabberabberan Orogeny.

D3 “saddle reefs” - formed as a result of tightening of pre-existing folds in the D1 fold-thrust zone – controlled high-grade gold shoots at the Native Youth. The 45° W plunge of the gold shoot at the Volunteer is principally due to the intersection of D2-D3 faults with the steeply S-dipping reef.

It is recommended that a conceptual deep target beneath the Native Youth and Morning Star reefs be investigated with deep sounding CSAMT with the aim of locating another D1 thrust system at depth.

2.0 INTRODUCTION

Lefroy Resources Limited (LRL) was floated on the ASX in 2004 with the aim of exploring and developing the historic gold mining field of Lefroy, situated in northeast Tasmania. The Lefroy Structural Model has been developed: (1) as a means of providing LRL with a robust targeting tool for drilling in the Lefroy goldfield, and (2) as part of a commitment to the Australian Stock Exchange.

The report has been compiled in conjunction with John Baxter of Continental Resource Management in Perth, WA.

3.0 LOCATION, ACCESSIBILITY AND PHYSIOGRAPHY

Lefroy is located on the eastern side of the Tamar River approximately 30 km NE of the Beaconsfield gold deposit (Figure 1). Although the Lefroy goldfield is easily accessible outcrop is poor (<5%). Much of the current surface structural information on the field has come from the Bridport-Georgetown Highway road cut that passes within 20m of the Volunteer reef. Tertiary basalt, and their associated gravels and sand deposits, obscure much of the geology at the north end of the field (e.g. Native Youth and Pinafore-Chum).

4.0 PREVIOUS STRUCTURAL STUDIES

Thureau (1882, 1883) was the first geologist to recognise that the auriferous veins at Lefroy occurred in an anticline “almost four miles across” that was developed in slate beds, prompting an analogy with the saddle reefs in Bendigo. His reference to the Native Youth, in which he described the gold reefs as occurring in “very thinly laminated beds, exhibiting a wavy texture throughout and almost horizontally deposited” is a reference to stripy S1 cleavage commonly deformed by D3 folds in the district. He also showed that a folded quartz sandstone bed, in part, controlled the shoot geometry at the Native Youth (Figure 2)

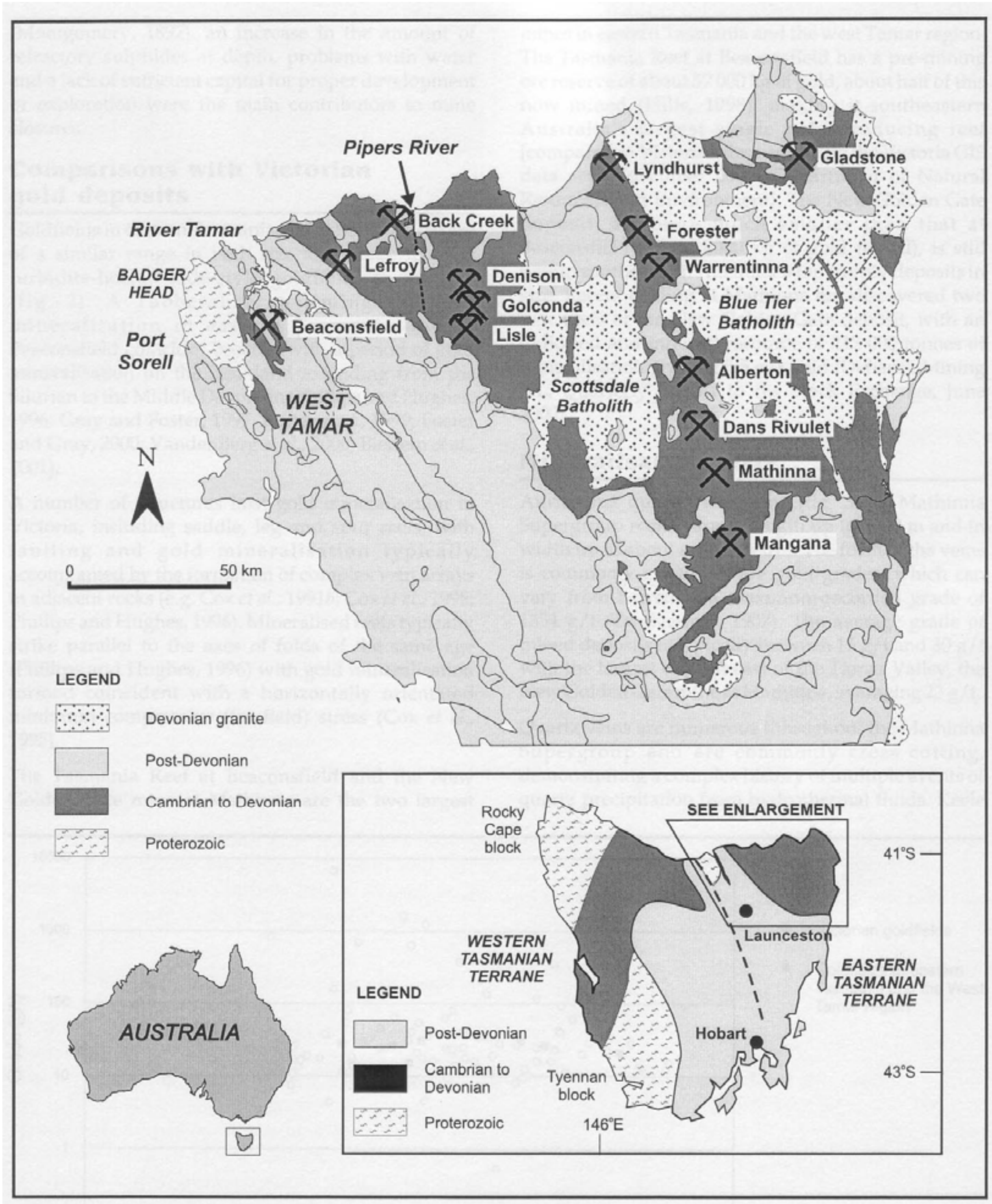

Figure 1 Location and simplified geology of the major goldfields in eastern Tasmania. Lefroy lies between the Beaconsfield and Back Creek deposits

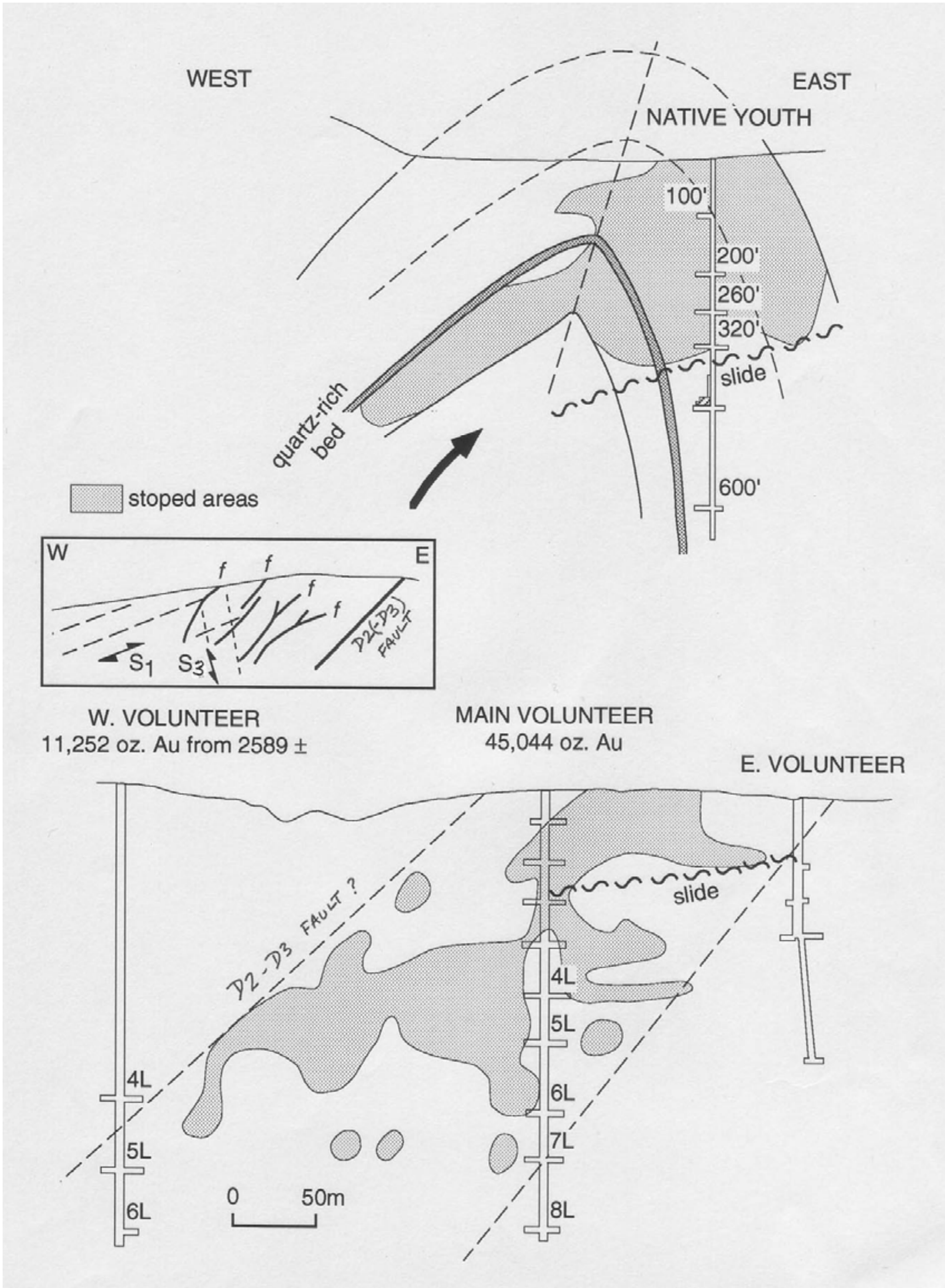

Figure 2 Long section through the Native Youth and Volunteer mines.

Montgomery (1897) recognised there were two types of auriferous lode at Lefroy: these he called “mullocky lodes” and “quartz lodes” respectively. The “mullocky lode” was recognised as a fault because of the broken nature of the auriferous quartz, which had experienced considerable post-depositional disruption and dislocation. The second type of lode was called “quartz formation” because of its thick regular development of gold-bearing quartz reef. The Volunteer-Land O’Cakes, the Clarence and Pinafore reefs were good examples of the former, whereas the Native Youth, Chum and Morning Star were all excellent examples of the latter. The Golden Point & Crown was considered to be a hybrid because it showed characteristics of both. Montgomery believed that the quartz lodes formed first and that the “mullocky formation” was the result of later movements across the lodes.

Thureau and Montgomery both recognised the fact that mudstone-shale sequences tended host the mullocky lodes, whereas sandstone sequences generally hosted the quartz lode types. This demonstrated that host-rock rheologies were always considered important controls to major lode systems at Lefroy.

The landmark study Powell and Baillie (1992) showed that Lefroy lies on the overturned limb of an E-directed D1 recumbent fold in the Pipers River Recumbent Zone (Figure 3). Fold structures east of the Pipers River are upright in style, which has led other workers - notably Reed (2001) - to speculate that there is an unconformity separating these two structurally distinct domains, in which these Benambran-aged (or late Delamerian?) recumbent structures are absent to the east.

The Volunteer-Land O’Cakes reefs is a jogged fault system, in which a strong As + Au soil anomaly defined a zone of high fluid permeability at the overlap between the two faults (Keele 1996). The movement has been suggested to be dextral; however, given the orientation of the far field stress at the time of D3, the movement is likely to be sinistral. Therefore, the ore fluids had been introduced into a contractional (and not an extensional) jog.

A detailed study of the diamond drill core from Allstate’s drilling at the Volunteer (Reed 2001) concluded that the westerly plunge of the Volunteer ore body was due to the intersection of a shallow W-dipping D1 thrust with the ENE-trending D3 quartz veins. Facing evidence in drill core (DDH L1) showed that the Volunteer mineralisation coincided with a change from overturned (down-hole facing) sandstone beds in the west from normal facing (up-hole facing) siltstone-mudstone units the east (Figure 4). Reed recognised D3 by its localized folding of S1/S2 and disruption to the D1/D2 veins. Auriferous sulphide mineralisation is typically associated with D3 brecciation and folding of D1/D2 structures in core.

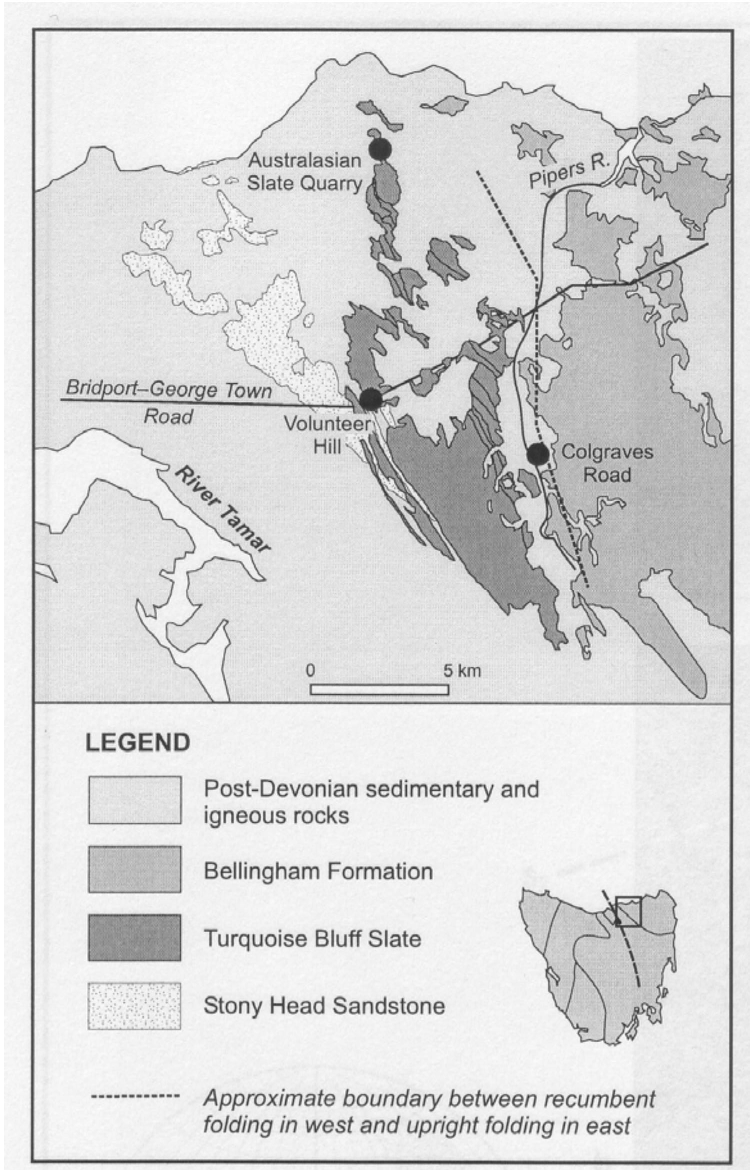

Figure 3 Location of the Volunteer lode in Lefroy showing the position of the eastern boundary to the Pipers River Recumbent Zone (from Reed 2004)

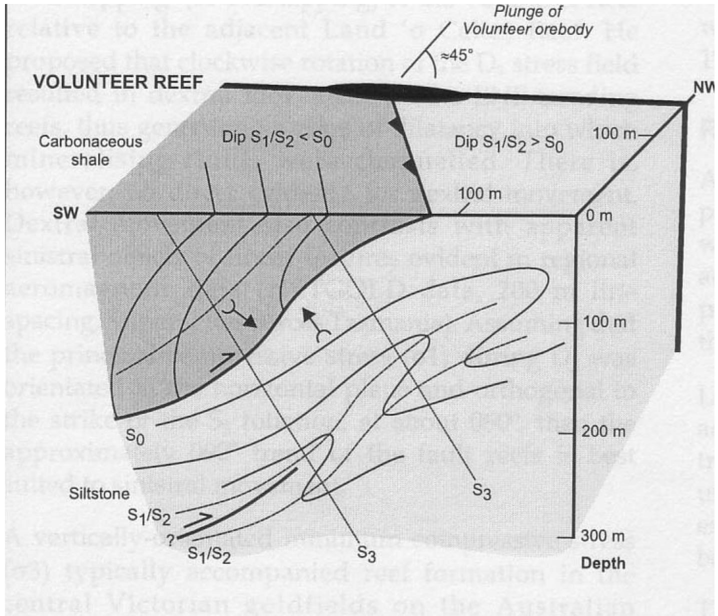

Figure 4 Block Diagram of the Volunteer D 1 thrust (from Reed 2001)

5.0 STRUCTURAL HISTORY

There are three major phases of deformation in the Lefroy district related to two orogenies (Reed 2001). D1 is an E-directed recumbent folding event that is either a very Late Delamerian (Cambro-Ordovician) or Benambran (E. Ordovician) in age. D2 is an E-directed thrusting event during the first phase of the Tabberabberan (Middle Devonian) Orogeny. D3 is a W-vergent thrusting event that stitched the eastern and western Tasmania terranes together at the close of the Tabberabberan Orogeny (Figure 5). Gold mineralisation in NE Tasmania occurred between 389-391 Ma (Reed 2004, & Black pers. com. 2004).

The extensional nature of the D2 fabric at Lefroy (see below) suggests that D2 may have been related to the emplacement of granitoids at depth, i.e., the equivalent of the (405-395 Ma) Pyengana and Georges River Plutons, east of the Scottsdale Batholith. There is little evidence for D2 folding at Lefroy.

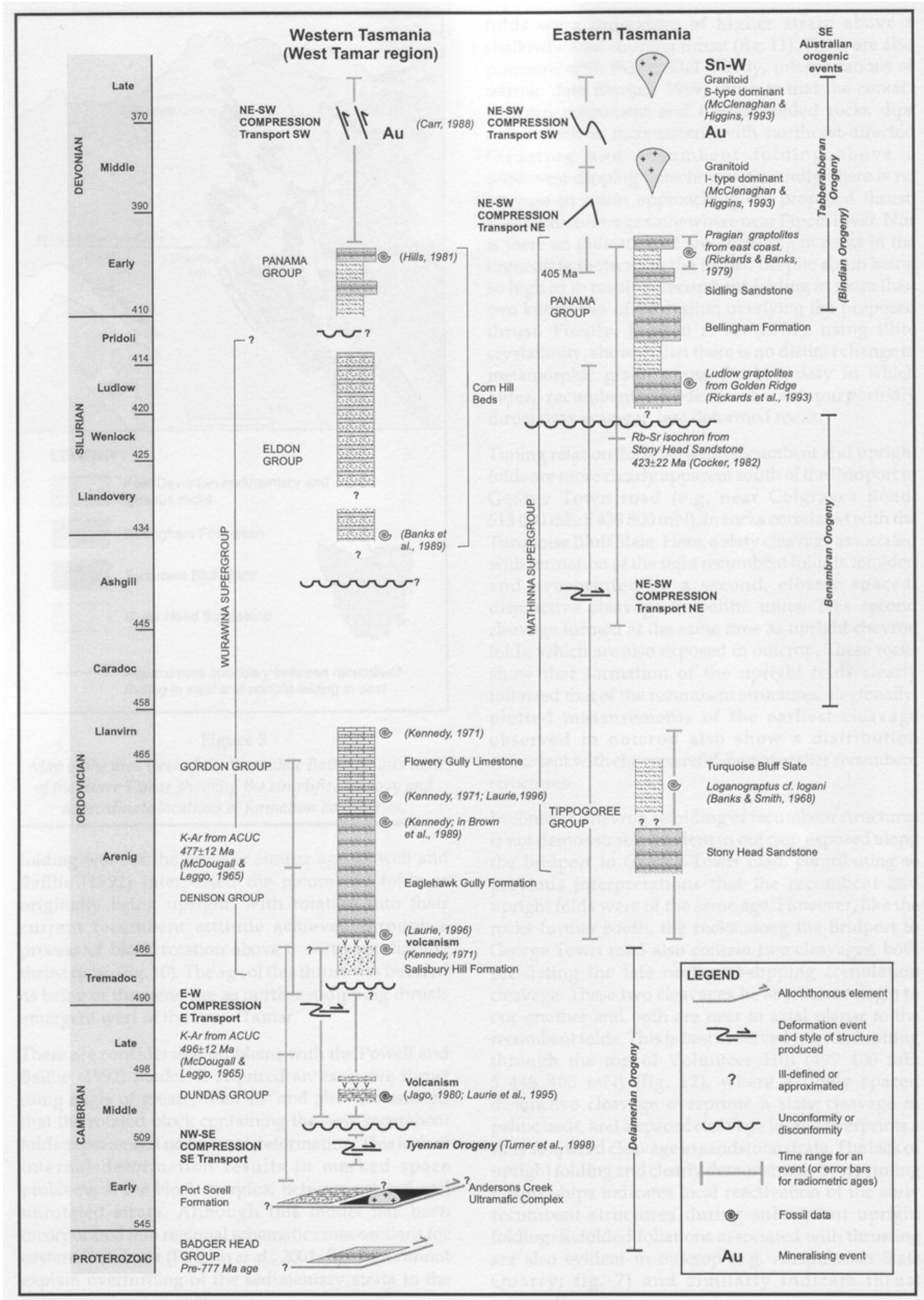

Figure 5 Time–Space diagram for eastern Tasmania (from Reed 2004).

6.0 STRUCTURAL SETTING

Regional Structures

The crustal structure beneath the Lefroy deposits has been modeled by Keele et. al., (1994) and Reed (2004). In both models the fluids are sourced from a shallowly E-dipping D3 detachment fault that daylights beyond the Beaconsfield gold mine on the western side of the Tamar Fracture Zone (Figure 6). The steeply dipping D3 vein structures and faults tapped, or “short-circuited” the gold fluids at depths of between 5 and 10 kms. Arsenopyrite geothermometry data suggests that Lefroy was closer to the fluid source than Beaconsfield: Lefroy fluids were hotter (460-470° C) than Beaconsfield (370-440°C, unpublished data).

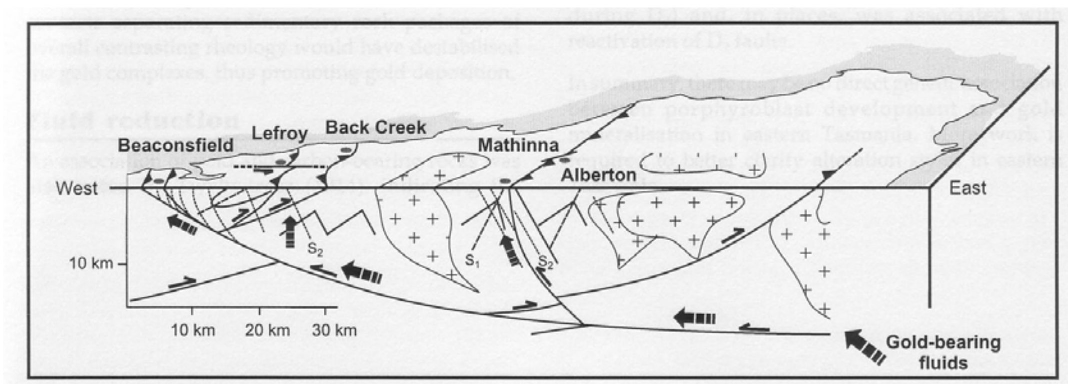

Figure 6 Block diagram sketch of eastern Tasmania showing possible fault architecture beneath the Lefroy deposit (from Reed 2004).

Local Structures

The local setting is dominated by an *en-echelon* D3 quartz vein array that trends in a NW to NNW direction along the length of the goldfield (Figure 7). Individual reefs trend ENE to NE and dip vertically or steeply S, with the exception of the Native Youth that dips N. A number of these D3 structures are faults (e.g. Volunteer, Pinafore & Clarence) with unknown displacements. The longest of these structures is the Volunteer, which may be traced for 10 km in the magnetic images. The remaining reef structures, however, do not occur beyond two important quartzite-mudstone marker beds situated east and west of the town and average from 250 m to 1.5 km in length (Figure 7). The longest of these reefs in the central part of the field is the Morning Star reef, which has been traced across the Tertiary basalt out crop, a total distance of 2-3 km.

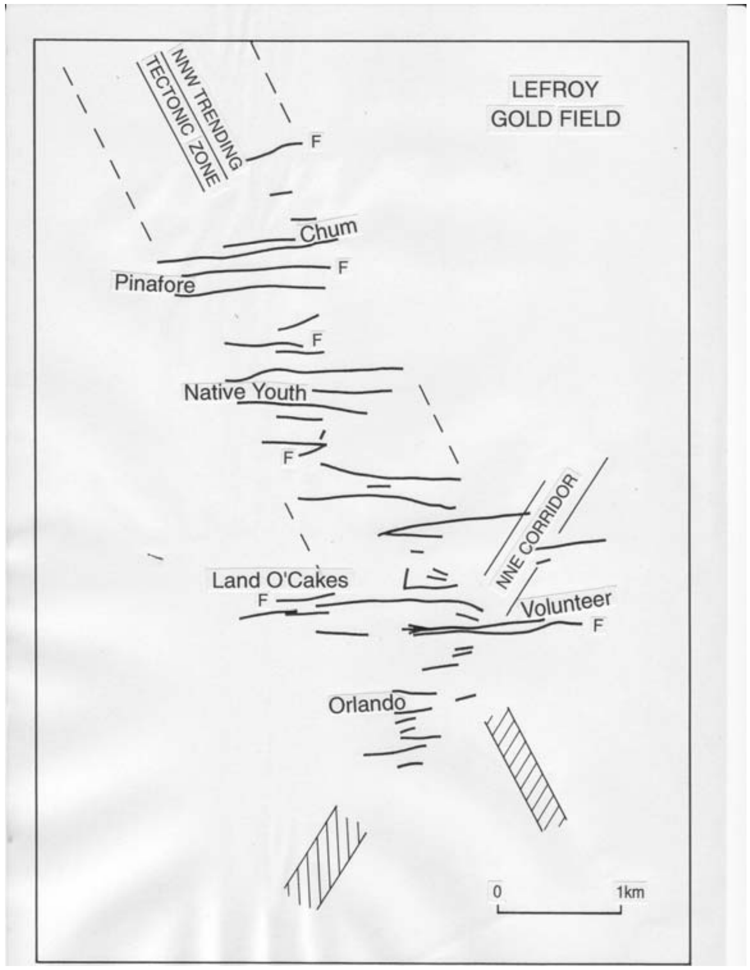

Figure 7 D3 quartz vein array in the Lefroy goldfield. Reefs marked "F" are the D3 faults (or "mullocky formation" in the old terminology)

Volunteer–Specimen Hill Area

D1

Detailed observations along the road cut show that S1 is a gently SW-dipping penetrative foliation developed in overturned sandstone-siltstone-mudstone sequences (Figure 8). A number of faults can be seen in the road cut, which make up the NW-trending D1 "corridor" that runs through the goldfield (Keele 1996) (Figure 7).

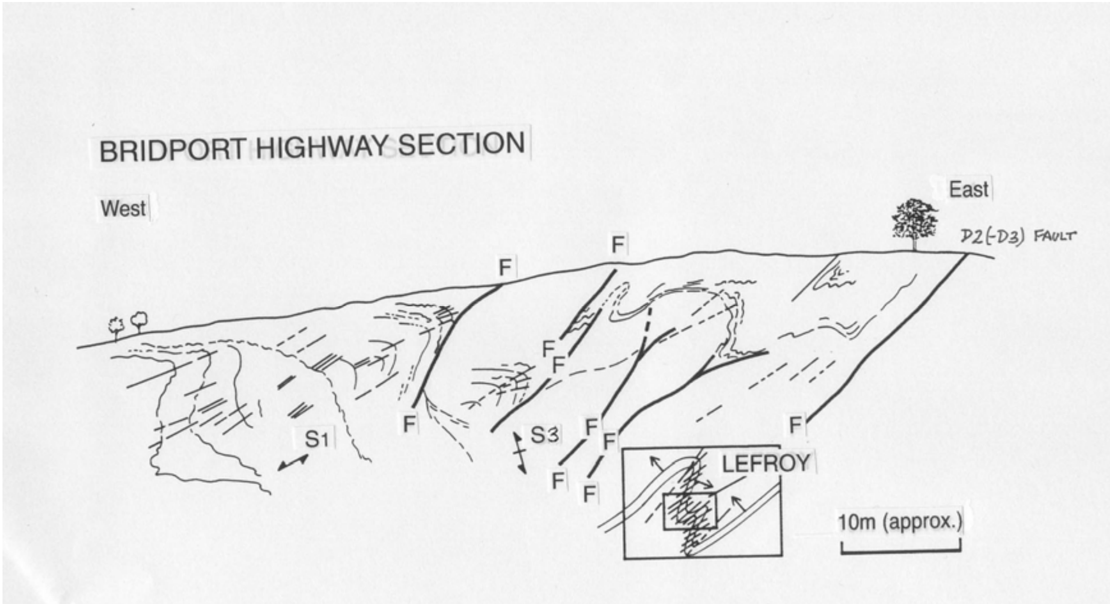

Figure 8 Structural geology sketch of the south side of the road cut at the Volunteer; note that the view has been made looking north by reversing the image.

D2

S2 is an extensional crenulation/shear band fabric in S1 that gives a consistent normal sense of shear in outcrop. D2 faults are 1-30 cm wide moderately W-dipping zones that contain quartz veining, alteration and cataclastic textures. These faults are probably re-activated during D3. The anastomosing or "stripy" S1 cleavage, which is well developed in certain units that are composed of alternating sandstone and siltstone. This indicates that shearing dominated the D2 event. The D2 faults (and shear bands) have exploited the rheological contrasts in the sandstone-siltstone-mudstones; hence these D2-D3 faults generally follow stratigraphic contacts (Figure 8).

D3

At Lefroy vein orientation is geometrically related to D3 structures (Powell 1991): S3 is a steep E-dipping NNW-trending crenulation cleavage developed in the finer grained lithologies. It strikes NNW and is related to the W-vergent collisional phase of the Devonian Orogeny. A number of structures such as quartz veins, joints, intersecting lineations, fold axes etc, are attributed to this deformation (Figure 9). The NE-trending "breakthrough veins" are related the NE vein array, which is well developed at the south end of the field (Monarch-Orlando); a NE cut-off to quartz reefs at the north end of the field (Chum-Pinafore-Golden Era) may also be an expression of this array (Figure 7). There is a high probability that these veins are mineralised.

A series of NW-trending post-ore faults with small displacements cut the reef at the Native Youth. These contain no quartz and are not mineralised.

A regional cross-section through the Lefroy field (Groves 1965) reveals that the fault lodes (F) generally have S-dips (Volunteer, Pinafore and Clarence), whereas the dilational quartz lodes (Q) have vertical or steep N-dips (Native Youth, Morning Star (Figure 10). Individual reefs at Lefroy appear to have experienced either extension (dilational quartz lodes) or wrenching (fault lodes), or a combination of both (Golden Point & Crown).

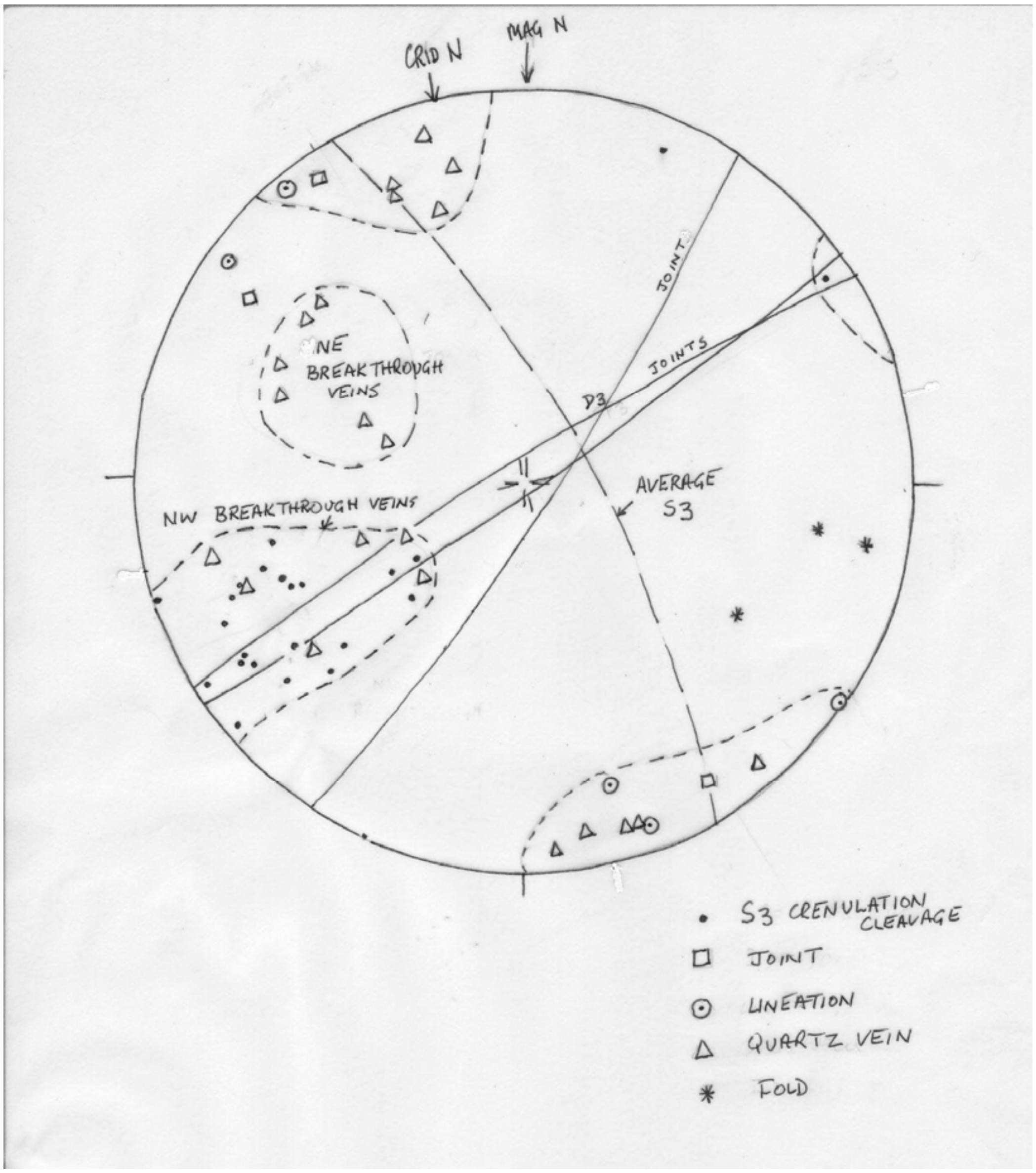

Figure 9 Stereonet of D3 structures (equal angle). Data is mostly from the Volunteer-Specimen Hill-Monarch Hill area. (Note this stereonet is plotted with Magnetic north: AMG north is 14° in an anti-clockwise direction)

7.0 MICROSTRUCTURES

Microscopically, three cleavages are present in the deformed slates associated with the reefs (e.g., Chum and Pinafore). S1 is a penetrative foliation (usually at a low angle to bedding); S2 is an extensional crenulation cleavage - often in a conjugate relationship with the crenulation cleavage, S3, which is best developed in the siltstone-mudstone lithologies. By its very nature, S3 is a brittle-ductile event. Mineralised quartz veins, which contain small amounts of gold, arsenopyrite, chalcopyrite, tetrahedrite, bournonite, galena, sphalerite and pyrite (Bottrill 1996), are therefore syn to post-D3 in age (Reed 2001, Powell 1991).

8.0 DISCUSSION

In summary, the Lefroy Structural Model consists of a quartz vein array, of D3 age, arranged in a ladder style along a NNW-trending D1-D2 structural corridor. Individual E-W auriferous quartz veins formed as a result of wrench faulting in a stress regime in which $\sigma 2$ was vertical.

A longitudinal section through the Volunteer (Chisolm 2004) indicates that the 45° W plunge of the shoots may be the result of secondary shear movement during D3 (Figure 11). Alternatively, the 45° W plunge of the Volunteer shoot is due to the intersection of W-dipping D2-D3 faults (controlled principally by rheological differences across bedding surfaces) with the steep S-dipping reef.

The orientation of the D3 fold axes (and earlier D1 folds) suggests that the main litho-structural control to shoot development at Lefroy is sub-horizontal. The implication is that further substantial gold reserves may be found at depth in a re-make of the kind of structures found at surface. The main challenge is to find another D1 thrust system (and associated D1 to D3 anticlines) beneath the current Volunteer Thrust. If the system is stacked then there is every prospect of finding further rich ore shoots at depth.

An interesting possibility is that the reefs currently mined may merge into a single reef (or at the least a few reefs) at depth. There is some evidence that this could happen (see Figure 10).

A challenge will be to model in 3D the shallow-dipping Volunteer D1 thrust system through the goldfield.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The Lefroy Structural model is able to:

- Explain the nature of the quartz vein arrays with respect to the stress field.

- Establish that the fault regime was one of wrenching ($\sigma 2$ vertical) rather than thrusting during the mineralizing event.
- Establish the timing of the gold mineralisation with respect to the Tabberabberan Orogeny of Middle Devonian age.
- Demonstrate that pre-existing geometry (due to early deformation) played a crucial role in the localizing the ore shoots
- Show the high-grade gold shoots at the Native Youth are controlled by D1 fold-thrusts that have been modified during D3 forming "saddle reefs".
- Indicate D2 is an extensional (shear) event at Lefroy
- Suggest the permeability of the wall-rocks were enhanced by D3 reactivation of D2 faults in the vicinity of the quartz reefs (Volunteer)
- Demonstrate the slightly different orientations of the two types of reefs in the goldfield (F = "mullocky" and Q = dilational quartz) carry possibility that a target zone exists at depth.
- Explain the 45 W plunge of the Volunteer shoot as the intersection of bedding (or rheologically) controlled D2-D3 faults with the vertical reef.

It is recommended that the Deep Target (Figure 10) at the Native Youth be investigated with deep sounding CSAMT in order to locate another D1 thrust/D3 anticline system at depth.

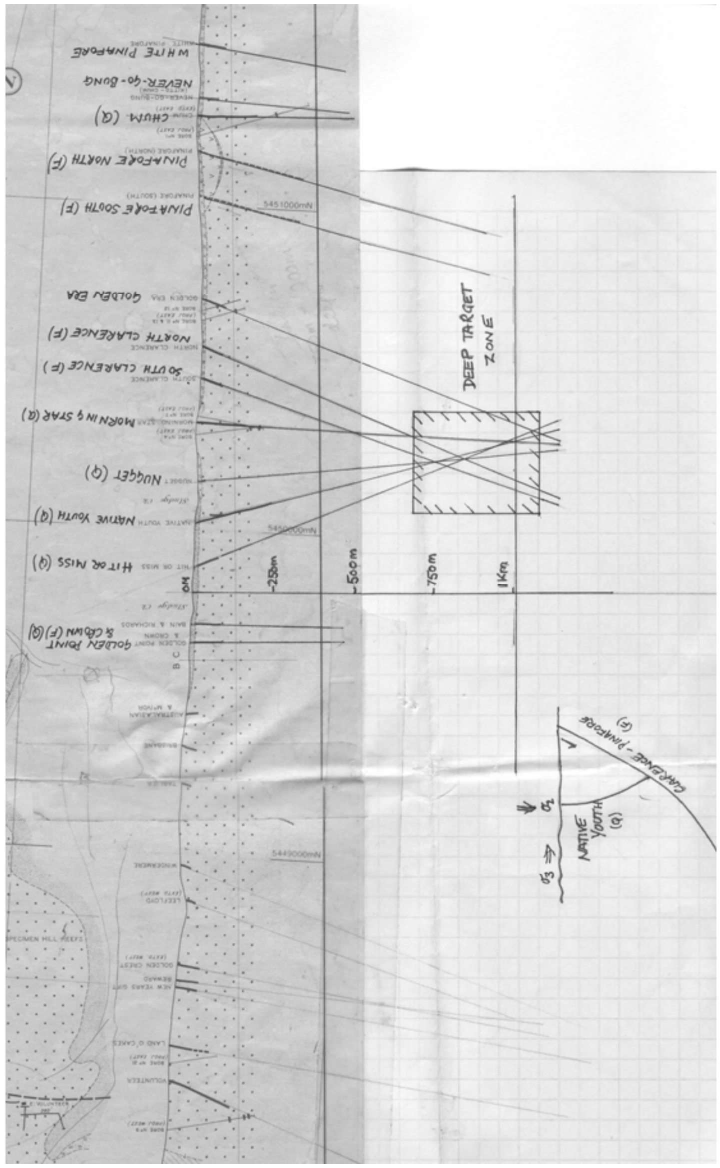

Figure 10 N-S Cross–section through the Lefroy Quartz reefs (looking west). The fault lodes are marked (F) and the quartz lodes (Q). Note the convergence of the two types beneath the Native Youth (from Groves 1965).

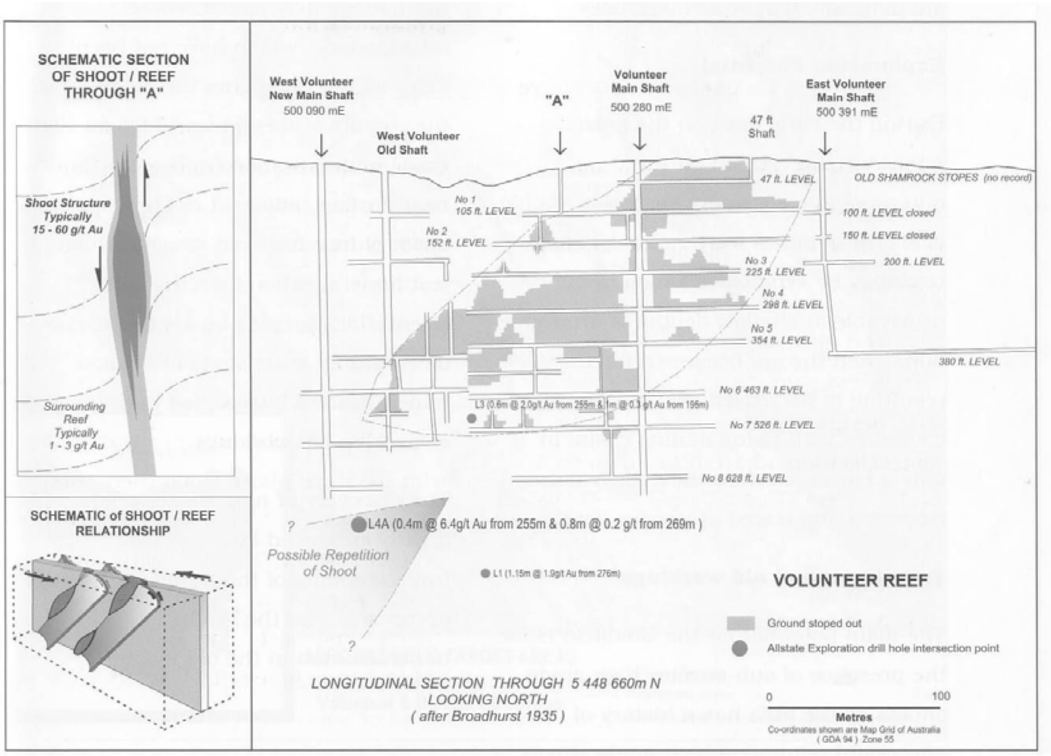

Figure 11 **Longitudinal section through the Volunteer, showing the secondary shear model and the potential for further ore shoots at depth (from Chisolm 2004).**

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Appendix 1 Lefroy Structural Database

	Lefroy Structural Database							
	AMG Aus 66			(Magnetic azimuth - add 14 degrees of declination to get grid N)				
Field No.	**Easting**	**Northing**	**S0**	**S1**	**S3**	**Quartz Veins**	**Other**	**Comments**
LF1	498,860	5,448,800	198/82w	182/39sw				Overturned limb
LF3	500,527	5,448,499	298/26w		327/82e			Overturned limb
LF3A	500,527	5,448,499	306/48sw	315/28sw				
LF3B	500,527	5,448,499	282/63sw					
LF5	498,947	5,448,680		177/7w				Land O'Cakes
LF19	499,173	5,448,590		335/24w				
LF27	499,672	5,448,676	326/85w	307/42w	342/90	256/79s		Specimen Hill
LF27A	499,672	5,448,676			341/71e	265/87n		
LF27B	499,672	5,448,676				346/80e		
LF27C	499,672	5,448,676				005/5w		
LF31	498,770	5,448,702		296/11sw				
LF31A	498,770	5,448,702		274/40sw				
LF32	498,720	5,448,747		323/73sw				
LF35	498,672	5,448,422		165/26w		165/26w		
LF72	499,346	5,448,255		133/29w				Monarch Hill
LF-VHT1-0	499,230	5,448,320		325/15sw		025/70se		Volunteer Hwy Section
LF-VHT1-10	499,250	5,448,320	150/32sw	325/18sw		072/85n		
LF-VHT1-20	499,270	5,448,325				286/6n		
LF-VHT1-40	499,310	5,448,330				338/75e		
LF-VHT1-70	499,330	5,448,335					058/84n	joint
LF-VHT1-90	499,350	5,448,340				065/81s	287/65sw	D2-D3 fault
LF-VHT1-90A	499,350	5,448,340				280/36s		
LF-VHT1-90B	499,350	5,448,340				065/81s		
LF-VHT1-110	499,370	5,448,350					306/61sw	D2-D3 fault
LF-VHT1-120	499,385	5,448,350				073/85s		
LF-VHT1-130	499,400	5,448,355				040/70se		
LF-VHT1-150	499,440	5,448,355	308/65sw					
LF-VHT1-170	499,470	5,448,360	282/36sw	335/23e				
LF-VHT1-170A	499,470	5,448,360		304/30sw				
LF83	499,523	5,447,851		160/38w		050/86n		Top of monarch hill
LF86	499,387	5,449,008		290/23sw	326/80e	295/17sw		Windermere tunnel
LF106A	498,095	5,448,809	138/62w	130/46sw	167/68e			
" B	"	"		160/8sw				
LF120	498,042	5,448,758		106/7n			5/330	F3 fold
LF130	499,480	5,450,400		185/24e	146/86w	155/37e		
" A	"	"				137/40e		
" B	"	"				160/48e		
" C	"	"				087/31s		
LF135	510,209	5,451,917	123/10n		295/90		027/81e	Conjugate fracture
LF136	509,945	5,451,987			292/85s		16/098	F3 fold
LF136A	509,894	5,452,005		050/6e	145/38e			
" B	509,747	5,452,011	135/58e					
LF137	508,607	5,451,587		072/9s				
LF-VHT2-0	499,030	5,448,300						Volunteer highway
-VHT2-10	499,020	5,448,300		145/29sw		130/155		section, start (east to west)
-VHT2-30	499,000	5,448,300	157/66sw			160/52w		
-VHT3-0	498,759	5,448,280						
-VHT3-10	498,745	5,448,280				066/23s		
-VHT3-20	498,732	5,448,275				015/41e		
-VHT3-30	498,720	5,448,270		143/13sw	160/76e			
-VHT3-70	498,690	5,448,260				120/25s		
-VHT3-100	498,660	5,448,240				072/72s		
-VHT4-0	498,463	5,448,100						
" -30	498,400	5,448,080		156/35sw	156/67e			
" -100	498,325	5,448,060	150/55sw	145/48sw				
" -110	498,310	5,448,060	155/62sw			198/68s		
LF229	500,764	5,448,585	337/75w	312/51sw	327/88e	153/57w		PipersRiver shop
" A	"	"				200/48e		o/turned beds
" B	"	"				080/84n		

" C	"	"				215/70e		
LF249	499,150	5,448,000	322/38e	336/42w	325/45e			Monarch Hill
	499,925	5,448,195		310/41sw				
LF-VC-14	499,920	5,448,250		272/29s				Volunteer Costean
LF-VC-35	499,920	5,448,227					266/68s	Shear=HW of Qtz-sul zone
LF-VC-35A	499,920	5,448,227		140/30sw		253/85n		
LF-VMS	499,895	5,448,220	186/12e					normal facing by main Volunteer shaft
LF274	498,913	5,447,645		155/34sw			4/160	Plunge of crenulation
LF276	499,086	5,447,636		163/30sw	140/77e			Old Lncst Rd
LF276A	499,086	5,447,636		035/16se				F3 folded S1
LF277	499,134	5,447,832		153/11sw				Old Rd
LF278	499,162	5,447,809		140/21sw				
LF279	499,200	5,447,900		140/63sw				
LF283	499,239	5,448,321		145/40w	138/64e	142/70e	3/306	S3-S1 intersection (cren)
LF283A	499,239	5,448,321				213/65nw	088/54s	Fr. Cleav. in qv
LF283B	499,239	5,448,321					055/87s	jnt. adjacent to qv
LF284	499,283	5,448,330		146/16sw	148/81e	165/15w	1/125	Lin, S3-S1 intersect.
LF285	499,350	5,448,334	138/23sw	128/35sw	338/78e	110/24s	13/165	Lineation
LF285A	499,350	5,448,334	280/75s				146/48sw	D2-D3 Fault Zone
LF286	499,422	5,448,346	122/54sw	110/25s	155/65e			
LF287	498,170	5,446,810		120/52sw	158/68e			Lefroy road cut
LF287A	498,170	5,446,810		135/8s			132/75w	D2-D3 zone
LF288	500,453	5,448,549	127/40sw	125/15sw	155/81e			Beds overturned
LF289	506,339	5,450,142	130/80e	090/70s			7/100	F3 fold
LF290	502,634	5,447,960	180/10w				2/320	Lin on S1, Troopers Track
LF291	503,097	5,446,627	330/17ne	327/7ne	315/70ne			
LF292	503,071	5,446,479	315/55ne	145/14sw	135/45e		25/122	F3 fold
LF293	507,300	5,450,400	125/76e	090/36s				
LF294	507,740	5,450,700	088/57s	085/32s				
LF295	508,500	5,451,230		042/5s	140/88ne			
LF296	510,000	5,451,960		135/34ne				
LF297	502,300	5,444,980		010/8e	145/72ne			Native Industry
LF297A	502,300	5,444,980		138/45sw				
LF298	502,450	5,443,500		150/46w				

APPENDIX 2.

GROUND GEOPHYSICS

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MEMORANDUM

TO:	John Canaris
COMPANY	Lefroy Resources
FROM:	Todd Grant
DATE:	8 December 2004
SUBJECT:	**Summary of ground geophysical tests conducted at Lefroy, September 2004**

Orientation geophysical trials were conducted in and around some of the historical gold workings at Lefroy in northeastern Tasmania in September. This memo provides a brief summary of the work.

Background

Historic data indicate high grade gold was (is) hosted in locally thickened portions of steeply dipping quartz vein 'sheets' and lodes striking east-west across the project area.
Sulphides are reportedly associated with mineralisation, however, details of habit & abundance are not well known. Relatively recent drilling across the Pinafore workings report up to 10% sulphide being encountered, thus suggesting disseminated sulphides is a worthwhile target to focus on, as well as raising the possibility that more massive sulphide bodies may be associated with mineralisation.

Planning

Three geophysical techniques were selected for initial trials at Lefroy:

Gradient IP/resistivity was selected primarily to detect & map the distribution of disseminated sulphides, as well as assist in mapping of lithology & structure through variations in measured resistivity. Gradient mode surveying was selected because a) it is logistically advantageous in areas of dense scrub, and b) pending a favourable outcome from trial work, it is well suited toward covering a larger area.

Fixed-loop TEM was selected to test for possible massive sulphide associations. Fixed-loop mode also has logistical advantages when operating in dense scrub with limited access. Tx loop placement is critical to fixed-loop mode survey design & success. For the trial, the loop edge was placed very close to and parallel with the quartz lode, assuming any associated massive sulphides would have a similar orientation (i.e., a steeply dipping, east-west striking sheet-like geometry).

Controlled-source audio-magnetotellurics (CSAMT) was selected primarily for its ability to detect resistive bodies, eg quartz lodes, at depth – with depths in the order of 300 to 500m and more being of interest.

Budgeting considerations provided a time-frame of around 5-7 days for the test work.
A two-man Zonge crew was contracted to carry out the acquisition. Use of Zonge equipment enabled all three survey methods to be conducted by a single crew in one field campaign.

Test Line Locations

Test work was carried out over two lines, which are shown relative to the air photo in Figure 1.

1. Line 98700E is approximately 800m long and is centred over the New Native Youth workings. It also traverses the Morning Star system north of Native Youth, as well as testing potential western extensions of the Clarence lode system at its north end and the Bain & Richards lode system at its south end.
2. Line 98840E is approximately 1100m long testing similar historical workings as the previous test line. Cultural features and infrastructure are present in the area; in particular, powerlines are present along several sections of line 98840E.

IP/Resistivity

IP/resisitivity data were collected using standard Zonge equipment and common gradient array procedures. The Rx dipole spacing was 10m (relatively small to detect quartz veins of interest that may be only 2-3m wide) and the Tx frequency was 0.125Hz. Tx pits were located to the north & south of the trial lines. Their locations and further survey details are documented with digital data files associated with this work.

The gradient data indicates ground resistivity values in a moderately resistive range of 100-300ohm-m, with a few locations getting as low as 50ohm-m. Background IP values are somewhat elevated with an average value of around 20mrads, and it should be noted that graphitic rock fragments were observed at various locations around some of the workings.
While no strongly anomalous and obvious responses are readily apparent from the gradient data, several smaller scale perturbations exist that could prove insightful when tracked across several lines. Hence, results from these two trial lines suggest further gradient array surveying would be beneficial to help map lithology and structure, particularly in this area of sediments having a very low magnetic response contrasted against the strongly magnetic basalt cap to the north.

CSAMT

CSAMT data were collected using 10m Rx dipoles over a frequency range of ~8Hz to 8kHz. A north-south oriented Tx was established around 6km to the east (Tx location and further survey details are documented with the digital data files).
The CSAMT results appear to be affected considerably by noise from near by power lines and culture. While a few resistive features do appear at potentially interesting locations along the lines, they are not strongly coherent and distinctive and therefore do not provide a high degree of confidence as targets.
Further testing of CSAMT should be considered across other workings where effects from powerlines and cultural noise may be diminished. Also, the results of these two CSAMT trial lines should be revisited following any significant exploration work, i.e., drilling along the lines.

FLTEM

FLTEM data were acquired along the two trial lines at a 20m station spacing. Problems were encountered during acquisition that were thought to be caused by a culturally noisy environment (powerlines, etc…). Several instrument checks and tests were performed, indicating the equipment was operating correctly. However, when the author reviewed the field data files, an inconsistency in the survey setup was discovered in the instrument dump files. As a result, the acquisition setup & data integrity for the FLTEM data are highly questionable and suspicious:

a) the instrument dump raw files record use of a 4Hz Tx waveform, but also record window times to ~96msec, this is not possible given the maximum off time for a 4Hz waveform is ~62.5msec;
b) generally, data decay and repeatability is extremely erratic.

Neither Zonge Australia nor Zonge USA have come across this situation before and they could not provide an explanation of what happened. As a result, the FLTEM data for this trial work are considered unusable. The digital files have been stored with other files for this trial work; however, Amira format TEM file construction was only partially completed due to an inability to assign appropriate channel times.

Production Rates for Future Work

If any additional surveying is considered for future work, the following production rate estimates should be considered *(extracted from an email T. Grant to J Canaris, 25 Oct 2004):*

> Following are production rate estimates based on the September orientation work at Lefroy. They are approximate figures for geophysical crew production only and don't include line clearing. On a great day, when everything 'clicks', rates may be higher, but, for planning I find it is best not to use a 'best case scenario' figure. These figures should be valid for a crew staying in Georgetown rather than Launceston (to cut down a little on commuting time).

Gradient Array IP: 1 line km / day
----
assumptions/survey specs:
1/8 Hz current waveform
2 reading minimum comprised of 16 stack minimum
10m a-spacing recording with an 8-channel receiver
i.e. reading along an 80m segment of line per setup

CSAMT: 750m / day
----
assumptions/survey specs:
freq range from 32Hz to 8KHz (notch for orientation work occurred around 32-64Hz)
2 reading minimum per station
10m dipole spacing recording 6 e-field measurements & 1 h-field
i.e. reading along a 60m segment of line per setup
for CSAMT work, should factor in more processing time each day to get QC/inversion plots while in the field
(inversion processing generally completed in Zonge Adelaide office)

Fixed-Loop EM: 2 line km / day
----
assumptions/survey specs:
2Hz Tx waveform
2 reading minimum comprised of 128 stacks
20m station spacing
Tx loop setup & line clearing are the biggest time/cost factors for the TEM work

for more regional scale CSAMT work, plan on say, 12 station setups per day
the e-field dipole spacing can be expanded to 50m or perhaps 100m, however,
at these larger lengths, it may no longer be advisable to use 1 h-field measurement for 6 e-field measurements
thus, the recording setup may only be 200m long per setup, resulting in 200m X 12 setups = ~2.5 line km /day
need to check with Zonge on these figures

Todd Grant Consulting Geophysicist

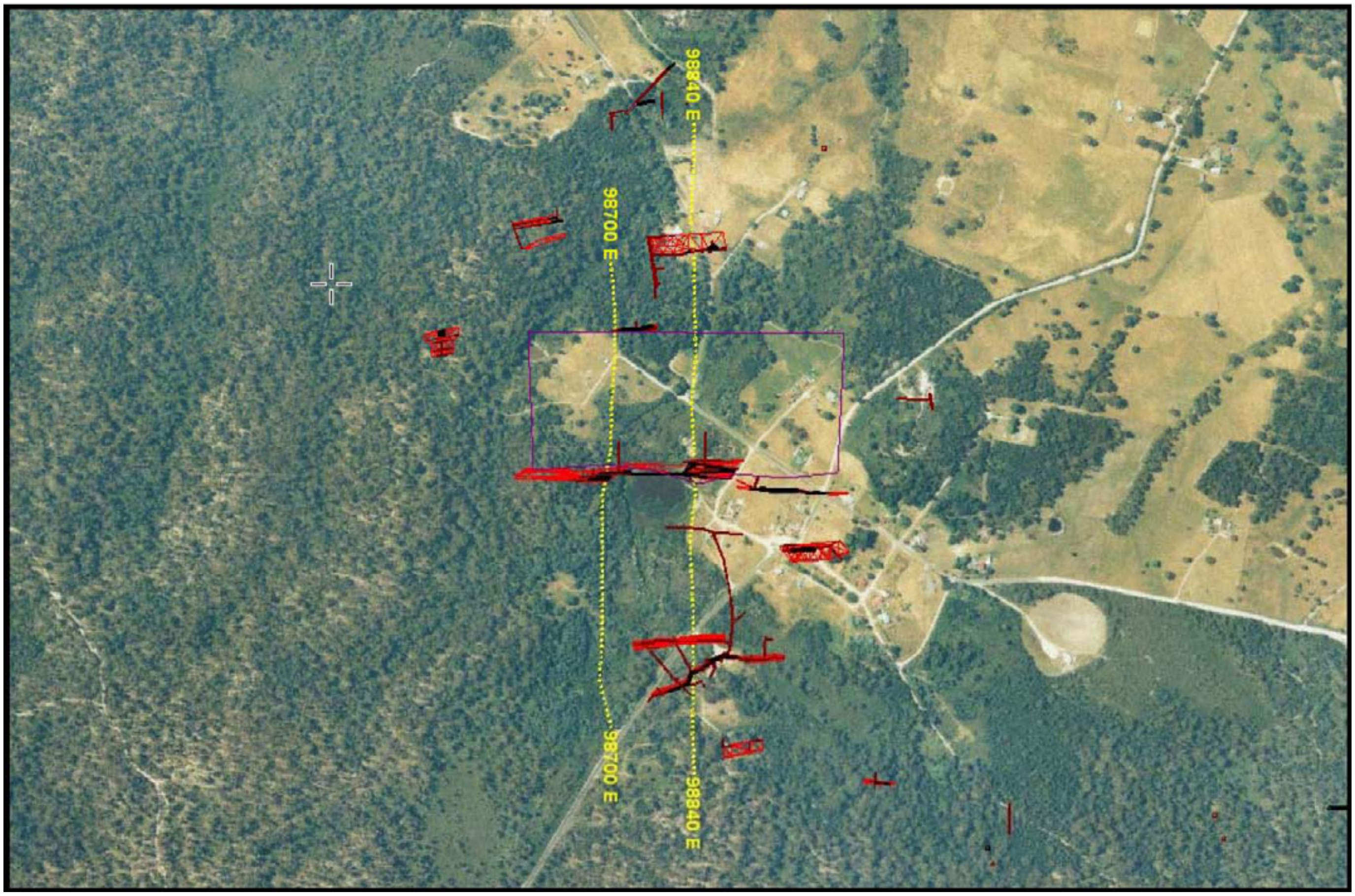


Figure 1 Airphoto over Lefroy showing location of test line/stations (yellow), historic lodes (red), shafts & stopes (brown), and the Fixed-loop TEM Tx loop (purple). The test lines are approximately 140m apart.

APPENDIX 3.

METALLURGICAL TESTWORK

Project No. 2297

GOLD DIAGNOSTIC TESTWORK
FOR
LEFROY RESOURCES

June 2005

TABLE OF CONTENTS

EXECUTIVE SUMMARY

A program of testwork comprising gravity separation and diagnostic tests on the gravity tails was undertaken on a sample LFC 018, 187 - 188, as sent by Lefroy Resources to IML.

The sample was passed through a Knelson gravity concentrating unit to remove all free gold present and produce a tails sample for additional testwork to determine the deportment of gold in the sample.

The tables below provide a summary of the test results.

Table 1.1 – Head Assay Data

	Diagnostic Method 1	Diagnostic Method 2
Calc. head grade (g/t)	13.14	13.02
Assayed head	5.63, 4.00, 6.49, avg = 5.37g/t	

Table 1.2 – Summary of gold distribution

Summary Distribution of Gold		
Deportment	% of total	
	Diagnostic Method 1	Diagnostic Method 2
Gravity	84.6	85.4
Direct CN	7	7.1
HCl/cyanide	1.5	
Regrind/CN		1.5
Sulfides	6.8	6.1
Silicates	0.1	

1.0 INTRODUCTION

Independent Metallurgical Laboratories (IML) Pty Ltd was requested by John Canaris of Lefroy Resources to carry out gold diagnostic testwork.

The test programme involved the following steps:

1. Knelson separation of the sample after being crushed to -1mm

2. Preg robbing characterisation leach tests

3. Fine grind and acid digestion tests followed by cyanidation

2.0 SAMPLES

A total of 2 samples were received and the details can be seen in the table below.

Table 2.1 – Sample Details

Sample Label	Sample mass (kg)
LFC 018 139-140	3.36
LFC 018 187-188	1.92

Note: Only LFC 018, 187 - 188 was used in the testwork

3.0 TESTWORK PROCEDURES

3.1 Sample Preparation

The sample (LFC 018, 187 - 188) was crushed to a size of -1mm from it's as received state which consisted of rocks fragments +20mm. Sub-samples were split out for a head assay and for XRD analysis. The subsequent tests that were carried out are described below and in the flowsheet in Appendix 2.

3.2 Knelson Separation & Amalgamation

The total mass of the sample was passed through the Knelson separation unit. The tails stream and a concentrate were collected. The Knelson concentrate was amalgamated to extract free gold within the sample.

3.3 Preg-robbing Characterisation

Two leach tests were completed on the Knelson tails sample collected, a standard leach test and a CIL test. They were conducted over a period of 24hrs with monitoring points throughout to maintain the desired test conditions. If the CIL test result was significantly better, indicating preg robbing, then this would alter the diagnostic testwork on the leach residue. If no preg robbing was evident, the diagnostic tests outlined in 3.4 onwards would be carried out on the standard leach residues.

3.4 Fine Grind Leaching

Half of the standard leach's residue was pulverised. This material was then cyanide leached using the standard leaching method. Both the residue and solution were assayed.

3.5 Hydrochloric Acid and Aqua Regia Digest

The remaining half of the standard leach's residue was digested with hydrochloric acid. The residue was then cyanide leached using the standard leaching method. The residue from the cyanidation was then digested by aqua regia. The residues and solutions from the aqua regia digest were assayed.

3.6 Assaying

Solids (fire assay) and solutions (AAS) assays were completed by SGS laboratories in Welshpool, WA.

4.0 RESULTS AND DISCUSSION

The results of the testwork conducted on sample LFC 018, 187-188 are summarised in the two tables below. Refer to Appendix 3 for more detailed data sheets.

Table 4.1 – Summary of gold distribution with HCl digest and Aqua Regia (Method 1)

Summary Distribution of Gold		
Deportment	**% total**	**g/t**
gravity	84.60	11.12
direct CN	7.02	0.92
HCl/cyanide	1.50	0.20
Sulfides	6.78	0.89
Silicates	0.10	0.01
TOTAL	100.00	13.14

From the series of tests detailed in table 4.1 the following can be concluded.

- Gravity gold accounted for 85% of the total gold
- Direct cyanide leaching of the gravity tails extracted ~7% of the total gold
- Cyanide leachable gold following digesting of the sample with hydrochloric acid totalled 1.5%. This is likely to be associated with carbonates and acid soluble silicates
- Total sulphide associated gold was 6.78% as determined by digesting with aqua regia.
- Total gold locked in silicates totalled 0.10%

Table 4.2 – Summary of gold distribution with fine grind stage (Method 2)

Summary Distribution of Gold		
Deportment	**% total**	**g/t**
gravity	85.39	11.12
direct CN	7.09	0.92
regrind/CN	1.46	0.19
refractory gold	6.07	0.79
TOTAL	100.00	13.02

From the series of tests detailed in table 4.2 the following can be concluded.

- Cyanide leachable gold liberated by fine grinding of the sample totalled 1.46%.
- The remaining 6.07% of gold in the residue represents the refractory gold component of the sample (ie. sulphide and silicate locked)

5.0 CONCLUSIONS

In general terms, the following conclusions may be drawn:

- Gravity recoverable gold (ie. Hg soluble) accounts for ~85% of total gold.

- Extractable gold by conventional cyanidation and grinding accounts for ~8.5% of total gold

- The remaining gold (~6.5%) is predominantly sulphide locked.

- The large discrepancy between head assay (5.37g/t) and calculated head assay (~13g/t) is most likely due to the abundance of free gold.

- The same amount of extra gold obtained by fine grind and HCl digest (~1.5%) implies that the gold has been liberated from non-sulfide, acid soluble minerals.

APPENDIX 1 – SAMPLE SUBMISSION SHEET

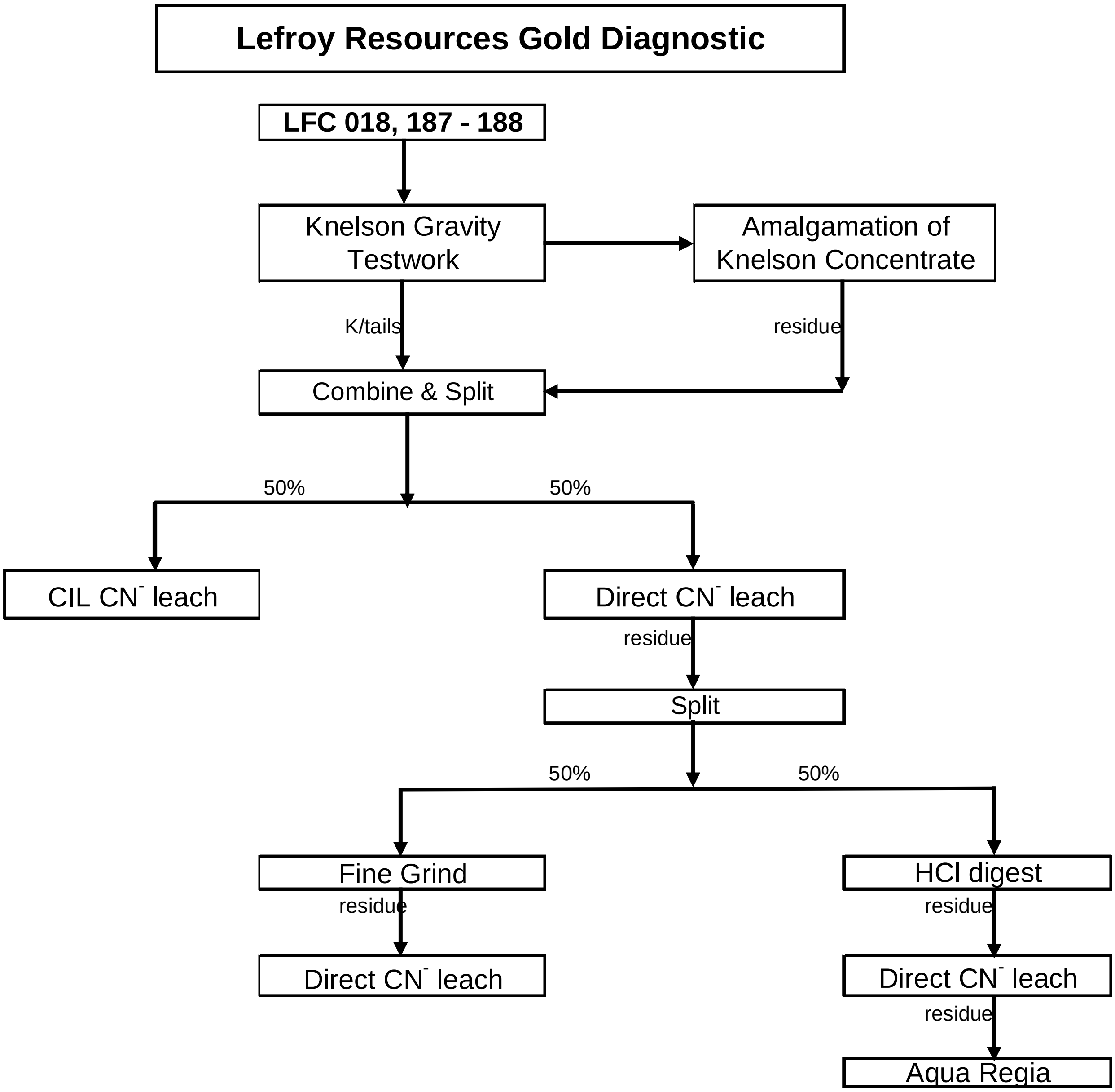
INDEPENDENT METALLURGICAL LABORATORIES PTY LTD
ABN: 24 009 466 791
64 Kurnall Road, Welshpool, Western Australia, 6106
Telephone +61 8 9451 8477 Fax + 61 8 9451 4576
iml@indmetlab.com.au

SAMPLE RECEIPT SHEET

Submitted By:	Lefroy Resources	**Date:**	22/02/2005
Testwork Title:	Diagnostic	**Project No:**	2297
Page:	1 of 1	**AQIS Papers Reqd:**	No
		Forwarding Agent:	
Received By:	M Fowler	**Date:**	
Approved By:			

Container	Sample Label	Sample Description	Weight (kg)
		Ore @~ -5mm	
2 Bags	LFC 018 139-140		3.36
2 Bags	LFC 018 187-188		1.92
	Note Samples received in good condition in clearly labelled sealed plastic and calaco bags		

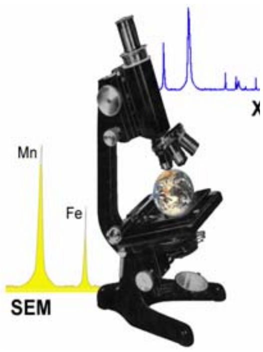
APPENDIX 2 – FLOWSHEET OF TEST PROGRAM


Lefroy Resources Gold Diagnostic
LFC 018, 187 - 188
Knelson Gravity Testwork
Amalgamation of Knelson Concentrate
K/tails
residue
Combine & Split
50%
50%
CIL CN$^-$ leach
Direct CN$^-$ leach
residue
Split
50%
50%
Fine Grind
residue
Direct CN$^-$ leach
HCl digest
residue
Direct CN$^-$ leach
residue
Aqua Regia

APPENDIX 3 – DETAILED TESTWORK RESULTS

APPENDIX 4 – MINERALOGICAL REPORT

Roger Townend and Associates



Consulting Mineralogists

Unit 4, 40 Irvine drive, Malaga Western Australia 6062
Phone: (08) 9248 1674 Fax: (08) 9248 1502
email: rogertownend@westnet.com.au

M GARDNER, 30-3-2005

IML PTY LTD,

64 KURNALL RD,

WESLHPOOL

WA

OUR REF 21303

YOUR REF 4551

XRD/PLM ANALYISIS OF ONE PULP.

(55159)

R TOWNEND

SAMPLE 55159

XRD/PLM ANALYSIS

QUARTZ	**80-85%**
MUSCOVITE	**3-5%**
ALBITE	**10-15%**
CHLORITE	**< 3%**
BIOTITE	**<1%**
CARBONATE	**<1%**
PYRITE	**<1%**
ARSENOPYRITE	**<1%**
RUTILE	**<1%**

APPENDIX 5– SAMPLE STORAGE POLICY

INDEPENDENT METALLURGICAL LABORATORIES PTY LTD
SAMPLE STORAGE POLICY

1 FREE STORAGE PERIOD

Unused samples, residues and solutions will be stored free of charge for a period of 3 months after the date of issue of the Laboratory Report. Note however that any samples may be discarded before the end of the 3 month free storage period if the client requests this. At the end of this period the samples will, at the option of the client either be discarded or stored for a further period, subject to the payment of a storage fee.

2 NOTIFICATION

The onus is placed on the client to notify in writing (by completing the “Sample Disposal Advice” Form F 0004 – attached) its storage requirements as soon as possible after the receival of the report to ensure storage instructions are implemented prior to the expiry of the free storage period. A Sample Disposal Advice form has been supplied with this policy to assist with this notification.

If no instructions are received by the end of the free storage period, storage fees will accumulate and be charged automatically, on the assumption that continued storage is required.

3 STORAGE FEES

3.1 General Storage

A storage fee of $20.00 (ex GST) per month per 0.1m3 of sample volume or part there of, will be charged monthly and invoiced quarterly. The minimum storage fee will be $20.00 (ex GST) per month.

3.2 Cold Storage

Limited sample storage is available for low temperature storage to prevent oxidation of reactive samples.

A storage fee of $50.00 (ex GST) per month per 0.1m3 of sample volume or part there of, will be charged monthly and invoiced quarterly. The minimum storage fee will be $50.00 (ex GST) per month

3.3 Quarantine Storage

Independent Metallurgical Laboratories Pty Ltd’s facilities are Quarantine Registered and we can provide a limited amount of quarantine sample storage.

A storage fee of $50.00 (ex GST) per month per 0.1m3 of sample volume or part there of, will be charged monthly and invoiced quarterly. The minimum storage fee will be $50.00 (ex GST) per month. Any freight and / or quarantine fees associated with the disposal of these samples will charge on an ‘at cost’ basis.

4 DISPOSAL

Samples will be disposed of at the end of the nominated (by the client) paid storage period, by IML at a cost of $20 (ex GST) per 0.1m3. A minimum of $20 (ex GST) per sample applies.

If samples are to be transferred to an alternate storage facility, IML will arrange this and charge the client at cost.

CRAIG KENNA
GENERAL MANAGER

APPENDIX 6 – INDEMNITY STATEMENT

Indemnity Statement

This report has been prepared for Lefroy Resources Ltd by Independent Metallurgical Laboratories Pty Ltd. Other parties, at the discretion of Lefroy Resources Ltd may be given access to the report or receive copies of the report, but only in full including this page, the title page and appendices.

While Independent Metallurgical Laboratories Pty Ltd has taken all reasonable care to ensure that the facts and opinions expressed in this report are accurate it does not accept any legal responsibility for any loss or damage suffered resulting from use of this report howsoever caused and whether by breach of contract, negligence or otherwise.

The results presented in this report pertain only to the sample received for testing.

APPENDIX 4.

PIMA RESEARCH

Lefroy Gold Deposit
Pima Report

Introduction:

At the request of Lefroy Resources chip samples from three percussion drill holes at the Lefroy Gold Deposit were analysed using PIMA. The aim was to firstly document the detectable alteration minerals in these samples and to see if there were any alteration variations both within and between holes towards mineralisation.

PIMA (Portable Infrared Mineral Analyser) irradiates samples with infra-red radiation from 1300 – 2500nm. The infra-red radiation is absorbed by hydroxide bonds and fortunately many common alteration minerals contain hydroxide bonds. The downside is that water also contains hydroxide bonds and therefore samples must be completely dry before being analysed.

Al-OH absorptions are typically the most useful and their absorption frequency can be used to distinguish between pyrophyllite- dickite and sericite. Sericite composition and crystallinity can also be analysed. Variations in alteration mineralogy and particularly white mica composition and crystallinity often reflect a variation in fluid conditions (composition, temperature, oxygen fugacity etc) which in turn can be related to mineralisation. As a result variations in white mica composition can be used a vector towards mineralisation.

Variations in white mica mineralogy is measured by the wavelength of Al-OH absorption (see slide 4 – PIMA.ppt) and the crystallinity of the white mica (illite vs. sericite).

At the request of Lefroy Resources chip samples from three percussion drill holes at the Lefroy Gold mine were analysed using PIMA. The aim was to firstly document the detectable alteration minerals in these samples and to see if there were any alteration variations both within and between holes towards mineralisation.

A brief presentation on how the PIMA works is attached as a Power Point presentation (Pima Explanation. ppt).

Procedure:

Samples were analysed using a PIMA SP infrared spectrometer produced by Integrated Spectronics. The spectra were collected using the PIMA SP acquisition software. The spectrum for each sample was collected as a .FOS file (see attached files) and then the spectra from each drill hole were imported into interpretation software, The Spectral Geologist (TSG) produced by Ausspec International was used to interpret the results. Files produced by the TSG are saved as .tsg files.

Where no hydroxide bonds (-OH^{-}) are present there is no infrared absorption. In this dataset for example the quartz sandstones (and quartz rich sandstone that only have a small mica fraction) and quartz veins have no or very poor absorption. Even the micaceous sandstones do not have fantastic spectra presumably because the clay fraction (that gets alerted) is minor compared to quartz.

This relationship is best demonstrated by some examples; Figure 1 is a good spectrum (for the Lefroy Mine). Looking at the spectra (blue line) a prominent feature (=Al-OH absorption in muscovite) is noted at a wavelength of 2200nm (read along X- axis). The depth of this feature is measured as a proportion of the reflectance (read along Y – axis- reflectance = 0.925 = 92.5%). This feature therefore has an absorption = 7.5 %. Figure 2 is a typical spectrum of sericite altered volcanics from the Mt Lyell Mine. This spectra also has a prominent feature (=Al-OH absorption in muscovite) at a wavelength of 2200nm The depth indicates an absorption = 22.5 % which in turn implies the Mt Lyell sample has significantly more muscovite than the Lefroy sample.

Many of the samples were wet which causes confusing spectra as large water absorption occurs. Samples were collected of these wet samples and they were the dried at approximately 60 degrees for 30-45 minutes. Figure 3 and 4 show the difference between a wet and dry sample from LFC017: Figure 3 shows a very large water absorption at slightly higher than 1900 nm, Figure 4 is the same sample after drying, note the complete absence of the large absorption at 1900nm.

Samples were collected at nominal 5 meter spacing (where there was insufficient sample or the interval contained only quartz veins, the closest interval was sampled).

Once samples are imported into the spectral geologist (TSG) samples with poor spectra (i.e. very low absorptions) are discarded. Samples with poor spectra are either quartz rich or unaltered.

Drill Hole Number	Total samples analysed	Wet samples	Samples discarded:- aspectral	TSG errors too high	Samples available for analysis
LFC017	93	24	25	11	33
LFC018	121	43	17	17	44
LFC024	111	48	7	8	48
Total	325	115	49	36	125

Table 1: Details of samples analysed and discarded from each hole.

Drill Hole LFC 017:

A summary of the alteration spectra from samples collected from this hole is contained in table 2 and Figure 5 (in attached powerpoint file, figures for report.ppt). The dominant alteration is muscovite which occasionally trends to being phengitic. Minor kaolinite is associated with the high grade ore (identified in one spectrum).There is a slight decrease in Al-OH wavelength towards to ore intervals with AL-OH absorption decreasing from 2208nm outside of ore to 2206nm within ore but this is subtle. Sericite crystallinity does not show any major trends but the moderate gold intersected from 146 – 149m is of low crystallinity.

Drill Hole	Depth (m)	Mineralisation	TSA_A_Mineral1	TSA_A_Error	AlOH_wl	ix
LFC017	25		Phengite	154	2208	1.7
LFC017	35		Halloysite	341	2208	12.8
LFC017	40		Phengite	202	2209	2.1
LFC017	61		Phengite	241	2210	2.9
LFC017	65		Phengite	1044	2211	1.6
LFC017	80		Muscovite	562	2215	3.2
LFC017	84(a)		Phengite	220	2210	9.4
LFC017	86(a)		Muscovite	422	2210	7.3
LFC017	101(a)	High_As	Muscovite	266	2212	9.8
LFC017	101(a)#2	High_As	Muscovite	811	2205	3.5
LFC017	120		Muscovite	645	2207	3.3
LFC017	120(a)#2		Muscovite	973	2210	5.1
LFC017	125		Muscovite	930	2209	7.6
LFC017	135		Muscovite	387	2208	1.2
LFC017	146(a)	Mod_Au	Muscovite	565	2207	1.2
LFC017	147(a)	Mod_Au	Muscovite	187	2206	0.9
LFC017	148(a)	Mod_Au	Muscovite	341	2213	1.6
LFC017	149(a)	Mod_Au	Muscovite	757	2210	NULL
LFC017	150(a)		Muscovite	519	2206	0.7
LFC017	159(a)	Mod_high_Au	Illite	281	2208	5.2
LFC017	160	Mod_high_Au	Muscovite	184	2210	7.2
LFC017	160(a)	Mod_high_Au	Muscovite	181	2210	3.7
LFC017	161(a)	Mod_high_Au	Kaolinite	468	2206	0.6
LFC017	162(a)	Mod_high_Au	Illite	566	2206	2.9
LFC017	163(a)	Mod_high_Au	Muscovite	279	2207	3.7
LFC017	165	Mod_high_Au	Muscovite	920	2211	8.9
LFC017	166(a)	Mod_high_Au	Muscovite	740	2211	4.9
LFC017	168(a)	Mod_high_Au	Muscovite	980	2208	4.0
LFC017	170		Kaolinite	1137	2210	6.3
LFC017	175		Phengite	429	2214	5.5
LFC017	185		Phengite	174	2211	3.4
LFC017	190		Phengite	174	2211	3.4
LFC017	192		Phengite	667	2216	5.7

Table 2: Results from drill hole LFC017:
TSA_A_Mineral1 is the TSG interpreted main alteration mineral,
TSA_A_error is a measure of the uncertainty of the mineral identification (>400 is a tentative identification),
AL-OH_wl is the wavelength of the Al-OH absorption in nm,
ix is the sericite crystallinity.

Drill Hole LFC 018:

A summary of the alteration spectra from samples collected from this hole is contained in table 3 and figure 6. The dominant alteration is muscovite which occasionally trends to being phengitic. Kaolinite is commonly associated with the high grade mineralisation suggesting that the ore fluids at least locally become quite acidic. There is a clear trend of decreasing Al-OH wavelength towards the ore intervals with AL-OH absorption decreasing from 2212nm outside of ore to 2206nm within ore, this relationship is most clear in the bar graph in Figure 6. Sericite crystallinity also shows subtle trend with the sericite becoming less crystalline (more illitic) towards and within the ore.

Drill Hole	Sample	Mineralisation	TSA_A_Mineral1	TSA_A_Error	AlOH_wl	ix
LFC018	19		Halloysite	1591	2209	0.9
LFC018	31		Halloysite	722	2208	0.8
LFC018	35		Muscovite	250	2207	2.1
LFC018	40		Muscovite	343	2209	1.5
LFC018	45		Muscovite	527	2213	0.5
LFC018	51		Muscovite	489	2210	5.2
LFC018	55		Phengite	1265	2212	2.4
LFC018	60		Phengite	102	2211	3.4
LFC018	64		Muscovite	314	2211	9.9
LFC018	70		Muscovite	314	2211	9.9
LFC018	75		Muscovite	587	2215	7.1
LFC018	79		Muscovite	338	2214	3.8
LFC018	85		Muscovite	663	2215	3.1
LFC018	90		Muscovite	1342	2202	2.9
LFC018	95		Phengite	420	2209	4.1
LFC018	101		Phengite	357	2209	1.1
LFC018	105		Phengite	1235	2220	3.1
LFC018	110		Halloysite	693	2208	2.6
LFC018	115		Phengite	603	2211	NULL
LFC018	124		Phengite	448	2209	1.7
LFC018	134(a)		Muscovite	176	2208	2.6
LFC018	135	High_Au_As	Muscovite	707	2207	1.8
LFC018	135(a)	High_Au_As	Muscovite	493	2208	3.2
LFC018	137(a)	High_Au_As	Kaolinite	235	2207	1.7
LFC018	138(a)	High_Au_As	Illite	687	2206	1.6
LFC018	139(a)	High_Au_As	Muscovite	1309	2203	2.6
LFC018	140	High_Au_As	Muscovite	318	2206	1.2
LFC018	141(a)	High_Au_As	Muscovite	190	2207	2.2
LFC018	143(a)	High_Au_As	Illite	1009	2212	3.9
LFC018	145	High_Au_As	Muscovite	1454	2209	2.8
LFC018	147(a)		Muscovite	1071	2212	5.7
LFC018	148(a)		Muscovite	195	2211	4
LFC018	149(a)		Illite	714	2210	6.4
LFC018	150		Illite	725	2215	4.9
LFC018	155		Muscovite	1222	2214	NULL
LFC018	160		Phengite	279	2211	3.5
LFC018	165		Phengite	332	2213	4.6
LFC018	175		Phengite	416	2209	6
LFC018	175(a)		Muscovite	1184	2213	8.1
LFC018	179(a)	High_Au_As	Muscovite	126	2212	4
LFC018	181(a)	High_Au_As	Kaolinite	467	2207	3.5
LFC018	182(a)	High_Au_As	Muscovite	711	2208	2.1
LFC018	185#1	High_Au_As	Muscovite	1383	2204	1.7
LFC018	186(a)	High_Au_As	Muscovite	718	2207	4.5
LFC018	189(a)	High_Au_As	Kaolinite	256	2207	2.1
LFC018	190	High_Au_As	Kaolinite	611	2206	3.1
LFC018	191(a)	High_Au_As	Muscovite	348	2207	5.8
LFC018	192(a)	High_Au_As	Muscovite	410	2210	5.5
LFC018	193(a)	High_Au_As	Muscovite	339	2206	4.3

LFC018	194(a)	High_Au_As	Muscovite	563	2209	7
LFC018	195		Kaolinite	611	2206	3.1
LFC018	196(a)		Muscovite	636	2208	4.7
LFC018	199(a)		Muscovite	599	2211	8.1
LFC018	200		Muscovite	425	2211	6.4
LFC018	204		Phengite	801	2215	4.8

Table 3: Results from drill hole LFC018:
TSA_A_Mineral1 is the TSG interpreted main alteration mineral,
TSA_A_error is a measure of the uncertainty of the mineral identification (>400 is a tentative identification),
AL-OH_wl is the wavelength of the Al-OH absorption in nm,
ix is the sericite crystallinity.

Drill Hole LFC 024:

A summary of the alteration spectra from samples collected from this hole is contained in table 4 and figure 7. The dominant alteration is muscovite which occasionally trends to being phengitic. Kaolinite is associated with the moderate grade mineralisation intersected from 149 – 159m again suggesting that the ore fluids at least locally become quite acidic There is a clear trend of decreasing Al-OH wavelength towards the ore intervals with AL-OH absorption decreasing from 2212nm outside of ore to 2206nm within ore, this relationship is most clear in the bar graph in Figure 7. Sericite crystallinity also shows subtle trend with the sericite becoming less crystalline (more illitic) towards and within the ore and particularly the moderate grade mineralisation from 149 – 159m.

Drill Hole	Depth	Mineralisation	TSA_A_Mineral1	TSA_A_Error	AlOH_wl	ix
LFC024	20		Halloysite	593.726	2207.187	0.467
LFC024	35		Muscovite	453.461	2209.717	9.972
LFC024	40		Halloysite	733.91	2208.417	0.506
LFC024	45		Muscovite	177.437	2209.788	9.032
LFC024	50		Muscovite	171.286	2210.397	9.901
LFC024	55		Phengite	633.072	2212.896	7.774
LFC024	60		Phengite	394.646	2211.58	NULL
LFC024	65		Phengite	164.493	2210.751	6.232
LFC024	70		Phengite	365.301	2213.231	7.13
LFC024	75		Phengite	514.04	2213.136	NULL
LFC024	80		Muscovite	492.558	2212.408	6.372
LFC024	85		Phengite	942.323	2210.973	9.112
LFC024	90		Phengite	971.22	2209.743	4.783
LFC024	95		Phengite	420.775	2208.619	6.971
LFC024	100_		Muscovite	391.994	2209.38	2.884
LFC024	105		Muscovite	234.398	2209.434	5.76
LFC024	110		Muscovite	263.356	2208.424	6.68
LFC024	116(a)		Muscovite	422.131	2209.084	1.328
LFC024	118(a)	High_Au_As	Muscovite	992.072	2209.828	2.438
LFC024	120	High_Au_As	Muscovite	475.833	2208.627	2.087
LFC024	126(a)	High_Au_As	Muscovite	626.421	2213.493	7.693
LFC024	127(a)	High_Au_As	Muscovite	400.277	2207.534	4.197
LFC024	128(a)	High_Au_As	Muscovite	320.19	2207.787	6.071
LFC024	129(a)	High_Au_As	Muscovite	476.177	2214.548	2.659
LFC024	130(a)	High_Au_As	Phengite	949.934	2210.41	4.617
LFC024	133(a)		Muscovite	507.174	2209.05	7.552
LFC024	134(a)		Phengite	654.076	2205.813	5.553
LFC024	135		Phengite	343.865	2208.094	5.19
LFC024	140		Muscovite	818.741	2207.799	2.629
LFC024	145		Muscovite	365.347	2213.123	4.874
LFC024	149(a)	Mod_Au_As	Muscovite	965.051	2208.727	7.302
LFC024	151(a)	Mod_Au_As	Muscovite	361.428	2211.738	7.411
LFC024	153(a)	Mod_Au_As	Illite	703.585	2210.899	3.552
LFC024	154(a)	Mod_Au_As	Muscovite	827.437	2207.645	3.282
LFC024	155	Mod_Au_As	Halloysite	309.518	2207.007	2.467
LFC024	156(a)	Mod_Au_As	Kaolinite	221.983	2207.069	1.936
LFC024	157(a)	Mod_Au_As	Kaolinite	221.983	2207.069	1.936
LFC024	158(a)	Mod_Au_As	Kaolinite	219.226	2207.365	2.947
LFC024	159(a)	Mod_Au_As	Kaolinite	218.474	2206.823	4.226
LFC024	160		Muscovite	376.223	2209.868	7.531
LFC024	162(a)		Illite	825.564	2208.148	4.879
LFC024	163(a)		Muscovite	333.029	2208.744	8.192
LFC024	164(a)		Muscovite	282.594	2209.373	7.963
LFC024	166(a)		Phengite	416.99	2208.035	NULL
LFC024	170		Phengite	464.781	2211.84	5.862
LFC024	175		Muscovite	692.047	2206.043	5.68
LFC024	180		Muscovite	692.047	2206.043	5.68
LFC024	184		Muscovite	265.012	2207.919	3.813

Table 4: Results from drill hole LFC024:
TSA_A_Mineral1 is the TSG interpreted main alteration mineral,
TSA_A_error is a measure of the uncertainty of the mineral identification (>400 is a tentative identification),
AL-OH_wl is the wavelength of the Al-OH absorption in nm,
Ix is the sericite crystallinity.

Summary:

A brief evaluation of PIMA spectra from 3 drill holes at the Lefroy gold deposit show some intersecting trends.

- Kaolinite locally becoming commonly associated with the gold mineralisation
- There is a clear trend towards decreasing Al-OH absorption in the sericite towards and within the ore (indicating that the sericite becomes more muscovitic)
- There is a subtle decrease in the sericite-illite crystallinity towards and within the ore.

Before a decision in made to do a full PIMA analysis of the drilling from the Lefroy Gold Deposit it is recommended that the above results be evaluated to see if additional trends between holes can be evaluated that may result in vectors towards high grade gold.

Kim Denwer

APPENDIX 5.

DIGITAL DATA
(Supplied on accompanying CD-ROM)

Includes:
Original data
Geophysical Images
Geological Logging Codes
Copies of all maps and reports