Lefroy Resources Limited

LEFROY PROJECT AREA

ELs 35/2001, 2/2002, 43/2003, 44/2003, 45/2003, 39/2004, 12/2006, 13/2006

Annual Report 2006

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LEFROY PROJECT AREA
ELs 35/2001, 2/2002, 39/2004, 43/2003, 44/2003, 45/2003 – Annual Report 2006

Cover image – Lefroy – Beechford Road in the centre of Lefroy facing the Native Youth Dam (2006).

FIGURES

TABLES

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*Please note: All images produced in AGD94 zone 55.

1.0 SUMMARY

The Lefroy Goldfield, located in north east Tasmania recorded approximately 200,000 ounces of gold in the late 19th century. The Lefroy Goldfield consists of at least 30 known gold-bearing reefs.

The reporting period encompasses the second field season for Lefroy Resources within their tenement package. Exploration conducted during the period includes drilling, resource estimation, historical adit mapping, historical data compilation and 3D mine digitisation, reprocessing airborne geophysics, soil sampling and trenching. A key focus of exploration has been to gain a sound understanding of the styles and controls of mineralisation present within the area. New and previously unrecognised styles of mineralisation in addition to lode-style material have been identified, providing exciting new exploration targets.

This seasons drilling initially targeted the extensions of the Pinafore and Native Youth Reefs both along strike and down-dip. Orientation drilling at the Volunteer Reef, in conjunction with further testing of the soil anomaly was carried out in the later half of 2005. High-grade reef was intersected along strike at Native Youth and down-dip at Pinafore during July 2005.

Two soil sampling programs were undertaken during the period, one at Perpetual, north of Pinafore and the other at Volunteer, to the south. Several gold-in-soil anomalies have been identified. These anomalies generally strike east-west and are spatially cohesive over strike lengths of up to 350 metres. Prioritisation of targets within the Lefroy goldfield has limited follow-up work on these anomalies. The Perpetual anomaly was further targeted with limited RC drilling, and one of the Volunteer anomalies was tested by excavating two costeans in the area.

A pre-resource assessment of historical production data and recent drilling results from the Pinafore and Native Youth Reef was carried out by SRK Consulting. SRK also examined trends in production grades and concluded that there is no reason to suppose that the gold grades of the Pinafore and Native Youth reefs decrease down-dip from the mined material (ASX Announcement 21/9/05). This work formed the basis for successfully identifying the likely structural controls on the distribution of ore beneath the old workings. Subsequently Lefroy Resources completed a JORC compliant Inferred Resource Estimate for the Pinafore Lode. An inferred resource of **304,000 t @ 22.9 g/t for 225,000 ounces Au** was estimated.

This result represents the first significant new gold resource reported in Tasmania for 20 years. In addition, a **1,300,00 ounce Au** Exploration Potential for the Lefroy Goldfield was also estimated.

An RC drill derived bulk sample of Pinafore ore material was collected to enable metallurgical testing to be carried out. This information will be used to define gold deportment and amenability to processing.

Data compilation for the project area is ongoing with LEF incorporating existing data into a 2D and 3D GIS (Geographic Information System) environment. 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 has been combined with remote information such as airborne photography, satellite imagery and regional geophysics, allowing spatial interrogation through multiple datasets.

A predictive model for mineralisation was completed during May 2006 and has formed the basis of a risk-based exploration strategy for the next season of drilling.

2.0 INTRODUCTION

Lefroy Resources Limited (LEF) holds a 100% owned exploration land package in north east Tasmania. This consolidated tenement package contains at least three separate mineralised structures. In 2004 LEF acquired the Exploration Leases 43/2003, 44/2003, 45/2003, and 39/2004 further expanding Lefroy Resources' tenement portfolio. These have proven to be important assets due to the regional extent of the Lefroy gold deposition.

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 at least 30 gold reefs, which were mined and subsequently abandoned in the early 1900's.

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 focused on the discovery and development of high grade lode-style gold deposits. Drilling initial targeted the potential for economic mineralisation both beneath and along the historical workings and elsewhere within the tenements. There also remains significant potential to discover sub-surface high-grade shoots

that have gone undetected in the past.

The reporting period encompasses the second field season for LEF within the tenement package. Exploration conducted during the period includes drilling, resource estimation, adit mapping, historical data compilation, 3D mine digitisation, ground geophysics, soil sampling and trenching.

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.

3.0 LOCATION

The Project Area is situated in north eastern Tasmania (Figure 1). The total project area is 779 square kilometres, with 99% of the area granted until at least 2009. ELs 43/2003, 44/2003, 45/2003 and 39/2004 were granted to LEF in the latter half of 2004, 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 Goldfield can be accessed via sealed roads.

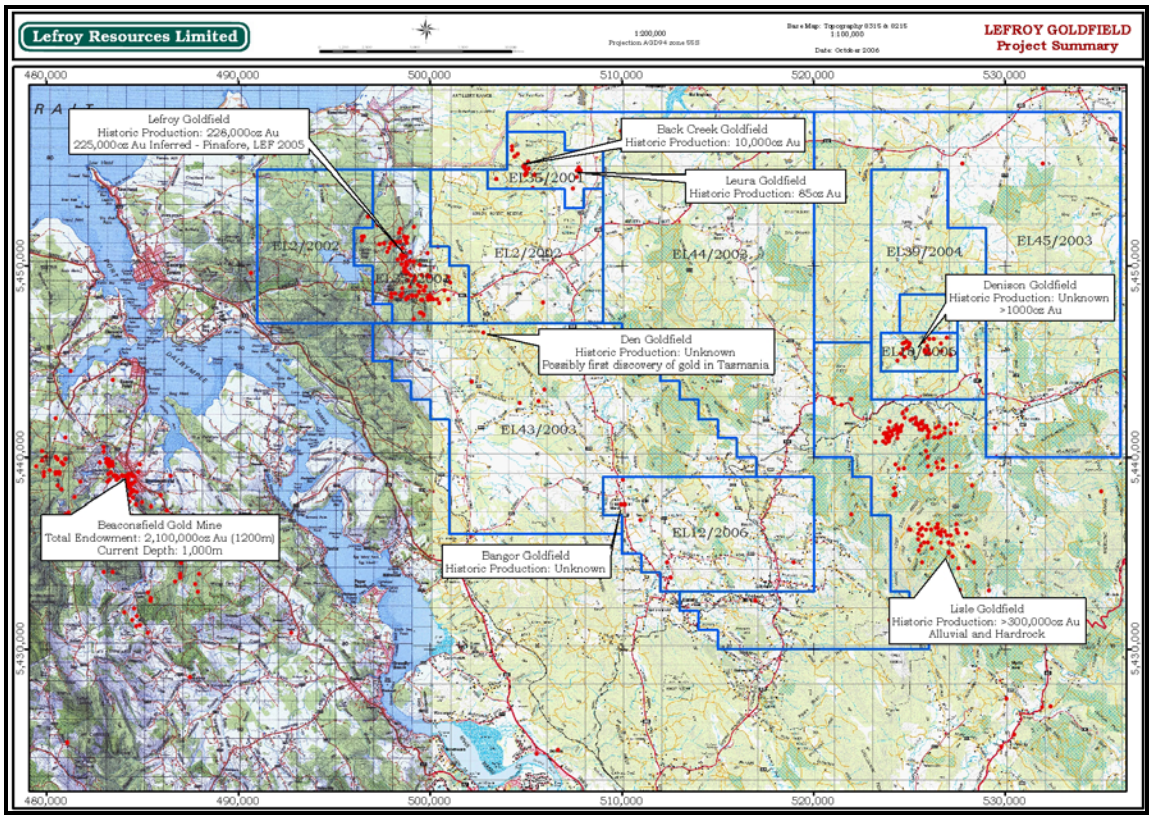


Figure 1. Tenement Location Plan showing Historical Workings.

4.0 LAND TENURE

Exploration Licence 35/2001 was granted to LEF on the 18th August 2004. The Licence was originally allocated to Sapphire Trading Ltd. on 10th October 2003, and then transferred to LEF. 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 incorporates Crown Land (excluded from lease), Public Reserve, MDC Informal Reserve, State Forest and Private Property. The Mining Lease 16M/1991 (held by LEF) is contained within this Exploration Lease and covers 0.31 square kilometres.

Exploration Licence 2/2002 was granted to Lefroy 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 55 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 LEF on the 15th October 2004. The ELs carry a tenure period of 5 years, expiring in October

2009. The combined Licences carry a 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.

Exploration Licence 39/2004 was granted to LEF on the 17th September 2004. The EL carries a tenure period of 5 years, expiring in September 2009. The Licence carries a minimum expenditure of $39,000 for the first two years. It covers 52 square kilometres and covers Crown Land, Public Reserve, MDC Informal Reserve, State Forest and Private Property.

Exploration Licence 12/2006 was granted to Lefroy Resources on the 21st July 2006 (formerly held by LEF as EL28/2003). The EL carries a tenure period of 5 years, expiring in July 2011. The Licence carries a minimum expenditure commitment of $43,500 for the first 2 years. It covers 58 square kilometres and covers Crown Land, MDC Informal Reserve, State Forest and Private Property.

Exploration Licence 13/2006 was granted to Lefroy Resources on the 21st July 2006 (formerly held by LEF as EL12/2005). The EL carries a tenure period of 5 years, expiring in July 2011. The Licence carries a minimum expenditure commitment of $82,125 for the first 2 years. It covers 8 square kilometres and covers Public Reserve, MDC Informal Reserve, State Forest and Private Property.

The full tenure status for LEF is shown in Table 1 below.

Table 1. Tenure Status for Lefroy Resources Limited.

Tenement ID	Area (Km2)	Prospect Area Name	Status
ML16M/91	0.31	Lefroy Mining Lease	Granted (to Nov 2010)
EL35/2001	42	Lefroy Project Area	Granted (to Oct 2008)
EL2/2002	55	Pipers River Project Area	Granted (to Oct 2008)
EL43/2003	139	Den Ranges Project Area	Granted (to Oct 2009)
EL44/2003	239	Lebrina Project Area	Granted (to Oct 2009)
EL45/2003	186	Nabowla Project Area	Granted (to Oct 2009)
EL13/2006	8	Denison Project Area	Granted (to Jul 2011)
EL39/2004	52	Ferny Hill Project Area	Granted (to Sep 2009)
EL12/2006	58	Bangor Project Area	Granted (to Jul 2011)
Total	**779**		

Key: ML = Mining Lease EL = Exploration Licence

5.0 GEOLOGY

5.1 Regional Geology

The Lefroy Goldfield is located in the Stony Head Sandstone within 2km of the contact with Turquoise Bluff Slate. The Stony Head Sandstone is a thick bedded and typically unfossiliferous sandstone dominated succession (Reed, 2004). The Turquoise Bluff Slate, by contrast, is predominantly fine-grained rocks (shale, mudstone, chert and fine-grained sandstone) (Reed, 2004). The rheological contrast between these units is a likely focus of deformation and mineralisation at Lefroy. Peak metamorphism does not correlate with the stratigraphic position and does not change across most of the large faults, indicating that peak metamorphism occurred after east directed thrusting and as a result of crustal thickening. This indicated metamorphism is post-D_1. All of the mineralised host rock at Lefroy is within the Tippogoree Group of the Mathinna Supergroup and virtually all is within the Stony Head Sandstone. A complete synopsis of the regional geology can be found in Baxter and Fulton *(2006)* – included as Appendix A.

5.2 Structural Geology

The structural model for Lefroy has been modified and updated as more information has become available. During this reporting period Consultant Geologist John Baxter carried out extensive mapping of historical adits in the field. The results of these observations, in conjunction with reviewing the historical reports and drill hole core logging data can be found in Appendices A and B.

These structural geological reports outline the major updates made to the structural model and how this has affected the interpretation of the model for mineralisation. The outstanding points from these reports are included below:

"The fourth deformation event (D_4) in the Lefroy district can be seen locally as brittle steep dipping faults and associated drag folds. The faults generally strike east-west and dip steeply to the north or south. The sense of movement is oblique right lateral with a significant normal component. Minor folds associated with the faults plunge shallowly to the southeast. Quartz veins are deposited in the fault planes and these veins are associated with gold mineralisation. This deformation is not consistent with the regional D_3 described by Reed *(2004)* and Baxter and Keele *(2004)*, as the orientation is markedly different and the style of faulting is normal rather than reverse *(Reed, 2004)*. This deformation is associated with

mineralisation at Lefroy. Mineralised shoots associated with these faults will plunge sub-horizontally and consequently the deformation event is responsible for the sub-horizontal panels of mineralisation seen in the drilling."

6.0 PREVIOUS EXPLORATION

The Lefroy Goldfield contains many historic workings and shafts located on at least 30 gold reefs which were mined and subsequently abandoned in the early 1900'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 intermittent 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 two diamond drill holes and two sister holes. 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 0.4m @ 6.37g/t Au from 255.75m below the old workings. The tenements were surrendered due to financial commitments at Beaconsfield Goldmine.

To the east of the Lefroy Goldfield, mining commenced at the Denison Goldfield in the 1870's and continued until about 1911 *(Coroneos, 1993)*. The most successful operation on the field was the Alacrity mine which produced 10.3kg 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 were mined at the Sir William Denison Mine to a depth of 30m. Reid *(1926)* reports of 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 tonnes at an average grade of 6g/t Au,
- The Brooklyn: average grade of 6g/t Au,
- The Star: average grade 7.5g/t Au.

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

- Regional stream sediment surveys carried out by Billiton *(Randell, 1991)* and CRA *(Broadbent, 1982)*. Billiton also completed a more detailed survey in the Denison area. Minus 80µ 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 the 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.
- 1,284 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.
- A resource (pre-JORC compliant) of ~10,000oz @ 2g/t was estimated. No value was officially established and reported.

7.0 EXPLORATION

7.1 Data Compilation

7.1.1 General Data Compilation

LEF has continued to recover data and information from various government archives and agencies in Tasmania. This work continues to provide an important insight into exploration previously conducted on the tenements and surrounding areas. This data has been combined into LEFs digital 2D and 3D GIS (Geographic Information System) database.

Software platforms being utilised include:

- ArcGIS (with Geosoft Target Extension)
- Micromine Modules
- Microsoft Access, SQL Server and GBIS

Work has included 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 to allow spatial interrogation and drill target selection. All the data results can be found on the accompanying CD, Appendix E.

Data collection and desktop GIS (Geographic Information System) compilation of the Denison Area has commenced. The data collated from previous exploration conducted by Anglo Australia Resources has been compiled and reviewed. A serious discrepancy in spatial locations of exploration and dataset nomenclature has been identified and is in the process of being corrected. All cadastral and geological information has been digitised and put into the LEF digital database.

7.2.1 Historical Data Compilation

Historical newspapers (Launceston Examiner and Tasmanian Mail) from 1875 until 1905 were tirelessly printed from microfiche records at the Queen Victoria Museum in Launceston by researcher Nic Haygarth. These reports were also collaborated with historical research reports compiled by local Historian Peter Cox. The information contained in these reports and newspapers included mine development, gold production and geological information about each of the mines in northeast Tasmania (Table 2). This information proved valuable in recreating

three dimensional digital models of each of the mines at Lefroy. To date 46 historical mines have been digitised with six of the largest mines being recreated with production grades and tonnes on a 2 metre by 2 metre grid. Figure 2 shows an example of 3D recreation of the Pinafore Mine. The red panels represent stoped out areas of ore, the coloured dots can be interrogated to provide specific details about each stope (e.g. grade, tonnage, geology). The surface projection including the basalt cover is also easily identifiable.

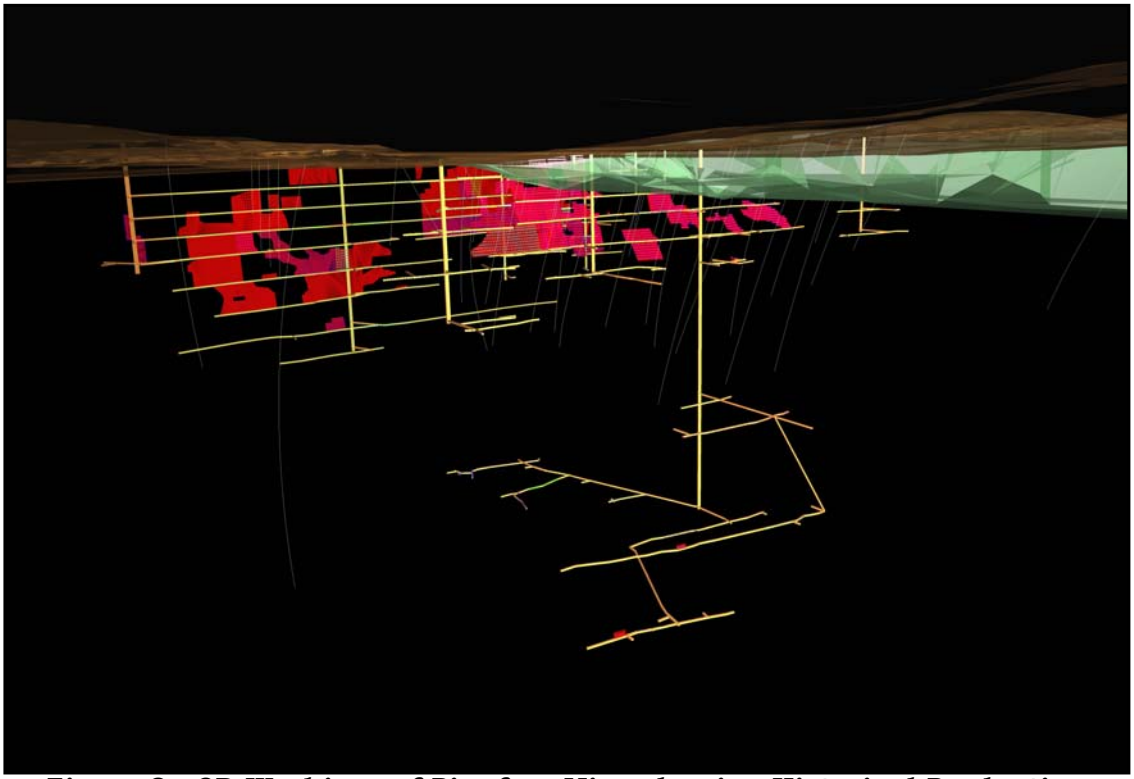


Figure 2. 3D Workings of Pinafore Mine showing Historical Production.

Table 2. Historical Mines Production - Lefroy Goldfield.

Mine	Ore Processed (Tonnes)	Gold Won (Ounces)	Recovered Grade (g/T)	Reported Average Grade (g/T)	Mined Depth (m)
Chum	40,778[4]	46,315[3]	32	26[2]	131[1]
Golden Era	29[1]	97[1]	95	90	20[1]
Golden Point and Crown	3,544[1]	2,116[3]	17	25	58[1]
Land O'Cakes	26,618[4]	11,982[4]	14	14	46[1]
Morning Star	3,857[4]	5,705[4]	46	15[1]	104[1]
Native Youth	68,958[2]	26,420[3]	11	11[2]	98[1]
Pinafore	52,741[1]	60,389[3]	33	25[1]	382[1]

Recruit	225[1]	148[1]	19	25[1]	58[1]
Volunteer	27,683[4]	73,881[4]	83[5]	133[1]	111[1]
Other		1,728[3]			
Total	224,433	228,781	39	29	79(average)

References

[1] Montgomery, A., 1897
[2] Thureau, G., 1883
[3] McClenaghan, M., 1994
[4] Determined from 3D modelling of historical maps
[5] Twelevetrees,W., 1899

7.2 Surface Geochemistry

7.2.1 Auger Sampling

Perpetual Survey

A detailed auger soil geochemical sampling program was undertaken north of the Pinafore lode, targeting potential northern extensions of the Lefroy Goldfield. Samples were taken on a 20 x 100 metre grid, where the B horizon was sampled. Approximately 440 samples were taken (Figure 3).

All samples were routinely assayed for Au by Aqua-Regia digest and analysed by Flame Atomic Absorption Spectrometry, firstly with any results returning values greater than 0.1g/t being re-assayed by Fire Assay. Multi-element analysis (Cu, Pb, Zn, As, Sb and Ag) was also undertaken.

The sampling identified a significant anomaly located approximately 260 metres north of the Pinafore lode. The gold-in-soil anomaly strikes for approximately 350 metres by 100 metres, using a cut-off of >0.5g/t Au. The anomaly contains assay results of up to 1.4g/t Au. The size and multi-element characteristics of the anomaly is very similar to that of the nearby Chum and Pinafore lodes.

In addition, historical mine data compilation of the Pinafore and Chum mines has shown mine development extending from the Pinafore shaft at the 360 metre level, northward to the postulated down-dip projection of this anomaly. A total of 130 metres of drive development along this structure has been identified from old plans and sections recovered from archives (Figure 2). Reports detailing “encouraging results” and “traces of gold” from within a “mullocky lode” have been extracted, providing evidence that the surface expression of this potential new reef continues to depth.

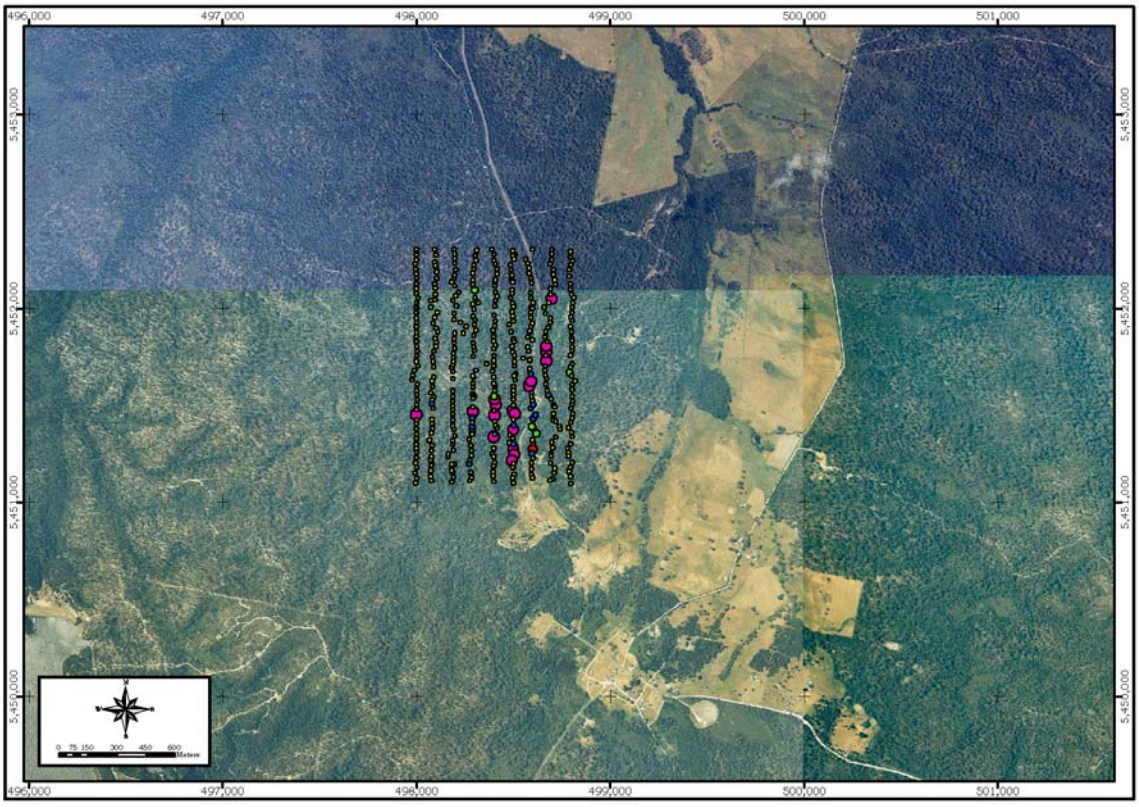


Figure 3. Perpetual Soil Location Plan.

Volley Survey

A detailed auger geochemical sampling program was undertaken to test the potential long-strike extension to the Volunteer reef, located at the southern end of the Lefroy Goldfield. The program targeted the shear structure hosting the known Volunteer reef ore-zone and its potential extensions. Samples were taken on a 20 metre by 100 metre grid where the B horizon was sampled. Approximately 1,800 samples were collected (Figure 4).

All samples were routinely assayed for Au by Aqua-Regia digest and analysed by Flame Atomic Absorption Spectrometry, firstly with any results returning values greater than 0.1g/t being re-assayed by Fire Assay. Multi-element analysis (Cu, Pb, Zn, As, Sb and Ag) was also undertaken.

Results from the 5 kilometre square sample area have defined several cohesive gold anomalies with associated multi-elements. One of these anomalies was located approximately 2,000 metres west of the Volunteer Reef. This east–west trending gold-in-soil anomaly strikes for approximately 400 metres, using a cut off of >0.1g/t Au. The anomaly contains assay results up to 0.6g/t Au. The size and multi-element characteristics of the anomaly is very similar to that of the nearby Land O'Cakes and Volunteer Lodes.

Follow-up infill soil sampling of 264 samples confirmed the anomaly and produced results of up to 5.35 g/t Au.

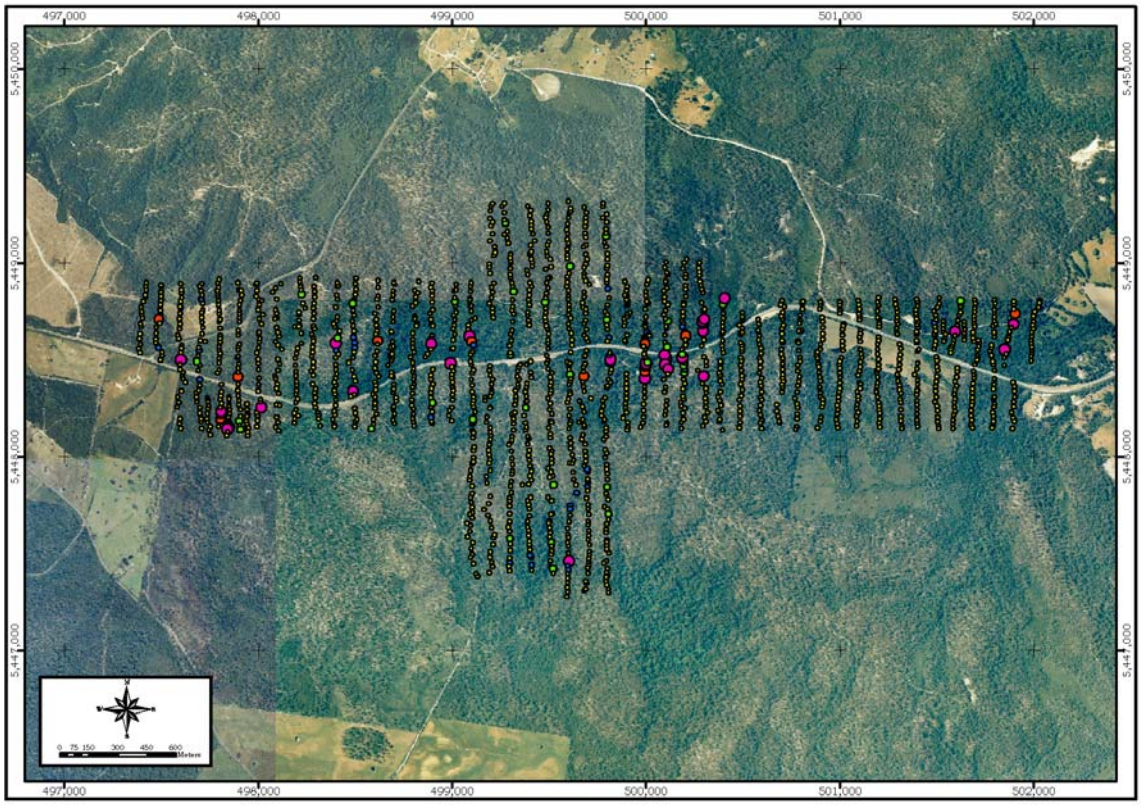


Figure 4. Volunteer Soil Location Plan.

7.2.2 Costeaning

Following positive results from the infill soil sampling program of the anomaly located approximately 2,000 metres west of the Volunteer reef, two north-south oriented costeans were excavated (Figure 5). A total of 110m of trenching was undertaken.

The costeans were geologically mapped and 117 bedrock samples were collected. All assays were routinely assayed for Au by Aqua-Regia digest and analysed by Flame Atomic Absorption Spectrometry firstly, with any results returning values greater than 0.1 g/t Au being re-assayed by Fire Assay. Multi-element analysis (Cu, Pb, Zn, As, Sb, Ag) was also undertaken.

Results were generally disappointing with no significant values returned.

Figure 5. Volunteer Costean Location Plan.

7.3 Geophysics (Airborne)

As previously reported (LEF 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).

This data was reprocessed in 2006 in order to improve resolution and interpretation. Reprocessing involved the removal of the influence of the highly magnetic Tertiary basalt to the north east. An example of the reprocessed imagery is shown in Figure 5. Interpretation of this work is ongoing.

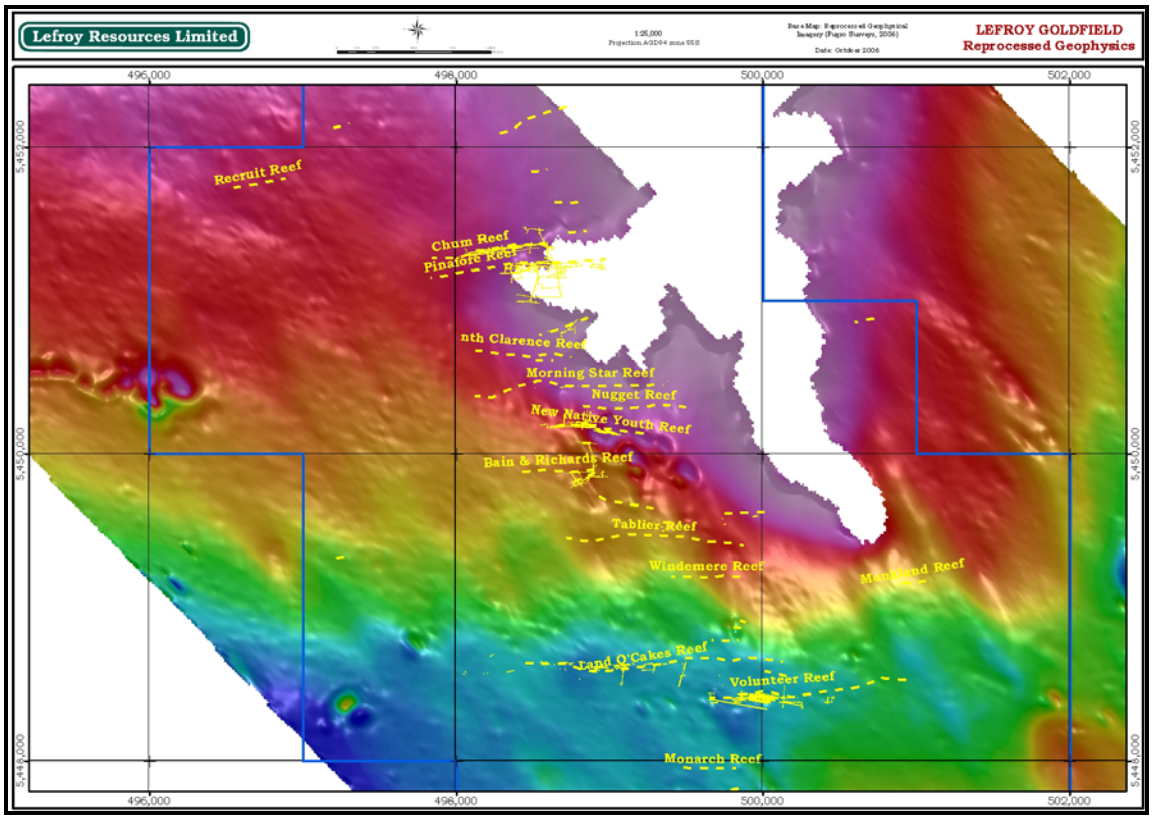


Figure 6. Reprocessed Geophysical Image with Historical Workings.

7.4 Drilling

Throughout the 2005/2006 financial year, Lefroy Resources has drilled approximately 5,642 metres of RC drilling and 1,518 metres of diamond drilling. Drilling was completed by Gerald Spaulding Drillers of Devonport.

The drilling targets were planned to test the extension of known reefs along strike and down-dip within the Lefroy mineralised corridor. Four main areas of focus were targeted;

- Extensions to the Pinafore Reef 225,000oz Inferred Resource
- Orientation drilling to the Native Youth Reef
- Orientation drilling to the Volunteer Reef
- Scout drilling of newly defined soil anomaly north of Pinafore

The success of these drill results has resulted in planning an accelerated drill programme for the upcoming financial year. Interpretation of these drilling results has resulted in a coherent geological model which can be applied across the entire Lefroy Goldfield.

Preparations (track mounting drill rig) were completed to enable efficient drilling during the winter months and a second drill rig was mobilised in late June in order to support the increase in drilling.

A bulk sample of Pinafore Lode material was drilled to enable metallurgical testing to be carried out. LFC092 and LFC093 successfully intersected mineralised zones that will be tested to evaluate the coarse-gold component at Lefroy.

7.4.1 Methodology

Table 2. Drill hole Statistics.

Hole Prefix	Type	No.	Metres	Assays	Company
LFC	RC	40	5,642	6,057	Lefroy Resources
LFD	DD	8	1,518	1,788	Lefroy Resources
Total		**40**	**7,160**	**7,845**	

Drill specifications

G & K 850 Drill Rig

- Track mounted
- G & K 850 drill rig with on-board sullair 350psi 900 cfm compressor run by KTA 19 Cummins Engine
- Deck engine is a 4 cylinder Detroit
- RC depth capacity is 200 metres
- Diamond HQ depth capacity is 400 metres
- Diamond NQ depth capacity is 800 metres
- Drill angle from vertical to 55 degrees

Track Mounted Auxiliary Compressor and Booster

- Auxiliary Compressor 350psi 750 cfm
- Hurricane Booster 750psi maximum

KL 800 Drill Rig (currently track mounted)

- Track mounted
- Rig Engine 6 CTA Cummins
- Diamond HQ depth capacity is 500 metres
- Diamond NQ depth capacity is 1000 metres
- Drill angle from vertical to 55 degrees

RC Hammer

- Premier PR 40 drill hammer
- Bit size 4 ¾”

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

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 that by using a slimline bottom hole assembly and premier hammer, deviation could be controlled to allow successful hitting of drill targets. Drilling difficulties were encountered when passing through unexpected historical mine workings, resulting in drilling deviations and hole failure.

Sampling and Logging Procedures

Reverse Circulation Drilling

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 Drilling

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.

Pinafore and Chum Drilling Results

Drilling beneath the old workings in the March Quarter has conceptually shown that mineralised structures at the Lefroy Goldfield are of sufficient magnitude to host a million-plus ounce resource. 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 7 and 8 show the drilling at the Pinafore/ Chum Lodes and the Native Youth lode.

The Pinafore Reef is located at the northern end of the goldfield and is one of the largest historically mined reefs in the Lefroy Goldfield. The reef was mined prior to 1900 for approximately 55,000oz of gold, to a depth of around 130 metres. Average recovered grades are within the range of 30-60g/t Au. Best drilling results are shown in Table 3 (previously reported).

Table 3. Best drilling results at Pinafore Reef.

Hole	Intersection and grade
LFC018	6m @ 5.38 g/t Au incl. 1m @ 20.58 g/t Au
LFC018	7m @ 2.66 g/t Au incl. 1m @ 8.39 g/t Au
LFC023A	4m @ 12.0 g/t Au incl. 1m @ 42.36 g/t Au
LFC024	7m @ 3.58 g/t Au incl. 1m @ 10.17 g/t Au
LFC025	10m @ 1.72 g/t Au incl. 1m @ 2.83 g/t Au
LFC045	1m @ 23.88 g/t Au
LFC045	10m @ 2.41 g/t Au incl. 1m @ 8.39 g/t Au
LFC045	3m @ 3.45 g/t Au incl. 1m @ 7.94 g/t Au
LFC050	22m @ 6.60 g/t Au incl. 1m @ 82.13 g/t Au
LFC050	18m @ 6.74 g/t Au incl. 1m @ 20.63 g/t Au
LFD064	7.3m @ 2.3 g/t Au
LFC065	1m @ 7.36 g/t Au
LFD067	3m @ 3.09 g/t Au
LFD068	1m @ 4.64 g/t Au
LFD070	0.6m @ 4.91 g/t Au
LFC087	27m @ 4.27 g/t Au incl. 2m @ 28.21 g/t Au

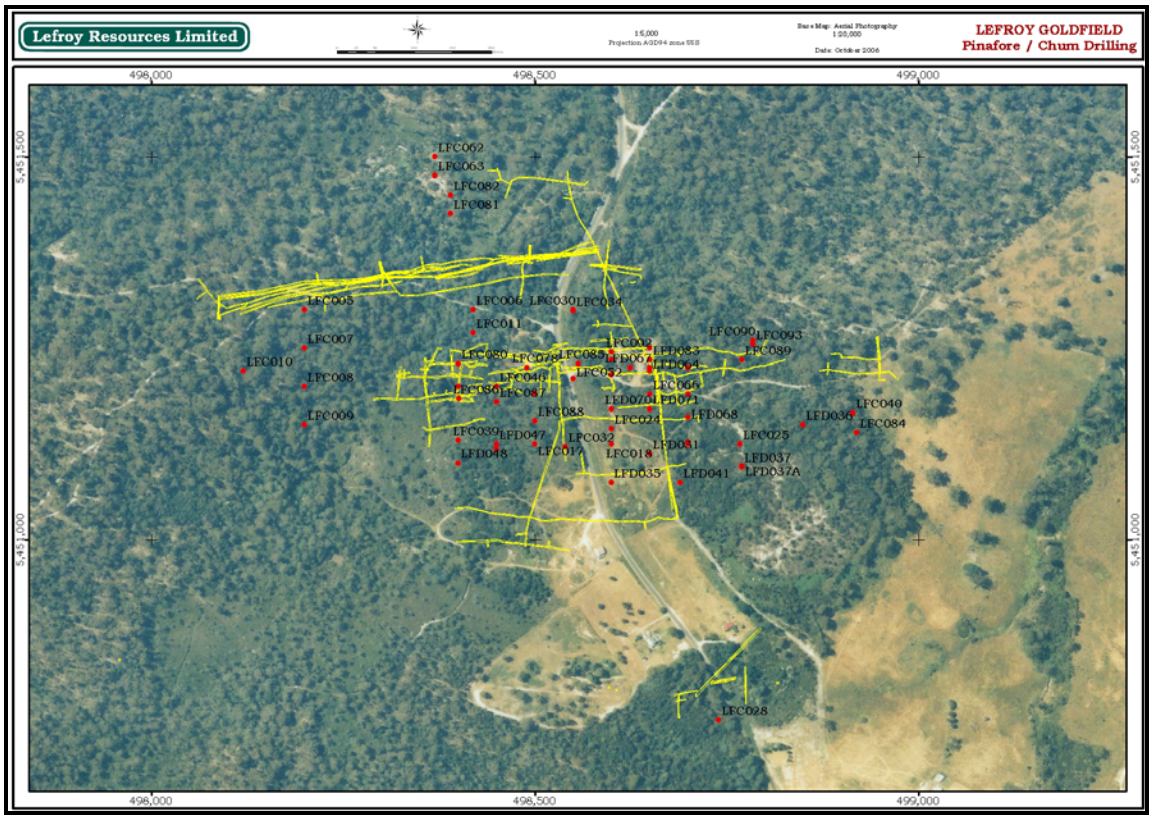


Figure 7. Drilling locations at the Pinafore and Chum lodes.

Native Youth Drilling Results

Located near the centre of the Lefroy Township, the Native Youth Reef was historically mined for approximately 25,000oz Au from a 2.4 metre wide "lode-splay" striking over 400 metres and to a depth of 100 metres. Average recovered grades are within the range of 30-60g/t, with some spectacular crushings yielding ore at over 70oz (2,100g/t) Au.

Drilling was stepped to the east of known high-grade quartz-sulphide mineralisation at the Native Youth Mine. Drilling unexpectedly intersected extensive mine workings along a 100 metre strike length, beneath the present day Lefroy Township (Table 4). These stopes are interpreted as representing unrecorded production from the reef prior to 1880.

Table 4. Best drilling results at Native Youth Reef.

Hole	Intersection and grade
LFC021	10m @ 3.03 g/t Au incl. 3m @ 4.99 g/t Au
LFC022	14m @ 3.38 g/t Au incl. 3m @ 8.13 g/t Au
LFC044	17m @ 4.49 g/t Au incl. 1m @ 19.00 g/t Au
LFC055	1m @ 4.28 g/t Au
LFC055	4m @ 4.73 g/t Au

LFC056	1m @ 6.63 g/t Au
LFC095	2m @ 13.27 g/t Au (City of Launceston)

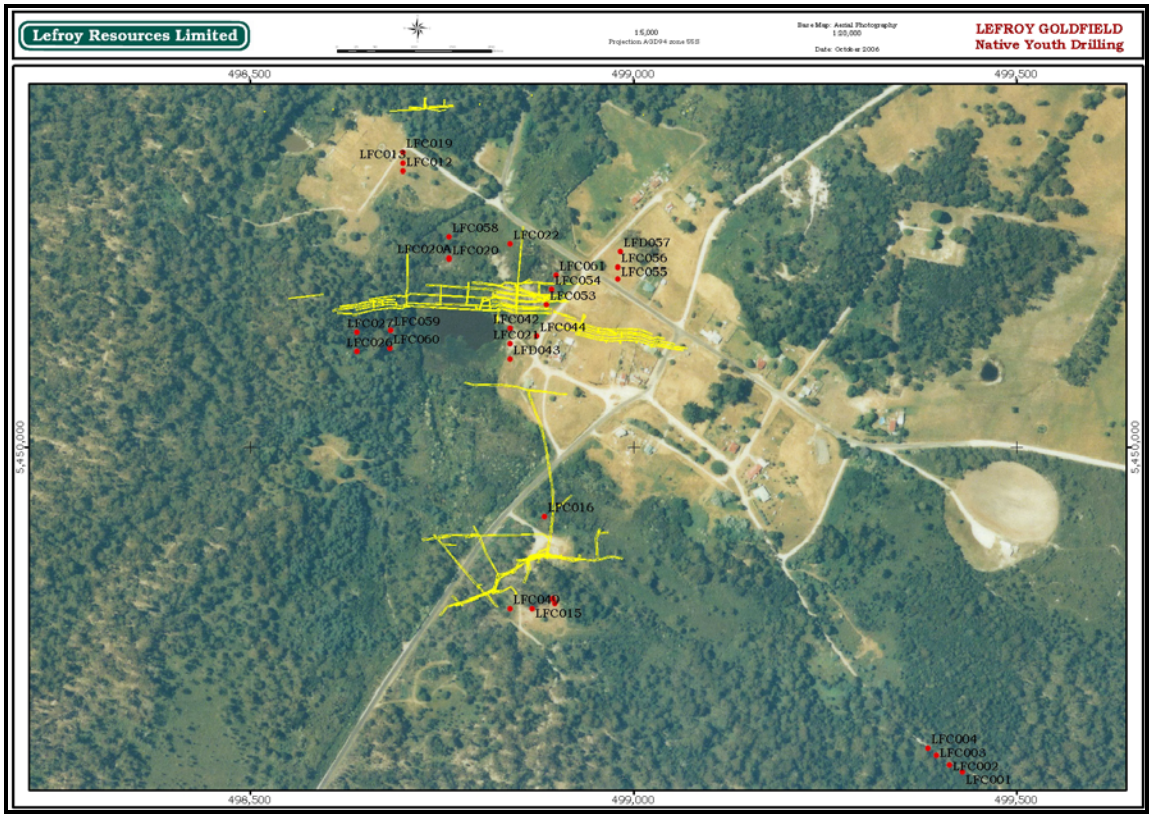


Figure 8. Drilling locations at the Native Youth lode.

Volunteer Drilling Results

The Volunteer Reef is the single largest historically mined reef in the goldfield, with extensive workings extending to approximately 150 metres vertical depth. Average recovered grades were spectacular, ranging around 60g/t Au from ore zones consistently wider than elsewhere in the Goldfield.

Drilling at the Volunteer located the reef at depth however ore zone intercepts were quite disappointing. This was due to hole deviation and interception of unexpected workings.

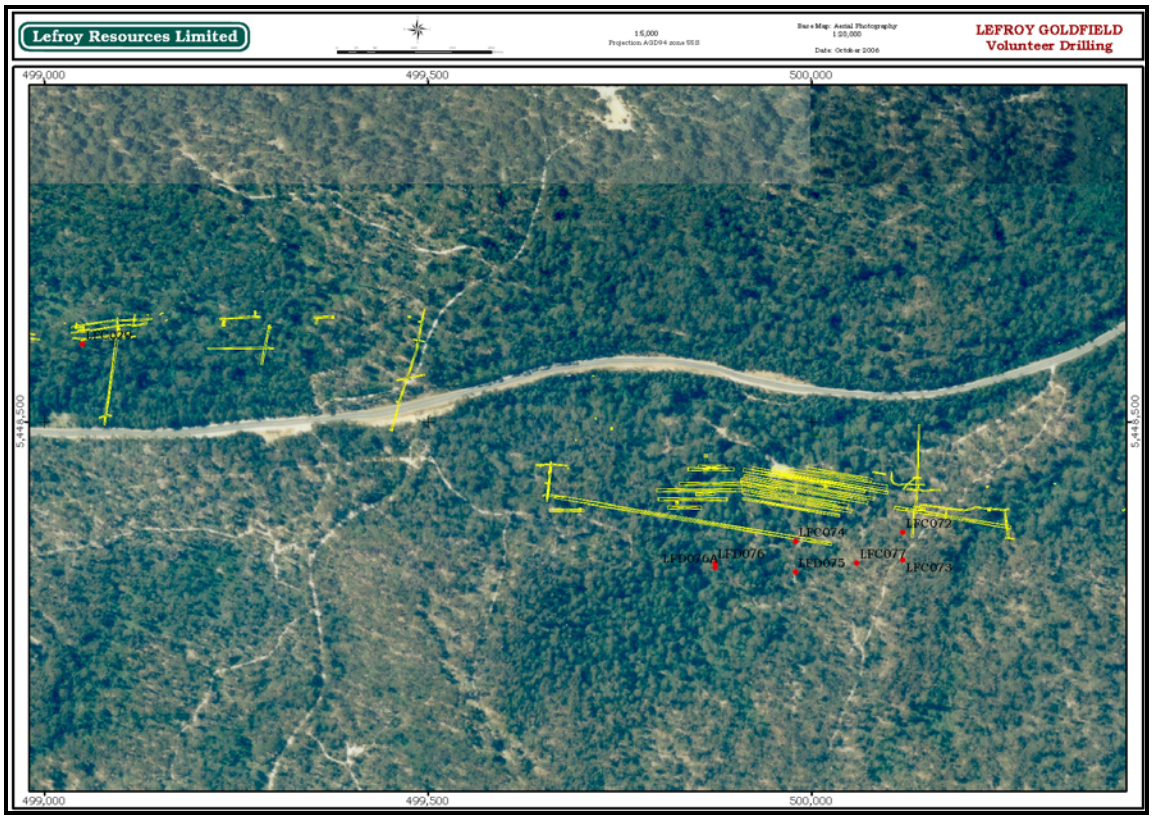


Figure 9. Drilling locations at the Volunteer Lode.

7.5 Assaying

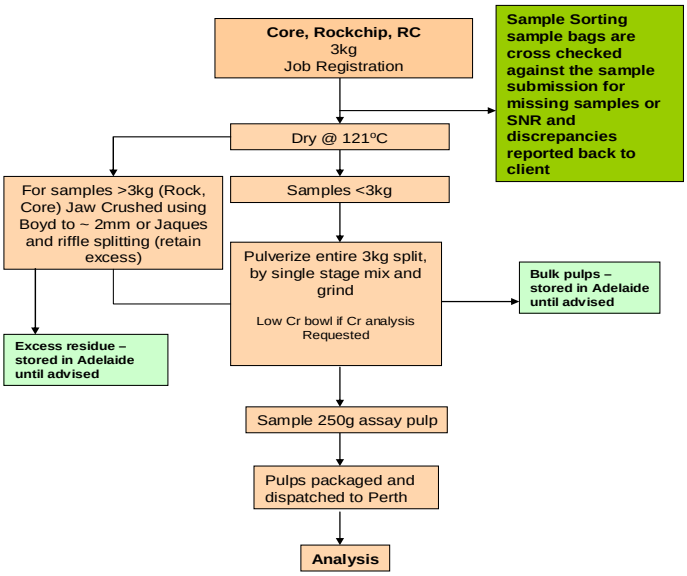
The following are the sampling collection procedures and analytical techniques for drilling at the Lefroy Goldfield:

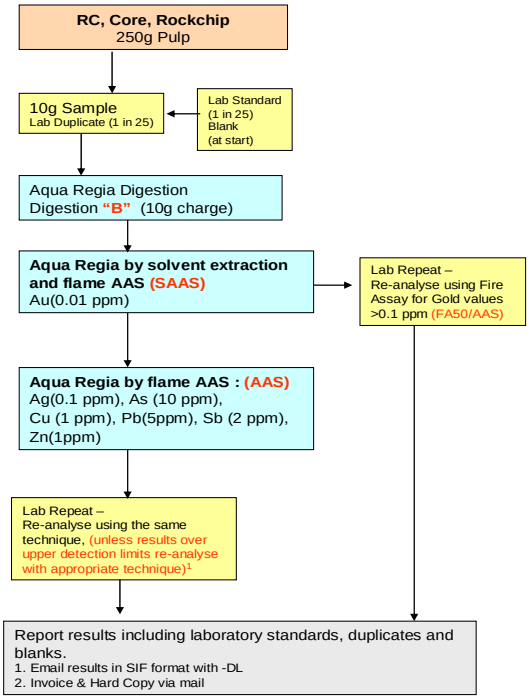
- 1m riffle split samples weighing approximately 3-4kg are sent to Genalysis Laboratory Services – Adelaide for sample preparation. A series of control standards are submitted with each batch in the ratio of approximately 1:25.
- All samples submitted for preparation are prepared in total. The whole sampled is dried, crushed as required (rock/core), single stage mix and four minute grind (SSMG) to nominal 85% passing 100 micron. QC laser sizing on every 25th pulp and % passing 100 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 being re-assayed by Fire Assay. Multi-element analysis (Cu, Pb, Zn, As, Sb, Ag) is also undertaken. Each batch is then

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 shown below detail the sample preparation and analytical techniques used by Genalysis.

Adelaide Sample Preparation Flow Sheet - Core, Rockchip, RC





7.6 Metallurgical Testwork

A bulk sample of Pinafore Lode material was drilled to enable metallurgical testing to be carried out. LFC092 and LFC093 successfully intersected mineralised zones that will be tested to evaluate if there is a coarse gold component that may be contributing to an underestimation of grade at the Lefroy Goldfield.

7.7 3D Modelling and Interpretation

7.7.1 Geological Interpretation and Modelling

Drilling has identified two new and previously unrecognised styles of mineralisation at Lefroy, occurring in addition to the lode-style material which was thought to be the only source of gold at the goldfield. This disseminated and narrow vein array mineralisation provides new drilling targets.

Clay modelling of the deformation process was also conducted. This has proven useful to conceptually visualise the structural deformation at Lefroy. An example of these models is shown in Appendix A.

Stratigraphical sequences are found to be significant in hosting mineralisation. A series of stratigraphic interpretations have been carried out in an attempt to model to regional extent of mineralisation. This work is ongoing and will be valuable in future drill hole targeting.

7.7.2 Exploration Targeting Model

A workshop held in Lefroy Resource's Perth offices during May developed a predictive geological model that empirically defines likely mineralised targets. Integration of the drill hole logging, geochemistry, alteration and historical information produced a coherent and repeatable picture for the entire Lefroy Goldfield. The main criteria identified for determining targets are; the orientation of the historical drives, the presence of sedimentary contacts between units of substantial thickness (>3m) and characteristic alteration patterns.

7.8 Resource Work

Work initially undertaken by Steffen, Robertson and Kirsten Consulting (SRK) has provided critical information in regards to the characteristics of the mineralisation at Pinafore in the Lefroy Goldfield.

Independent geological work completed has defined the principal geological controls of mineralisation. This has allowed for the extrapolation of mineralised gold lodes down-dip from the historically mined areas. Resource estimation work continued with compilation of detailed historical production data. 3D modelling of selected reefs was completed and incorporated into a resource model.

A preliminary scoping study was also completed for the Pinafore Lode, which incorporates the refurbishment of historic shafts and possible open-cut and decline development scenarios.

A JORC compliant Inferred Resource of 225,000 oz Au (304,000t @ 22.9 g/t Au) for the Pinafore Lode was estimated and reported in December 2005. A JORC compliant Exploration Potential for the entire goldfield of 1,300,000 oz Au was also reported.

7.9 Environmental 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 in-filled
- weed control
- vegetation slashing
- 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 and all work is being photographically recorded and stored in an Environmental Database.

7.10 Cultural and Heritage Studies

Two heritage studies were carried out over the northern half of the Lefroy Goldfield during March and June 2006;

- Pinafore Gold Mine Site Heritage Assessment, Lefroy, Tasmania by Gary Vines of Biosis Research (March 2006) (Appendix C).
- Native Youth Gold Mine Site Heritage Assessment, Lefroy, Tasmania by Gary Vines of Biosis Research (June 2006) (Appendix D).

Mineral Resources Tasmania guidelines for works at historic goldmines recommends the avoidance of the more significant physical evidence of historical mining, such as large machinery and plant, footings and samples of the more important mullock, tailings, while features such as shafts, adits and other minor structures are recommended for recording prior to disturbance (Bacon, 1996).

The findings from these surveys showed that LEFs planned exploration did not affect any of these heritage features at Lefroy and most planned holes were in locations of already heavily disturbed areas.

The recommendations from these reports are adhered to when considering and planning any exploration activity within the Lefroy Goldfield. These reports are included in the digital Appendices C and D.

8.0 DISCUSSION

The preceding year has seen an exponential growth of knowledge of mineralisation at the Lefroy Goldfield. A combination of exploration techniques have been employed to their fullest advantage, including soil sampling, RC and diamond drilling in the field and 3D computer modelling in the office.

LEFs highly developed database has served as valuable platform on which exploration strategies and planning for the project can be undertaken. It is regularly added to and updated as more information becomes available. The structural model was incorporated into an exploration strategy and formed the framework for drill target picking in 2005/2006.

LEF is now focussing much of its effort into defining resources within the Lefroy corridor and considering possible mining scenarios.

9.0 CONCLUSIONS & RECOMMENDATIONS

The 2006 reporting period has shown to be an active exploration year over the main tenements 35/2001 and 2/2002. Extensive drilling, trenching, surface geochemical sampling, geological mapping and interpretation and desktop work has been carried out, primarily aimed at fulfilling Lefroy Resource's main objective; targeting and developing high-grade gold ore bodies along strike and at depth from the historic workings at the Lefroy Goldfield.

In addition, the Initial JORC Inferred Resource of 225,000oz Au at the Pinafore Reef was established. Subsequent to this report, an Exploration Potential Estimate for the Lefroy Goldfield of 1.3Moz Au was established. These reports eventuated from the initial findings by SRK Consulting stating that there is no reason to suppose that mineralisation does not continue down-dip from the historically mined workings.

With this in mind, it is encouraged that LEF continues its exploration efforts at the Lefroy Goldfield and surrounding areas in an attempt to further develop the gold mineralisation model and subsequently successfully define future targets and likely resources.

10.0 EXPENDITURE

Expenditure at EL35/2001, EL2/2002, EL39/2004, EL12/2006, EL13/2006, EL43/2003, EL44/2003 and EL45/2003 during the year July 2005 to June 2006 was as follows:

Table 5. Lefroy Project Area Expenditure.

EXPENDITURE	AMOUNT
GIS & Data	$ 86,637
Field Work (Mapping, Geochemistry, Surveying, Analysis)	$ 144,726
Geophysics (Reprocessing)	$ 5,991
Drilling (RC & Diamond)	$ 862,355
Resource Estimation Work / Feasibility Studies	$ 97,615
Administration / General Exploration	$ 548,961
TOTAL	**$1,746,285**

11.0 REFERENCES

Bacon, C.A., 1996	Mining Heritage Guidelines for use by MRT staff: Re-opening, reworking or exploring a previously worked deposit, *Tasmania Geological Survey Record 1996/02*.
Baxter, J. and Fulton, R., 2006	Lefroy Project Area; Structural Geology Review Lefroy Goldfield Based on Pinafore Drilling, Surface Mapping and Historical Work, *Lefroy Resources Ltd., Perth*.
Baxter, J., 2006	Lefroy Project Area; An Upgrade of the Structural Geology of the Lefroy Goldfield based on a review of surface mapping (May, 2006) and Historical Work, *Lefroy Resources Ltd., Perth.*
Baxter, J. and Keele, R., 2004	Structural Control of Mineralisation based on Geological Reports and Aeromagnetics covering the Lefroy Goldfield, Tasmania (WA04/038), *Continental Resource Management, Perth.*
Bottrill, R.S., Taheri, J. and Keele, R.A., 1994	A Field Guide to Deposits in northeastern Tasmania, MRT Report 1994/19, *Mineral Resources Tasmania, Hobart.*
Broadbent, G., 1982	Pipers River EL53/80 Geological Report, MRT Report 83_1955, *Mineral Resources Tasmania, Hobart.*
Coroneos, C., 1993	A poor man's diggings; An archaeological survey of the Lisle-Denison Goldfield.
Cromer, W.C.,1986	EL32/85, Lisle-Golconda area North East Tasmania. Annual Report, year 1 (to 10/12/86), *Argyle Minerals NL (TCR87-2629).*
Cromer, W.C., 1987a,b	EL32/85, Lisle Golconda area North East Tasmania. Annual Report, year 1, *Argyle Minerals NL (TCR87-2629 and TCR87-2737).*
Purvis, J., 1998	Annual Report – Lefroy EL 1/95, Lefroy Joint Venture, *Lefroy Gold Mines, Tasmania.*
Randell, J.P., 1991	EL6/90 – Lisle. Final Exploration Report (TCR91-3296), *Billiton Australia.*
Reed, A., 2002	Formation of Lode-style gold mineralisation during Tabberabberan wrench faulting at Lefroy, eastern Tasmania, *Aust. J. of Earth Sciences.*
Reed, A., 2004	Gold Mineralisation and the Regional Palaeozoic Structure of the Mathinna Supergroup, eastern Tasmania. Tasmanian Geological Survey Record 2004/01, *Mineral Resources Tasmania, Hobart.*
Reid, A.M., 1926	The Golconda Mining District, (GSB37), *Mineral Resources Tasmania, Hobart.*
Russell, D.W. and van Moort, J.C., 2003	Lefroy and Beaconsfield Gold Mines, Tamar region, Tasmania; *CRC LME*.

12.0 KEYWORDS

Lefroy	Stoney Head Sandstone	Inferred Resource
Pinafore	Native Youth	Exploration Potential Resource
Volunteer	Chum	Stoney Head Sandstone
Drilling	Structural model	Turquoise Bluff Slate
Mathinna Group	Metallurgy	

APPENDIX A

Structural Geology Review
Lefroy Goldfield
Based on Pinafore Drilling,
Surface Mapping and
Historical Work

Baxter, J. and Fulton, R., 2006

APPENDIX B.

LEFROY PROJECT AREA
An Upgrade of the Structural Geology of
the Lefroy Goldfield based on a review of
Surface Mapping (May, 2006) and
Historical Work

Baxter, J., 2006

APPENDIX C.

Pinafore Gold Mine Site Heritage Assessment,
Lefroy, Tasmania

Vines, G., 2006

APPENDIX D.

Native Youth Gold Mine Site,
Heritage Assessment,
Lefroy, Tasmania

Vines, G., 2006.

APPENDIX E.

Digital Data

(Supplied on accompanying CD-ROM)

Includes:

Original data

Geophysical Images

Geological Logging Codes

Copies of all maps and reports