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**PARTIAL SURRENDER REPORT  
OF  
STORMONT EL 20/92  
FOR  
JERVOIS MINING N.L.**

**AUGUST 2002**

## **SUMMARY**

The Stormont EL20/92 was granted in September 1992 to Goldstream Mining N.L. Jervois Mining N.L. acquired the tenement in August 1999 after the five year statutory reduction of the area from 25 square kilometres to 12.5 square kilometres. The tenement is due to expire on 11<sup>th</sup> September 2002.

Jervois have applied to extend the Exploration Licence over an area of two square kilometres covering the Stormont Mine where diamond drilling has outlined a resource of gold and bismuth. The surrender of the remaining 10.5 square kilometres is the subject of this report.

Exploration of this area has included a helicopter-borne magnetic survey in 1996 and a helicopter-borne electromagnetic survey in 2002. Diamond drilling has been conducted at the Ti Tree Creek skarn where five holes were completed for 188 metres. Results were disappointing, with the best intersection being 1m @ 1.32 g/t Au and 0.18% Bi.

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\* In digital format only - not in hard copy

## **INTRODUCTION**

The Stormont EL 20/92 covered originally 25 square kilometres and, for the past five years, 12.5 square kilometres in the Moina district, an area renowned for its mineralised skarn deposits.

During the term of EL20/92, field work has included regional airborne magnetic and electromagnetic surveys, drilling of five cored holes at Ti Tree Creek and 36 at Stormont. The company, Jervois Mining N.L., has applied to retain two square kilometres over the Stormont area where a gold/bismuth resource has been outlined.

This report details the results of exploration within the 10.5 square kilometre remainder of the tenement.

## **TENEMENT**

The original tenement covered 25 square kilometres when it was granted to Goldstream Mining N.L. on 11 September 1992. Goldstream explored the EL in a joint venture with Titan Resources N.L.

In September 1997, Goldstream made a statutory reduction of the licence area by relinquishing the eastern 50%. The remaining part of EL 20/92 was acquired from Goldstream/Titan by Jervois Mining N.L. on 24<sup>th</sup> August 1999, the consideration being a 2% gross production royalty.

The tenement is due to expire on 11<sup>th</sup> September 2002. Jervois has applied to retain two square kilometres over the Stormont Mine area where resources have been defined.

## **GEOLOGY**

EL 20/92 covers Ordovician Denison Group and Gordon Group sediments intruded by the shallowly buried Devonian Dolcoath Granite. Tertiary basalt and sediments cover more than 50% of the licence, but drilling shows that much of this cover is less than 20m thick. Most of the basalt appears magnetically 'transparent'.

Cambrian dacitic Mt. Read Volcanics outcrop along the southern edge of the EL, and are known from drilling and magnetics to underlie the Ordovician sediments in the NW part of the tenement. Volcanic remnants probably underlie the sediments in other places where they may have escaped destruction by the intruding granite.

Within the licence area the Ordovician comprises a restricted basal unit of siliciclastic conglomerate, a thick middle unit of quartzose sandstone (Moina Sandstone) and an upper unit of limestone (Gordon Limestone). Between the Moina Sandstone and Gordon Limestone, the 'Transition Beds' comprise mainly calcareous siltstone with lesser intercalated calcareous sandstone and limestone.

The Dolcoath Granite is a medium to coarse grained alkali-feldspar I-type granite. It does not outcrop on the EL but has been intersected 200m below surface in drillholes at Moina near the tenement's eastern end. The granite outcrops two kilometres further east on EL 37/97. Gravity data indicates this outcrop lies at the eastern end of a

shallowly buried E-W trending granite crest, that slopes gently west and directly underlies both licences at depths mostly <500m.

The intrusion has extensively altered and mineralised the adjacent Ordovician sediments. Mineralisation comprises gold, bismuth, zinc, fluorine, tin and tungsten, with lesser amounts of lead, silver and molybdenum. Styles range from veins and lodes to massive or disseminated stratiform bodies.

The basal section of the limestone and parts of the 'Transition Beds' have been converted to various unmineralised and mineralised skarn facies. These include chlorite-magnetite-sulphide skarn, pyroxene/amphibole-garnet skarn, and the finely and irregularly banded magnetite-fluorite skarn or "wrigglite", which forms the huge stratiform Moina fluorite deposit and for which the area is particularly noted.

On EL 20/92 skarns are largely preserved in NW-trending synclines, having been eroded in the pre-Tertiary off anticlinal folds and other uplifted areas. Known occurrences of stronger mineralisation within the skarns, at Stormont Mine, Ti Tree Creek and Fletchers Adit, are associated with NW-trending thrust faults.

There is also widespread silica-biotite alteration and mineralisation in the Moina Sandstone. Only minor mineralisation is known within the sandstone on EL 20/92 but to the east on RL 8810 and EL 37/97 it is significant, including tin-tungsten bearing veins (eg: Shepherd and Murphy Mine at Moina) and auriferous stratiform sulphide bodies (eg: Higgs Deposit at Narrawa Creek). The effects are most common in the upper sections of the sandstone where it was apparently partly calcareous.

## **PREVIOUS EXPLORATION AND MINING**

The Moina district has had a long history of small-scale mining and prospecting commencing in the 1890's and continuing intermittently until the 1980's. However, within EL 20/92 historic operations were minor.

Largest was the Stormont Mine, where a 40m long and 8m deep open-cut with 40m long adit were excavated in a body of mineralised skarn between 1928-34. The mine produced 6.3t of bismuth concentrate containing 63% bismuth and 91 oz of gold.

A similar but more weakly mineralised Au-Bi skarn was prospected at Fletchers Adit on the south bank of the Lea River 1km NE of Stormont Mine. There is no record of production from Fletchers.

Alluvial gold was worked in the Lea River downstream of the Stormont Mine and Fletchers Adit occurrences. Hard rock gold, hosted by thin quartz veins in a fault in Ordovician sandstone with conglomerate bands, was prospected by shafts 15m deep at the Stormont Gold Mine on the northern slopes of Mt. Stormont. Again, there is no record of production.

There is no record or visible sign of historic prospecting in the Ti Tree Creek skarn.

Modern large-scale systematic exploration of the EL 20/92 area was initiated by Mt Lyell Co. in 1965. After an aeromagnetic survey, they cut a grid extending from the

Lea River to the Cradle Mountain Road. They followed up with detailed grids over the skarns at Ti Tree Creek and the Stormont Mine - Fletchers Adit area.

Magnetic and bismuth-in-soil anomalies delineated over the Ti Tree Creek skarn were investigated by 700m of costeaning and two test lines of pole-dipole IP. IP anomalies and costean rock chip intersections up to 10m @ 0.48% Bi were obtained. Drilling was recommended but not done.

In the Stormont Mine - Fletchers Adit area Mt Lyell undertook soil sampling and gradient array IP. They delineated a large skarn with modest bismuth-in-soil and IP anomalies north of the Lea River opposite Fletchers Adit, but did no drilling. No further work was done at Stormont Mine because their estimate for the mineralised skarn body (250,000 tonnes) was regarded as too small. Mt Lyell withdrew in 1972.

In 1972-73 the Department of Mines drilled two holes into the Ti Tree Creek skarn. DOM2 (101m) intersected 15m of skarn at surface with a best interval of 3.2 @ 0.19% Bi & 'trace' Au. DOM3 (95m) intersected 13m of skarn and calc-silicate under 10m of Tertiary basalt, for a best result of 1m @ 0.11% Sn.

From 1974-79 the licence area was part of a major exploration effort by Comalco, who discovered and drilled out the Moina Deposit (26 million tonnes @ 18% CaF<sub>2</sub>).

They searched the surroundings for similar mineralisation, gridding almost the entire area at 50m spacing and carrying out mapping, soil sampling, magnetics, some IP and drilling.

At Ti Tree Creek, Comalco determined the DOM2 skarn contained up to 5.6% F. Chip sampling of outcropping magnetite-pyrite skarn returned values up to 0.65 g/t Au over 4m. They drilled hole SMD31 (41m) to test a magnetic peak, intersecting 7m of magnetite skarn with low values: 0.15 g/t Au & 1% F. They did a gradient array IP survey over Stormont Mine and Fletchers Adit which indicated skarn extensions SW of Stormont, and east and west of Fletchers. However, they did no drilling at either prospect.

On the Tertiary-covered lowlands, 1km north east of Ti Tree Creek, Comalco drilled three holes within EL 20/92. SMD17 (5406800mN / 421550mE), SMD20 (5406480mN / 421960mE) and SMD23 (5406060mN / 421970mE). Mines Department's 1972 hole DOM1 was sited on the EL / RL boundary at 5406850mN / 422000mE.

SMD17 (74m) and SMD23 (37m) tested magnetic anomalies. Both intersected wriggilite (magnetite-fluorite skarn) averaging 10.7% CaF<sub>2</sub>: 17m in SMD17 and 21m in SMD23, but no gold. SMD20's target MIP anomaly proved to be clay-filled limestone caverns, but 16m of calc-silicate under the limestone was not assayed.

DOM1, a 325m vertical stratigraphic hole, intersected the thickest limestone section at Moina at 21-179m downhole. The basal 9m of the limestone comprised calc-silicate skarn and minor wriggilite, containing 0.5m @ 8% F, 0.13% Bi and 'trace' Au.

Comalco was followed on the Moina project by two JV partners, Shell and CRA. CRA reassayed most of the Comalco holes for gold, concentrating on those in and around

the Moina deposit. They confirm the higher gold values in the Hugo skarn and showed the eastern part of the Moina Deposit contained irregular spotty values of 0.2-0.4 g/t Au.

In 1981, Shell drilled LGD1 (254m) at 5407500mN / 420650mE within EL 20/92, to test a coincident magnetic / gravity anomaly on the Moina Sandstone ridge west of Lake Gairdner. Below 101m the hole was in magnetite-veined Mt Read Volcanics. It was devoid of mineralisation.

In 1983, Gold Fields Exploration took up the Stormont area after it was dropped by the Comalco JV. GFEL's target was gold and they determined all streams draining north from Mt. Stormont were anomalous in gold. Channel sampling of the old workings at Stormont Mine returned values up to 42m @ 9.56 g/t Au & 0.5% Bi. Sampling of the final face in the adit, showed the old miners stopped in ore grading 36.5 g/t Au and 1.1% Bi!

From 1988 to 1990 GFEL drilled 21 holes at Stormont Mine and 9 near Fletchers Adit. The most significant intersections were in the Stormont skarn; 13m @ 4.1 g/t Au, 0.46% Bi (SD1); 2.1m @ 12.8 g/t Au, 0.35% Bi (SD3) and 5.4m @ 2.5 g/t Au, 0.1% Bi (SD10).

At Fletchers the holes were all north of the Lea River and outlined a large area of weakly auriferous skarn mostly beneath thin Tertiary basalt. Best intersection was 2m @ 1.5 g/t Au in FD7. One hundred metres away, the northern most hole (FD8) had a 35m gold anomalous section with 21m assaying 0.3 g/t Au.

Despite the encouraging drill results GFEL withdrew in 1991.

In the five years Goldstream-Titan had EI 20/92, the exclusive focus of groundwork on the licence was drilling at Stormont Mine.

The only work done by Goldstream-Titan on the EL outside Stormont was a high-resolution helicopter-borne aeromagnetic survey of the whole 25 square kilometre tenement in 1996.

They also drilled the Hugo Skarn (Zn-Au-Bi) on RL 8810, where they had a JV from 1993-97 with the present owners, RTZ and AngloGold Ltd.

In 1999-2000, Jervois drilled 5 short vertical diamond drillholes (TC01-05) totalling 188m at the Ti Tree Creek skarn testing geological and geophysical targets. Best intersections were 1 metre @ 1.32 g/t Au in TC04 and 1 metre @ 1.2 g/t Au in TC05.

## **WORK COMPLETED AND RESULTS**

### **1. Regional**

In 1996, Goldstream/Titan commissioned a high-resolution helicopter-borne aeromagnetic survey of the whole 25 square kilometres of the tenement (as it was then).

In 2002, a helicopter-borne electromagnetic survey, originally commissioned in 2000, was finally flown over the 12.5 square kilometres of EL 20/92 and the adjoining 12.5 square kilometres of EL 37/97 also owned by Jervois Mining N.L.

## **2. Drilling at Ti Tree Creek**

A review of the data suggested this area of skarn had received insufficient testing by previous explorers - Mt Lyell, Department of Mines and Comalco.

As can be seen on the accompanying plan, there are two prominent parallel NW-trending magnetic anomalies. These are flanked to the south by a smaller anomaly associated with an area of high magnetic gradient. The latter occurs over outcropping auriferous magnetite-pyrite skarn adjacent to a NW-trending thrust fault.

Only two holes had tested these targets. The NW peak of the main (central) anomaly had been drilled by Comalco with SMD31 (41m) intersecting 7m of magnetite skarn with a maximum of 0.15 g/t Au. The small southern anomaly had been drilled by DOM2, intersecting 12m of magnetite-sulphide skarn containing 3.2m @ 0.19% Bi and 'trace' Au.

Left untested had been the northern anomaly, the SE peak of the main anomaly and the area of outcropping magnetite-pyrite skarn. The latter was where Comalco had obtained values up to 0.65 g/t Au in chip sampling and their peak Bi-in-soil value of 1990 ppm. No attempt had been made to test the best of the IP anomalies discovered by Mt Lyell's reconnaissance survey.

Five short vertical diamond drillholes, TC01-05 totaling 188m, were put down in January-February 2000 to test all these targets. Results were disappointing, with the best intersection being 1m @ 1.32 g/t Au & 0.18% Bi in TC04.

The hole locations and the drill sections are shown on the accompanying plans and the drill logs appear in the Appendix .

Holes TC01 and TC02 were aimed at the strongest of the IP responses: two separate anomalies 90m apart. The holes encountered a near-horizontal 10-12m thick band of barren epidote-gamet skarn, underlain by a thinner band of chlorite-magnetite-pyrite/pyrrhotite skarn.

In TC01 this lower band was 5.3m thick and contained 3m @ 0.21 g/t Au. In TC02 the band was thinner at 1.3m and essentially barren (0.03 g/t Au). While the sulphides in TC01 were possibly sufficient to cause an IP anomaly, this does not appear to be the case in TC02.

#### Summary Logs:

<b>TC01:</b>	5406144mN / 420888mE (838S / 1264W, Comalco grid)	
0 - 2.4m:	Alluvium	
2.4 - 12.25m:	Garnet-epidote skarn	
12.25 - 17.55m:	Chlorite-magnetite skarn	Semi-massive mag>po-py
17.55 - 22.75m:	Skarn & hornfels	3% mag>po-py

22.75 - 33.5m: Silicified quartz sandstone  
33.5 - 36.7m: Hornfels & skarn  
36.7 - 46.4m: Altered siltstone & sandstone

EOH

**TC02:** 5406116mN / 420974mE (845S / 1175W, Comalco grid)

0 – 9.2m: Tertiary basalt & sediments 40cm lignite 8.4-8.8m

9.2 - 20.8m: Epidote-garnet skarn

20.8 - 22.1m: Chlorite-magnetite skarn 10-15% mag>>py

22.1 - 23.2m: Fractured calc-silicate

23.2 - 31.85m: Faulted quartz sandstone

31.85 - 43.4m: Altered siltstone & sandstone

EOH

TC03 was designed to test the northern magnetic anomaly. The hole was entirely in altered Moina Sandstone devoid of mineralisation or magnetic material. This is not the unit in which a magnetic anomaly would be expected, being stratigraphically lower than the skarn horizon which here has been removed by erosion.

Although the Comalco grid pegs were relocated and TC03 accurately sited in relation to them, it seems the ground magnetic data may have been misplotted on the old Comalco maps. The 1996 Goldstream aeromagnetics suggest the magnetic peak is actually on the next gridline 50m to the west.

The northern magnetic anomaly thus remains untested.

Summary Log:

**TC03** 5406375mN / 420957mE (600S / 1250W, Comalco grid)

0 - 2.8m: Siltstone

2.8 - 28.9m: Altered silicified quartz sandstone 1-3% py>-po

EOH

TC04 was sited directly on outcropping pyritic magnetite skarn. Massive and semi-massive magnetite-pyrite-pyrrhotite skarn extended to 8.75m. This passed directly into silicified and fractured Moina Sandstone that continued to the end of the hole at 29.8m.

The top 1m of the hole assayed 1.32 g/t Au & 0.18% Bi, part of a 5m interval assaying 0.56 g/t Au & 0.13% Bi. The mineralisation also contained up to 0.15% Sn and 0.2% Cu.

A major fault at 24-26m downhole was almost certainly the down-dip continuation of the NW-trending thrust extending along the SW side of the mineralised skarn outcrop. The close spatial relationship of better Au-Bi mineralisation with a NW-trending thrust is analogous to the situation at Stormont Mine.

Summary Log:

**TC04** 5406072mN / 420786mE (930S / 1345W, Comalco grid)

0 - 4.9m:	Massive magnetite-sulphide skarn	massive mag-po-py
4.9 - 8.75m:	Sulphidic skarn	25% po-py-mag
8.75 - 18.3m:	Silicified quartz sandstone	minor to 2% py
18.3 - 24.3m:	Fractured siltstone & hornfels	2-3% py below 21.3m
24.3 - 25.8m:	Strong fault	2% py
25.8 - 29.8m:	Biotitized sandstone & siltstone	1% py

EOH

TC05 tested the SE peak of the main magnetic anomaly. Under 9m of Tertiary basalt the hole encountered 4m of garnetiferous skarn underlain by 7m of massive pyrrhotite-magnetite skarn.

The latter was clearly the source of the magnetic response and contained a 1m section assaying 1.2 g/t Au. Chloritic and siliceous skarn with patchy magnetite-pyrite continued to a strong fault at 24-25m, below which the hole passed into silicified quartz sandstone.

The mineralisation in TC05 is stronger than that in Comalco hole SMD31, 115m further to the NW and which tested the larger NW peak of the magnetic anomaly.

Summary Log:

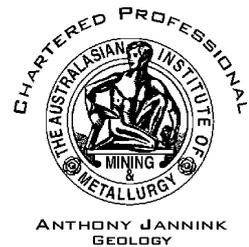
**TC05:** 5406234mN / 420873mE (755S / 1300W, Comalco grid)

0 - 9.05m: Tertiary basalt

9.05 - 12.75m: Garnetiferous skarn

12.75 - 19.75m:	Massive pyrrhotite-magnetite skarn	massive po-mag minor py
19.75 - 21.65m:	Chlorite skarn	5% mag>py-po
21.65 - 26.1m:	Siliceous sandy skarn	pyritic fault 24.3-25.25m
26.1 – 36.25m:	Quartz sandstone & siltstone	1-2% py
36.25 - 39.3m:	Chlorite skarn & biotite hornfels	2% py

EOH



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