

D003-4

# **FINAL REPORT**

**EL9/2005**

**RED HILLS**

**For Period 1<sup>st</sup> July 2005 – 30<sup>th</sup> June 2008**

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## DIGITAL FILES

EL9\_2005\_200806\_01\_Report.pdf  
(Report Text & Figures 1 & 2)

EL9\_2005\_200806\_02\_File Verification.txt  
(File Verification Listing)

## SUMMARY

Newcrest Mining Limited commenced exploration for gold rich deposits at Red Hills, on being granted EL9/2005 on the 1<sup>st</sup> July 2005. The tenement encompasses 8 km<sup>2</sup> of prospective Mount Read Volcanics approximately 1 km to the east of the Henty gold mine.

Two main mineralisation styles have been previously explored for in the Red Hills area.

1. Stratabound gold rich polymetallic VHMS associated with black shales and volcanogenic siltstones hosted by coarse to fine grained, feldspar and feldspar-quartz pyritic clastics.
2. Chlorite-hematite-K feldspar-pyrite chalcopyrite vein stockworks in massive rhyolites-dacites.

Newcrest's exploration strategy was to drill test for deeper extensions of the gold rich polymetallic horizons, test the copper dominated stockwork zone and also to re-assess the potential of the area for Henty style mineralisation.

Initial exploration focused on drilling underneath known anomalous stratigraphy, which had been tested by previous exploration companies at only relatively shallow levels. Two diamond drill holes, (NCT006 – NCT007) were completed for 1,511 m. Programs of soils and rock chips sampling together with reconnaissance geological mapping were also completed.

In the second year of exploration (June 2006 - July 2007) a further two diamond drill holes, (NCT009 – NCT010) were completed for 1,099.7 m along with additional soil and rockchip sampling.

In late 2007 Newcrest undertook a restructure of corporate management and revised exploration strategy. As a consequence Newcrest has ceased exploration work in Tasmania. Efforts to locate a suitable joint venture partner to continue the exploration effort failed, so the tenement is to be totally relinquished.

## KEY WORDS

Exploration; Gold; Copper; Diamond Drilling; Henty; Mount Read Volcanics; Selina 3836.

# 1 INTRODUCTION

Newcrest Mining Limited explored for gold rich deposits in the Mount Read Volcanics. This is the final report for EL5/2005 for the period 1<sup>st</sup> July 2005 to 30<sup>th</sup> June 2008 as Newcrest is to relinquish the tenement.

## 1.1 TITLE

### Tenement

EL9/2005 was granted on the 1<sup>st</sup> July 2005 to Newcrest Operations Limited for five years to 30<sup>th</sup> June 2010. The area was most recently held as EL29/94 by AurionGold Exploration (and predecessors) and Homestake Exploration.

### Location

The tenement covers an area of 8 square kilometres over parts of the West Coast Range immediately south of Mt Murchison and down to Lake Westwood. Refer to Figure 1 for location. Most of the tenement falls within Crown Land. The northern end of the tenement lies within the Mt Murchison Regional Reserve (north of approximately 5366380N MGA).

Topographic map sheets covering the area are listed below.

**1:250,000 TASMANIA TOPOGRAPHIC MAPS**  
QUEENSTOWN SK5505

**1:25,000 TASMANIA TOPOGRAPHIC MAPS**  
SELINA 3836

### Datum

All MGA (Map Grid Australia) references are to GDA94\_Zone 55.



## 2 PREVIOUS EXPLORATION

Previous exploration was summarised in the First Annual Report for EL9/2005 for the period 1<sup>st</sup> July 2005 to 30<sup>th</sup> May 2006.

In summary, the EL has been explored by the following.

- Extensive phases of geological mapping.
- Airborne geophysics (magnetics, radiometrics, EM).
- Various phases of stream, rock, soil and old workings geochemistry.
- Various phases of mostly analogue-era ground geophysics (ground magnetics, IP, old EM methods).
- Large grids of blanket-coverage fixed-loop and moving loop EM.
- Drilling of twenty six percussion holes and thirty one diamond drill holes.

## 3 EXPLORATION STRATEGY

### Target

The primary exploration target was a Henty style gold deposit. However, exploration tools used could potentially find any one of a range of gold rich polymetallic deposits of the style that occur in the Mount Read Volcanics. Newcrest chose to focus on deeper drilling of previously defined shallowly tested targets.

Mineralised systems are often centralised within a much wider, though possibly structurally deformed alteration envelope and these can be detected by geological mapping, geochemistry or geophysics. Common features of Mount Read Volcanic style gold rich deposits that help define drill targets include the following.

1. Deposits tend to be hosted near the top of the Central Volcanic Complex (CVC) stratigraphy and/or base of the Tyndall Group.
2. Adjacent to major Cambrian structures that form boundaries to packages of CVC.
3. Alteration envelopes commonly of silica-sericite-pyrite±chlorite and/or chlorite-quartz-pyrite-sericite±carbonate, strongly deformed into schists.
4. Pods of polymetallic massive sulphides, cherts or silica associated with and/or adjacent to mineralisation.
5. Anomalous gold, copper, lead, zinc, barium, manganese elements and minerals such as magnetite.
6. Chargeable and resistive geophysical anomalies.

## Geological Setting and Exploration Strategy

The Red Hills tenement is located on the western side of a north trending anticline of Central Volcanic Complex (CVC) rhyolites and andesites. The CVC consists of a core of massive pink weathering rhyolites-dacites overlapped to the west by a sequence of steeply west dipping feldspar and feldspar-quartz phyrlic coarse to fine grained clastics including a unit of black shales and fine grained volcanoclastic siltstone. Semi-massive gold rich polymetallic sulphides occur at the lower contact of the main shale horizon. Further to the west again, Tyndall quartz-feldspar phyrlic volcanoclastics occur. On the north, east, south and west margins of the tenement, CVC and Tyndall Group rocks are covered by Owen Conglomerate siliclastics.

The main two mineralisation styles that have been explored for in the Red Hills area are as follows.

1. Stratabound gold rich polymetallic VHMS associated with the black shales and volcanogenic siltstones.
2. Chlorite-hematite-K feldspar-pyrite chalcopyrite vein stockwork in the massive rhyolites-dacites.

The spatial relationships of the two forms of mineralisation suggest that the chlorite-hematite-K feldspar stockwork is a footwall stringer zone to the VHMS style mineralisation. An alternate interpretation is that they are not directly related and the stockwork mineralisation is the upper part of a porphyry style alteration system.

Three kilometers strike length of stratigraphy prospective for gold rich polymetallic VHMS have been tested by previous exploration generally down to 300 – 400 m with maximum depths of exploration around 700 m below the ground surface.

Newcrest reviewed previous exploration and identified a potential for the stratabound polymetallic mineralisation to continue at depth below discovery hole RH5 or/and south of drill hole RH22.

## 4 WORK COMPLETED 2005-2006 REPORTING PERIOD

Work completed included the following.

1. Rock chip sampling (28 samples), focussed on two traverses along the approximate surface projection of Newcrest's cored holes.
2. Soil sampling(46 samples) on three traverses across the potentially prospective contact between the Tyndal Group and Central Volcanic Complex.
3. Scan logging of previous cored holes RH5, RH6R, RH7 RH8, RH16.

4. Drilled two cored holes – NCT006 and NCT007. These holes were designed to test for gold – base metal horizons within volcanoclastics of the CVC approximately 400 - 500 m below the surface, close to the interpreted coherent Red Hills lava contact.

**TABLE 1**  
**Drill Hole Locations**  
(\* GDA 1994/ 55 MGA)

Hole	East-MGA*	North-MGA*	RL	Depth
NCT006	381982	5365175	770	792.1
NCT007	382062	5365384	810	718.9

**Figure 2** shows the location of drilling.

The best results for the two cored holes are summarised below.

NCT006: The best gold anomalous zone contains 2 m @ 0.70 g/t Au, 0.17% Cu, 800 ppm Pb, 185 ppm Zn and 90 ppm As (666 – 668 m). The hole ended with 6 m (from 786 m) of 0.10 g/t Au and 0.49% Cu in the massive rhyolite-dacite lavas and breccias.

NCT007: The best gold zone is of 8 m @ 0.30 g/t Au including 2 m with 0.71 g/t Au from 516 m to 524 m. This zone was logged as a breccia zone with 0.5 % - 1 % carbonate-chlorite vein-hosted pyrite, chalcopyrite and galena, as well as disseminated pyrite. The best copper zone is 16 m with 0.07 g/t Au, 0.3 % Cu, from 624 to 640 m including 4 m @ 0.14 g/t Au, 0.75 % Cu, from 626 to 630 m. This zone relates to the approximate contact with the Red Hills lava, and associated with 0.5% to 1% disseminated and vein hosted chalcopyrite.

## 5 WORK COMPLETED 2006-2007 REPORTING PERIOD

Work completed included the following.

1. Reconnaissance rock chip sampling completed in the vicinity of a low resistivity – chargeability high IP anomaly identified by The Mount Lyell Mining and Railway Company in 1973 (location approximately 381840mE, 5363900mN). A total of 12 samples were collected.
2. A total of 22 rock chip samples were collected along strike of the fine grained tuff/shale sequence within the Red Hills Basin. Samples were collected primarily for thallium and antimony analysis, to assist with defining a halo to vector towards a polymetallic exhalative horizon. The program was designed to compliment 225 core samples taken from potential exhalative horizons in four historic Red Hills drill holes and also analysed for thallium and antimony.

3. Four historic Red Hills holes was sampled in part for Sb and Tl analysis (plus the standard suite of Au, Cu, Pb, Zn, Ag, As, S, Ba ) to vector to potential south plunging mineralisation. A total of 225 dominantly 2m composite samples were collected for assay. All samples returned values below the detection limit for gold (<0.01 ppm). Base metals results were also generally poor. However, thallium and to a lesser extent antimony results did display an apparent vectoring north towards the gold-rich polymetallic horizon intersected in RH5.
4. A total of 73 soil samples were taken from five pre-established gridlines across the potentially prospective contact between the Tyndal Group and Central Volcanic Complex.
5. A two-hole, core drilling program was completed. The holes were NCT009 and NCT010.

**TABLE 2**  
**Drill Hole Locations**  
(\* GDA 1994/ 55 MGA)

Hole	East-MGA*	North-MGA*	RL	Depth
NCT009	382743	5365357	893	506.4
NCT010	382132	5363954	639	593.3

The aim of the hole NCT009 was to test the gold – copper-rich footwall stringer mineralisation hosted within the ‘Red Hills Lava’ of the CVC at Red Hills.

One metre half drill core samples from NCT009 were submitted to Amdel to be analysed for Au, Cu, Pb, Zn, Ag, As, Ba, S, Fe, Mg, Mo, Ni, Sn, W, Bi, Cr, Sb, Tl, Te and V.

The best copper anomalous zone in NCT009 contains 4m @ 0.12% Cu, (123 – 127 m) and 5m @ 0.20% Cu, (136-141 m) and occurs within a broad envelope of structurally controlled silica-albite-sericite alteration between 115.8-152m.

Cored hole NCT010 was drilled in the southern part of the Red Hills Basin with the aim of testing the interpreted down-plunge position of the polymetallic gold-rich horizon intersected in historic drill hole RH5.

Samples drill hole NCT010 sent to the Australian Laboratory Group (ALS) and were analysed for Au, Cu, Pb, Zn, Ag, As, Ba, S, Fe, Mo, Ni, Bi, Cd, Co, Sb and Tl.

NCT010 intersected several intervals of anomalous base metals;

8 m (from 193) @ 0.27% Zn, 0.15% Pb.

22 m (from 203) @ 0.14% Zn, 0.09% Pb.

14 m (from 325) @ 0.36% Zn, 0.21% Pb.

20 m (from 367) @ 0.70% Zn, 0.43% Pb.

11 m (from 393) @ 0.69% Zn, 0.25% Pb, and 0.19% Cu.

This last intersection included a 1m interval of coarsely banded polymetallic sphalerite-chalcopyrite-galena-pyrrhotite-pyrite±bornite returning 1m @ 4.74% Zn, 2.09% Pb, 1.77% Cu, 53.4 g/t Ag and 0.06 g/t Au.

## 6 WORK COMPLETED 2007-2008 REPORTING PERIOD

No exploration field work was completed on EL9/2005 during the third year of tenure, due to changes in Newcrest Mining Limited's corporate philosophy and exploration strategy. Work focussed on securing a suitable joint venture to continue the exploration efforts at Red Hills.

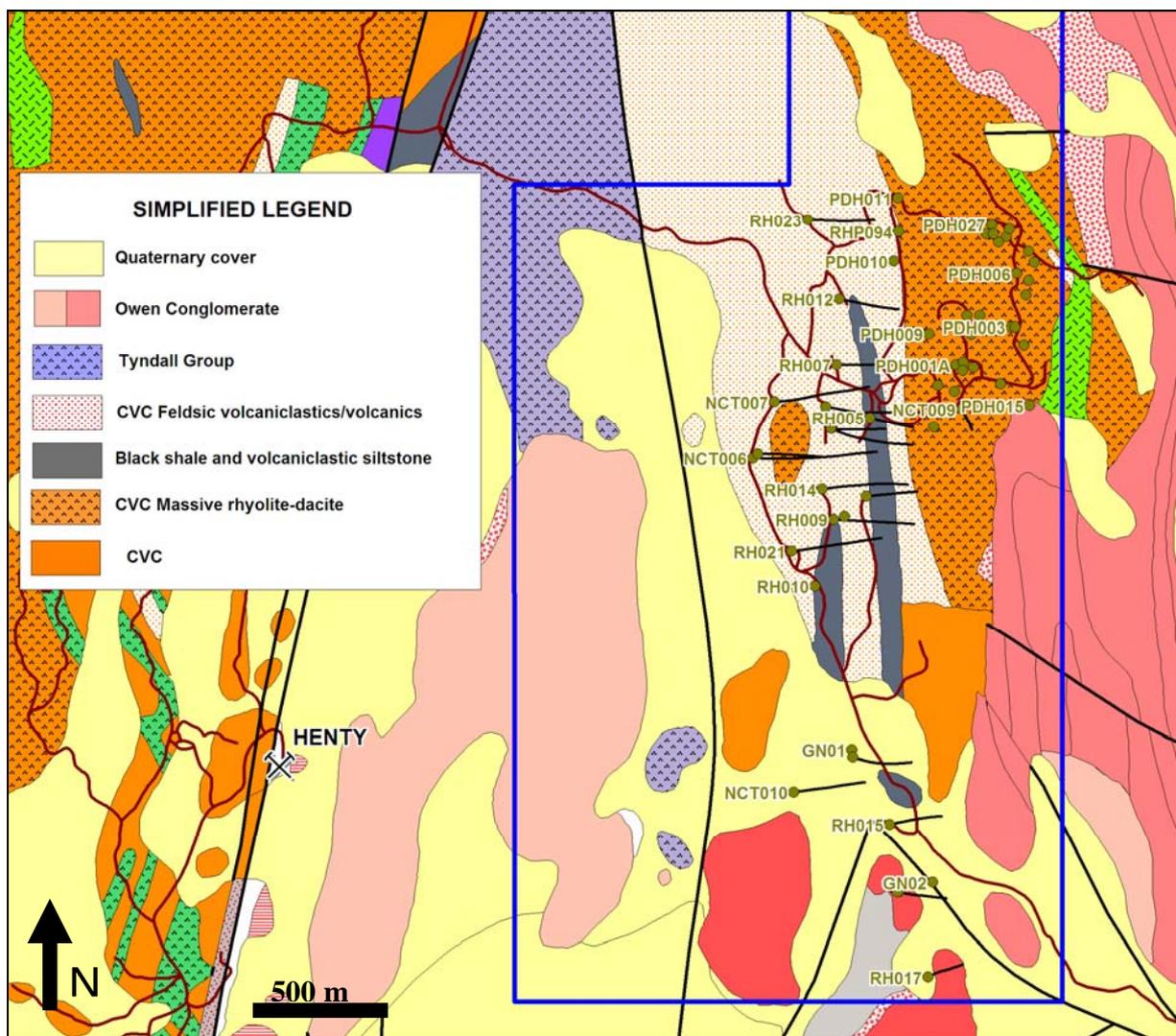


Figure 2: Red Hills tenement geology and drill hole locations.

## 7 ENVIRONMENT

Existing vehicular tracks were used during all drill programs.

Drill pads for NCT006 and NCT007 were created on the edges of an established track where topography allowed, with the aim of minimising vegetation clearance. Some soil disturbance was necessary to prepare a level surface on the track for the rigs and in digging of the sumps just off the edges of the track.

Rehabilitation of these two sites involving filling in sumps, returning the soil to roughly to original contours shape and covering with previously set aside cut vegetation from the site. Refer to photos 1 and 2.



*Photo 1: Freshly rehabilitated site of NCT006, 2006*



*Photo 1: Freshly rehabilitated site of NCT007, 2006*

The drill pad for drillhole NCT009 required some excavation work to produce a flat area and in-ground sumps. The process involved an excavator lifting the top soil to one side, creating the drill pad and in ground sumps, and cutting drainage channels along adjacent existing tracks to minimise erosion.

The NCT009 drill pad was rehabilitated using an excavator to return them as near as possible to their natural appearance, including leaving a 'lumpy' surface to minimise erosion and runoff.

A 300m walking track, constructed off a pre-existing vehicle access track, was prepared by Rogers Exploration Services across button grass moorland to provide field personnel access to the NCT010 drill site by foot. Minimal clearing of button grass moorland was also completed to provide a clear and level working drill pad for NCT010.

All drillholes were plugged at 18-20m below the collar with a Van Ruth type drillable plug, and back filled with cement. Inspections of the drill sites after drilling were conducted to ensure the hole is properly sealed and capped and the site cleaned up.

All the areas worked in were treated as if not contaminated by '*Phytophthora*' so all boots and gaiters were washed before going to a new area/ and at the end of each day. All new timbers were used as base plates, and the rig and associated equipment washed down prior to moving to onto site.

## 8 EXPENDITURE

### EXPENDITURE EL9/2005 RED HILLS PROJECT

For Period 1<sup>st</sup> July 2007 – 30<sup>th</sup> June 2008

ITEM	EXPENDITURE
SALARIES	\$5,593
FIELD COSTS	\$10,571
MISCELLANEOUS OFFICE COSTS	\$2,762
TRAVEL/ACCOMM	\$2,429
VEHICLES	\$123
ANALYSIS	(\$1,232)
NATIVE TITLE CULTURAL HERITAGE	\$300
<b>TOTAL EXPENDITURE</b>	<b>\$20,546</b>

## 9 BIBLIOGRAPHY

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