EL 8921
Annual and Final Report for
the period ending
7 March 2009

Compiled by: Adelaide Resources Limited
250,000 Map Sheets: Tennant Creek SE 5314
100,000 Map Sheet: Kelly 5658
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1. Summary

Exploration Licence 8921 “Rover North” was granted on 8 March 1999. The Licence expired after a ten-year term on 7 March 2009.

Adelaide Exploration Pty Ltd (formerly Adelaide Exploration Limited), a wholly owned subsidiary of ASX listed Adelaide Resources Limited, acquired the tenement from Newmont Gold Exploration Pty Limited in April 2005.

EL 8921 is located to the southwest of Tennant Creek in the Rover Field. Adelaide Resources believes the area of EL 8921 to be prospective for Tennant Creek style gold-copper-bismuth deposits. EL 8921 has been explored in conjunction with adjacent EL 7739.

Work completed on EL 8921 since inception in 1999 includes the flying of an airborne magnetic survey by Normandy, and by Adelaide Exploration the completion of a ground magnetic survey of the Rover 3 prospect, analysis of exploration completed by previous explorers, and the flying of a high-resolution helimag surveying over the eastern half of the tenement in late 2008.

2. Introduction

The Tennant Creek goldfield has produced in excess of 5.5 million ounces of gold from numerous mines together with significant copper and bismuth since mining began in the region in the 1930’s. Typically Tennant Creek deposits are hosted within magnetite-hematite ironstones and often deliver exceptionally high gold grades making them attractive exploration targets.

Due to the magnetite-rich nature of most known Tennant Creek deposits they are generally associated with “bulls eye” magnetic anomalies evident in airborne or ground based geophysical surveys. The collection and careful interpretation of magnetic data has historically provided a direct targeting tool in the exploration for further deposits in the field.

The Rover area, which includes EL 8921, was first recognised as potentially being prospective for Tennant Creek style deposits following a BMR airborne magnetic survey carried out in the region in the late 1950’s. Follow-up ground magnetic surveying and drill testing of a number of magnetic anomalies in the Rover Field, conducted by Peko Mines Limited in a period extending from about 1971 to 1981, confirmed the presence of typical Tennant Creek style ironstones exhibiting gold-copper-bismuth mineralisation and anomalism.

The advent of the Aboriginal Land Rights Act in 1976 prompted the Traditional Owners of the area to lodge a claim over the area. This claim was successful and the area returned to aboriginal people in the late 1980’s. This changed land ownership situation, together with various changes in the corporate ownership of mineral tenements in the region is considered a likely reason that the early exploration effort ceased in 1981.

Adelaide Resources Limited acquired EL 8921 and adjacent EL 7739 from Newmont Mining in 2005 and recommenced exploration in the Rover Field later that year, thereby ending a 23-year hiatus in exploration in the Rover Field.
3. **Location and Access**

Exploration Licence 8921 is located approximately 60 kilometres to the southwest of Tennant Creek township (Figure 1). Following consultation with the CLC it was decided to access the tenement by an east-west unsealed track, which leaves the Stuart Highway eight kilometres south of Tennant Creek and travels to the currently abandoned aboriginal community of Kunayungku. From Kunayungku the track heads generally south and southwest to access the Rover Field tenements. This section of track was constructed during Peko Mines Rover Field exploration program conducted in the 1970's and 1980's.

At the commencement of the company’s exploration program, the old Peko track was very overgrown and required re-clearing after consultation with the Central Land Council. The re-clearing was completed by a Tennant Creek based contractor.

The track from Tennant Creek to Kunayungku is properly formed up with table drains and is navigable even after relatively heavy rain. The older Peko track is more rudimentary in nature. It has no table drains which results in water ponding on the track base following rain, leading to occasionally access difficulties. Despite this issue the old Peko track has a remarkably firm base and provides excellent access in dry weather.

4. **Climate and Landform**

The Tennant Creek district is located in the tropics however its distance from the ocean limits the amount of moisture available for the generation of “weather”. The climate is hot in summer and mild in winter. Yearly average rainfall at Tennant Creek is about 459mm falling predominantly in the summer months (December to February).

Prevailing winds at the surface are from the southeast. Mean daily temperature maxima range from about 24 C in July to over 37 C in December.

The area secured by EL 8921 is a flat and featureless plain covered by sand. Total relief across the tenement is less than 10m averaging about 290m (Australian Height Datum).

Vegetation in the area is governed by the semi-arid climate. Soft spinifex (Triodia pungens) is abundant and scattered ghost gums (Eucalyptus papuana) and snappy gum (E. brevifolia) are conspicuous. Mulga (Acacia aneura) may form thick scrub while numerous acacia species are present in sandy areas.

Other flora identified in the general tenement area include desert walnut trees, beefwood, corkbark, bloodwood, melaleuca species, bush potato vine, camel bush, cockroach bush, conkerberry, desert bluegrass, butterfly bush, woollybutt, hopbush, jasmine vine, various grasses, turkeybush, lollybush, sandweed, mistletoe, myrtle, ragweed, indigo, sandalwood and limestone cassia.

5. **Tenure**

Exploration Licence 8921 was granted on 8 March 1999 to Anthappi Pty Ltd. The tenement was transferred to Santexco Pty Ltd on 27 July 1999 and further transferred to Newmont Gold Exploration Pty Ltd on 18 December 2001.
Following execution of a purchase and royalty agreement between Newmont Gold Exploration Pty Ltd and Adelaide Exploration Limited (now Adelaide Exploration Pty Ltd) the title was transferred to Adelaide Exploration Limited on 29 April 2005.

The title falls wholly within Freehold Aboriginal Land (NT Por. 3556 – Karlantijpa Aboriginal Land Trust).

An expenditure covenant of $50,000 was set for the tenth year of title. This covenant has not been met and application for a “Variation of Covenant” has been lodged.

6. Regional Geology

The characteristic gold-copper-bismuth deposits of the Tennant Creek district are hosted by discordant ironstone (magnetite-hematite) bodies within Proterozoic Warramunga Formation metasediments, representing the basal section of the Proterozoic sequence.

The Warramunga Formation is overlain by a deformed, largely volcanic sequence previously referred to as the Flynn Subgroup, but now denoted the Ooradidgee Group. This unit includes previously defined stratigraphic units such as the Whippet Sandstone, Bernborough Formation and Warrego Volcanics. The Warramunga Formation and Ooradidgee Group are unconformably overlain to the north by younger Proterozoic of the Tomkinson Creek Group, and to the south by younger Proterozoic of the Hatches Creek Group.

The Tennant Creek goldfield is therefore located within a well-defined inlier of older Warramunga Formation rocks within a more extensive Proterozoic terrain. The dominant Warramunga lithologies consist of shales, siltstones, tuffs and greywackes accompanied by prominent argillaceous iron-rich units (‘banded iron formations’) referred to locally as hematite shales.

At least three major episodes of granite emplacement and associated volcanic activity are currently recognised in the region, referred to as the Tennant Creek Supersuite, the Treasure Suite and the Devils Suite.

Local Geology – Rover Field

In the Rover region the Proterozoic basement is concealed by shallow Wiso Basin cover, and basement geology has been interpreted from available drilling and airborne magnetic surveys.

The Warramunga Formation hosting the ironstone bodies of the Rover Field has been interpreted as a well-defined inlier within younger Proterozoic assigned to the Ooradidgee Group (or Flynn Subgroup) and overlying Hatches Creek Group. The Warramunga Formation in the Rover Field is therefore contained within a basement inlier of very similar character to that at Tennant Creek, and is of a similar scale and orientation to the ‘Central Field’ at Tennant Creek.

Lithologies interpreted to be Warramunga Group intersected in drill core at Rover are generally regarded as being indistinguishable from Warramunga formation sediments at Tennant Creek. These include sequences of deformed and greenschist facies metamorphosed greywacke, shales, mudstones and minor tuff beds, and hematite shales are recorded in a number of Rover holes.
Some historic holes in the Rover Field have failed to intersect Warramunga sediments, instead intersecting sequences of felsic and mafic volcanics. These have been interpreted to be possible correlates to the Flynn Subgroup / Ooradidgee Group.

The flat lying Cambrian sediments of the Wiso Basin cover in the Rover Field comprise siltstones and carbonates (predominantly dolomite), while a thin basal conglomerate is observed in many drill holes completed in the Rover Field. Thin Quaternary cover at Rover is dominated by sand considered to be largely Aeolian in origin.

Weathering is lateritic in nature with a prominent ferruginous layer comprised of pisoliths present just a few metres below surface. Weathering persists to approximately 100m below surface.

Ground water is present in the Wiso Basin sediments and significant flows can be obtained from relatively shallow depths (<30m). Narrow water porous and permeable zones within carbonate below the base of weathering also contain ground water. Water quality is verging on potable in the Rover Field with old bores utilised by Peko for consumption as well as for domestic and drilling related purposes.

7. Previous Exploration

Exploration activity in the Rover area was originally triggered by the release in the 1960s of a BMR aeromagnetic survey that highlighted several strong magnetic anomalies beneath Cambrian cover to the WSW of Tennant Creek, later to become known as the Rover Field.

The area was secured by Australian Ores and Minerals (AOM) as A. to P. 2451 in the mid 1960s to investigate four magnetic anomalies corresponding to prospects later named as Rover 1, 6, 11 and 12.

An exploration joint venture formed by Peko Mines (Peko) and AOM in 1971 resulted in follow up ground magnetic surveys and magnetic modeling of Rover targets. Drill testing commenced in May 1972, initially focusing on Rover 1.

Peko’s Rover Field exploration concentrated on areas south and west of EL 8921 however some surveys were completed on the area now covered by the tenement.

The Rover 3 prospect, located in the southeast of EL 8921 (Figure 1) was the only anomaly in the area now covered by EL 8921 selected by Peko for further investigation.

Peko are known to have completed a low level airborne magnetic survey over the prospect to present better remote data. A local grid was surveyed and established and ground magnetic and gravity surveys were completed. Efforts to locate the geophysical data collected during these surveys have been unsuccessful.

The magnetic anomaly at Rover 3 is an unusual feature. Most magnetic features in the Rover Field are typical features with the anomaly high directly to the north of the associated magnetic low. At Rover 3 however the high is located to the east of a low possibly associated with the same source. Peko interpreted this result as indicative of remanence in the source body and further suggested that the source may be a mafic rock as opposed to ironstone.

As a result of this negative assessment, Peko did not drill the Rover 3 prospect.
Normandy Mining acquired Peko Mining’s Tennant Creek assets in 1990, including the Rover Field tenements.

8. Exploration Completed during the term of EL 8921

EL 8921 was granted in 1999 just one year prior to Normandy divesting its main Tennant creek assets to Giants Reef Mining. Normandy did however retain the Rover tenements and flew a low level and detailed airborne magnetic survey over the Rover Field in 2000. The area of EL 8921 was included in this survey.

Normandy/Newmont did no ground-based exploration in EL 8921 or on any other of the Rover Field tenements prior to Adelaide Resources acquisition of the ground in early 2005.

Following Adelaide Resources acquisition of the EL’s 8921 and 7739 the company has completed a significant program of track re-clearing, ground magnetic and helimagnetic surveys and reverse circulation (RC) and diamond drilling. This on-ground work followed a sacred site survey conducted by TO’s and the CLC in the area in June 2005. All drilling programs have been confined to EL 7739.

On EL 8921 ground based work included a ground magnetic survey of the Rover 3 anomaly. Access to the prospect was by cross-country travel from the old north-south Peko Rover access track that traverses the western part of EL 8921. This route was chosen after discussions with the CLC who communicated a preference not to use an old, overgrown Peko track that accesses the prospect from the south.

Ground Magnetic Surveying

The ground magnetic survey was conducted over the Rover 3 magnetic anomaly in 2005. A total of 29 one kilometre long east-west traverses of ground magnetic surveying were read on a line spacing of 50 metres (total of 29 line km of data). The survey was carried out by a geophysical contractor. Located and gridded data for the ground magnetic survey is attached as Appendix 1 and location of the survey area shown on Figure 2.

2008 Helimag Survey

A high-resolution towed bird helimagnetic survey was flown over the eastern half of EL 8921 in November 2008. The survey was contracted to Tensor Geophysical Services Pty Ltd using a Robinson R22 Beta helicopter.

The survey comprised a total of 92 north-south lines were flown at 50 metre line spacing and 30 metre flying height, for a total 476.6 line kilometers of surveying. The survey was flown at an average 75 knots indicated air speed and 25 per second sampling interval (approximately 1.5 metre sampling interval across ground).

Located and gridded data for the helimag survey is attached as Appendix 2, and flight lines shown on Figure 2, and a TMI image on Figure 3.
9. **Expenditure**

Details of exploration expenditure appear in Appendix 3 in the preferred DRDPIFR format.

Expenditure for the year ending 7 March 2009 totaled $15,649.65.

In the same period allowable expenditure on adjacent EL 7739, upon which the company’s exploration effort focused, totaled in excess of $800,000.

The company’s accounts show that total project expenditure to end April 2009 on the Rover Project tenements (ELs 7739 and 8921, and ELA 25512) since Adelaide Resources commenced exploration in 2005 totals $2,897,609, a figure very substantially above the cumulative expenditure commitment for these tenements over the same period.

10. **Keywords**

Rover Field, Tennant Creek Gold Field, Ironstone, Gold, Copper, Bismuth, Ground magnetic surveys, Warramunga Group