EL 29577

1st Annual Report for Exploration Licence 29577
Period ending 3 April, 2014.

Tenement Holders: PLUSIOS GAIA PTY LTD

Date: 3 June 2014

Author: Mr Angus McCoy

Mapsheet Location:
250k Frew River, SF53-03
100k Hatches, 5956

Coordinate System: MGA Zone 53

Target Commodities: Gold

Contact: PLUSIOS GAIA PTY LTD
Postal 28 Adcock Crescent NAKARA NT 0801
Phone m. 0407080785
Email angus.mccoy@internode.on.net

Distribution: Minerals and Energy InfoCentre - DoR

This document and its content are the copyright of the Tenement Holders listed above. The document has been submitted to the Northern Territory Department of Mines and Energy as part of the tenement reporting requirements of the Mineral Titles Act. Any information included in the report that originates from historical reports or other sources has been cited in the relevant section and is listed in the “References” section at the end of the document. All relevant authorisations and consents have been obtained.

The Tenement Holders authorise the Minister to publish information in which the copyright subsists.
### LIST OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF CONTENTS</td>
<td>i</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>ii</td>
</tr>
<tr>
<td>SUMMARY</td>
<td>1</td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>2</td>
</tr>
<tr>
<td>1 CONCLUSIONS AND RECOMMENDATIONS</td>
<td>2</td>
</tr>
<tr>
<td>2 LOCATION AND TENURE</td>
<td>2</td>
</tr>
<tr>
<td>3 GEOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>4 MINERALISATION POTENTIAL</td>
<td>4</td>
</tr>
<tr>
<td>5 PREVIOUS EXPLORATION</td>
<td>4</td>
</tr>
<tr>
<td>6 WORK COMPLETED</td>
<td>4</td>
</tr>
<tr>
<td>6.1 Data Compilation</td>
<td>4</td>
</tr>
<tr>
<td>6.1.1 Geology data</td>
<td>5</td>
</tr>
<tr>
<td>6.1.2 Sampling data</td>
<td>5</td>
</tr>
<tr>
<td>6.1.3 Satellite image data</td>
<td>5</td>
</tr>
<tr>
<td>6.1.4 Historic Geophysics</td>
<td>5</td>
</tr>
<tr>
<td>6.2 Satellite Imagery</td>
<td>5</td>
</tr>
<tr>
<td>6.3 Geophysical Data Interpretation</td>
<td>6</td>
</tr>
<tr>
<td>6.4 Target Area Selection</td>
<td>7</td>
</tr>
<tr>
<td>6.5 Reconnaissance field investigations</td>
<td>7</td>
</tr>
<tr>
<td>7 PROPOSED PROGRAM FOR YEAR 2</td>
<td>9</td>
</tr>
</tbody>
</table>
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Location Diagram</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Regional Geology</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Satellite Imagery</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Tarragan workings</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Lineament analysis</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Geophysical interpretation</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>Target Area 1</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>Gold nugget</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Target Area 2</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>Quartz-ironstone rocks</td>
<td>8</td>
</tr>
<tr>
<td>11</td>
<td>Target Area 3</td>
<td>8</td>
</tr>
<tr>
<td>12</td>
<td>Tenement Reduction</td>
<td>9</td>
</tr>
</tbody>
</table>
SUMMARY

Tenure was granted on 4 April 2013 for a period of 6 years. Historical data compilation was carried out in a review of 23 open-file company reports. Historic samples and prospecting work within or proximal to the lease area were reviewed and recent high resolution satellite imagery was acquired and structurally interpreted. Geophysical data from the NTGS were reviewed and interpreted but found to be of limited use except at a regional scale. Several target prospecting areas were identified and a reconnaissance access visit to the area was made to identify the location of an existing mineral claim and conduct visual inspections and prospecting of the target areas. Two small eluvial gold nuggets were recovered using metal detectors near historically worked areas. Other target areas were discounted following visual inspections. Historic prospecting around known occurrences has been extensive and the likelihood of finding significant additional gold from these areas is very low however additional work may uncover new areas of interest. An application for significant tenement size reduction down to 4 blocks was made.
INTRODUCTION

Application to explore the area was made on the basis that the area is considered prospective for alluvial and eluvial gold occurrences.

The lease area has been the subject of historical exploration and small eluvial and hard-rock mining activities for gold associated with quartz veining throughout the Kurinelli area. Over the last twenty years, significant amounts of nugget gold have been recovered using metal detectors.

Gold is present in quartz veins occupying bedding parallel faults or shears within sediment – dolerite contact zones, or within sedimentary and volcanic rocks of the Ooradidgee Subgroup. The tabular veins are typically 0.5 – 1.5 m wide and 10 – 100 m long. The origin of the auriferous veins is uncertain, but it appears that they were derived from fractionated granitic intrusives at depth. (NTGS publication, 2009).

A number of historic gold workings and occurrences fall within the lease and form the initial focus for exploration work.

The current exploration rationale is to review historically worked areas and identify new prospective areas that may not have been extensively worked.

1 CONCLUSIONS AND RECOMMENDATIONS

Data compilation, primarily for historic gold sampling was found to be of limited value due to the paucity of recorded/reported information and served only to highlight the already known gold occurrences. Interpretation of newly acquired high resolution satellite imagery together with available NTGS geophysical data identified potential fault related lineaments and other structural elements that helped define one new target area however visual ground inspections failed to identify any iron-rich quartz veining of interest. Field investigations confirmed the occurrence of gold at two historic workings. Recommendations are included at Section 7.

2 LOCATION AND TENURE

Exploration Licence 29577 falls within Pastoral Lease No. 1109, Kurundi, and is located 150 kilometres south-east of Tennant Creek, within the Tennant Region. It is located on the Hatches

Figure 1 – EL 29577 Location Diagram
1:100,000 map sheet. Access is via the Stuart Highway then via the Epenarra Rd past Kurundi station homestead, along station tracks to the Kurinelli O/S and south into the lease area. (Figure 1). These tracks are only accessible by 4x4 vehicles in the dry season.

The tenement, consisting of 29 graticule blocks, 64.19 square kilometres in area, lies between latitudes 20°39’ south and 20°47’ south and longitudes 134°58’ east and 135°06’ east. EL 29577 was granted on the 4th of April, 2013 for a period of six years.

3 GEOLOGY

Exploration Licence 29577 is located in the Davenport Province which is at the southern end of the Tennant Creek Inlier. Palaeoproterozoic metasediments of the Hatches Creek Group are exposed in the area (Figure 2).

The main outcrop forming the ridges throughout the licence area is the feldspathic, lithic quartz–arenite Kurinelli Sandstone of the Ooradidgee subgroup. Minor outcrops of intrusive porphyry feldspar granites are poorly exposed in some areas and form footslopes and low undulations in the valley areas that are well incised by numerous perennial streams. Rare dolerite veins can sometimes be found in the area but the dolerite is usually obscured by thick alluvium regolith and its presence is usually inferred from a stronger magnetic signature.

Figure 2 – Regional Geology (from NTGS 1:100k Hatches Creek Region Geology Map, 1985). Gold mineral occurrences are shown.
The Hatches Creek Group has been folded into upright, concentric north- to northeast-trending folds, north-east striking thrust faults and northwest-trending strike-slip faults.

4 MINERALISATION POTENTIAL

Gold mineralisation is thought to be closely associated with bedding parallel low sulphide Fe-Quartz veining within sediment – dolerite contact zones or the sedimentary and volcanic rocks of the Ooradidgee Subgroup. All of the recorded gold occurrences near the licence area take this form and have reportedly produced significant quantities of gold. One currently active mineral claim (MCC1552) is located covering the mineral occurrence known as “Mick and Petas”.

5 PREVIOUS EXPLORATION

The area has been sporadically explored and mined since discovery of the Kurinelli goldfield in 1898.

The area has been covered as part of broad regional programs carried out by Geopeko in the 1960s during their investigation of several gold prospects in the Kurinelli area and later by CRA Exploration and others in the late 1970s as part of their uranium exploration effort.

The only systematic geological surveys of the area have been carried out by the BMR in 1956 and again in the 1980's resulting in the current 100k scale geology map of the area.

Mineral Horizons NL undertook exploration, mostly around the Kurinelli gold field to the north of EL29577, during the 1980s and a number of stream sediment samples collected within the EL29577 area failed to return any anomalous gold values.

Several private groups conducted limited soil and rock sampling in selected drainages, alluvial flats and old workings during the 1990's without success, whilst metal detecting returned more encouraging results and the eventual establishment of MCC1552 that remained current during the reporting period.

Arafura Resources hold title to ground over the main Kurinelli gold field to the north of EL29577 and undertook soil sampling programs in the mid-2000s.

The most recent work conducted in the lease area was by Spundaily PL during the early 2010s focussing on the Tarragans area in which further metal detecting returned some small nugget gold but rock-chip and soil sampling were ineffective.

No meaningful field work has been carried out in the lease area since the 1990’s

6 WORK COMPLETED

Work during year 1 focussed on gathering all available open-file information of historic exploration in the area, using public domain high resolution satellite imagery to map access routes, interpreting public domain geophysical data, acquiring new high resolution satellite imagery and conducting a reconnaissance field trip for geological inspections and metal detector prospecting.

6.1 Data Compilation

A total of 23 company reports were reviewed for content relevant to the lease area however only 4 reports contained relevant information.
The majority of information comes from existing publications, reports and data released by the NTGS.

6.1.1 Geology data

Geological maps at scales of 1:250k and 1:100k were acquired from the NTGS and these are based on mapping activities undertaken in the 1980's. None of the company reports add any further detail to the work done by the NTGS and so the Hatches Creek Region 100k geology map is used as the default base map.

6.1.2 Sampling data

A complete review of all historic geochemical sampling showed that very little sampling work has been completed within the lease area and in any case the results they returned were not encouraging. Consequently no attempt has been made to digitise this information. Metal detector prospecting of some areas was historically reported on and this information was taken into account when selecting target areas.

6.1.3 Satellite image data

Public domain high resolution satellite imagery from GeoEye and Digital Globe (via Google and Microsoft servers) was used to digitise the location of historic access tracks throughout the area. This data was then used during the reconnaissance field trip to aid navigation for access to particular target areas.

6.1.4 Historic Geophysics

The year 1999 NTGS Bonney Well airborne survey data was obtained and reviewed but due to the broad 400m line spacing was of limited value other than to indicate large scale regional features and infer the possible location of buried dolerite intrusives based on their magnetic response. Radiometric data served to highlight the outcropping felsic sills, volcanics and granophyre intrusives. A rudimentary interpretation of the magnetic data was completed (see section 6.3).

6.2 Satellite Imagery

30 sq.km of July 2012 archive Worldview-2 high resolution satellite imagery was acquired over the south-eastern portion of the lease (Figure 3).
The natural colour imagery provided a ground resolution of 50cm enabling ready identification of many topographic, geological and cultural features. As an example Figure 4 clearly shows the extent of dozing and costeaneing activities around the Tarragans gold occurrence, drainage channels, escarpment relief, ground regolith differences and various vegetation types.

As an example Figure 4 clearly shows the extent of dozing and costeaneing activities around the Tarragans gold occurrence, drainage channels, escarpment relief, ground regolith differences and various vegetation types. This detail was used to carry out a lineament analysis of the satellite imagery to map the position of fractures, faults, veins and shear zones. An example of this analysis is shown in Figure 5.

6.3 Geophysical Data Interpretation

Regional aeromagnetic data from the Bonney Well survey was interpreted using a combination of the 1st vertical TMI derivative to outline the position of anomalous magnetic responses and the shaded TMI to evaluate the intensity of the magnetic responses. Large scale curvilinear features were readily identified from the imagery and interpreted to reflect the position of major dextral strike-slip faults within the Tarragan fault block. These features are shown in Figure 6.

Figure 4 - Tarragan workings shown at full satellite image resolution

Figure 5 - Lineament analysis of satellite imagery

Figure 6 - Geophysical data interpretation. Anomalous magnetic responses (thin magenta lines) and major interpreted faults (thick magenta) shown on shaded TMI image.
6.4 Target Area Selection

Areas for initial investigation were selected on the basis of historical workings and the imagery and geophysical data interpretation. Three areas were initially chosen: Area 1, near MCC1552 on the basis of previous extensive eluvial gold operations evident throughout the area. Area 2, near Tarragans again on the basis of previous extensive eluvial workings together with encouraging lineament and fault intersections interpreted from the imagery and geophysics. Area 3, 3km NW of Area 1, where a major fault structure was interpreted from the geophysics to be intersecting outcrops of Kurinelli Sandstone in a region displaying intense magnetic anomalis, possibly indicating dolerite or granophytre subcrop.

6.5 Reconnaissance field investigations

A field reconnaissance visit was conducted between the 27th of May and 1st June using conventional 4wd light vehicle. Access was gained via the Kurundi-Epenarra road to Wire Yard then south along station tracks to Kurinelli Bore, Taragans waterhole then eventually to the Davenport Park boundary near Tarragans gold occurrence. Access to other lease areas near Aztecs, Great Davenport and Cairns was gained using the park boundary track while other target areas several km to the north-east of Mick & Petas was accessed by foot.

Target Area 1:

An area of old dozed and metal detected workings (Figure 7) to the south-west of MCC1552 (Mick & Petas) was re-investigated on a grid search pattern using Minelab GPX4000 series detectors with a 18” detection coils. Numerous pieces of ferrous and non-ferrous junk metal were detected throughout the area with only one small ¼ gm gold nugget attached to its host qtz-ironstone recovered from a depth of 10cm (Figure 8)

Figure 7 - Area of quartz-ironstone (black boundary) prospected using metal detectors and typical appearance of ground previously pushed by dozer showing Fe-rich quartz scatter.

Figure 8 - Gold nugget recovered from target area 1
**Target area 2:**

The Tarragan gold occurrence is a sub 1m wide, south dipping, E-W striking, quartz-ironstone vein extending over a length of ~200m. Up to 50m either side of this vein there has historically been extensive dozing and detecting. The area (Figure 9) was grid detected like Area 1 and one ½ gm gold nugget was recovered toward the eastern downslope end of the area.

![Figure 9 - Area metal detected at Tarragans. Red line marks location of Au-qtz vein](image)

Several boulders of quartz-ironstone float and in-situ veins of the same were visible throughout the area and these are shown in Figure 10.

![Figure 10 – Quartz-ironstone as float (boulder) and insitu as thin vein within Kurinelli Sandstone.](image)

**Target Area 3.**

Located approximately 3km to the NW of Area 1, target area 3 (Figure 11) was conceived from the geophysical data and satellite image interpretation where a major fault structure was interpreted from the geophysics to be intersecting outcrops of Kurinelli Sandstone in a region displaying intense magnetic anomallism, possibly indicating dolerite or granophyre subcrop. This was considered to be somewhat analogous to the setting of Area 2 and so the area was visited to look for encouraging quartz-ironstone veining. No veining was located and so the area was not subject to further prospecting using metal detectors.

![Figure 11 - Target Area 3 shown as white oval.](image)
7 PROPOSED PROGRAM FOR YEAR 2

Tenement Reduction

Following the field inspection of the target areas and review of all available data it was concluded that the tenement area could be significantly reduced whilst maintaining all of the known prospective ground. Consequently an application for reduction was lodged at the end of the reporting period for the blocks shown in Figure 12.

![Figure 12 - Tenement reduction details](image)

Data Interpretation

Additional interpretation of the satellite imagery and geophysical data may be carried out to further refine target area selection for follow-up work.

Prospecting

It is evident that the existing known gold occurrences have been extensively worked by dozer and metal detectors and the likelihood of finding significant amounts of additional gold from these areas using similar techniques is considered very low.

Additional geological investigation and metal detector prospecting of any newly identified target areas may be carried out if access conditions permit.
REFERENCES

