ANNUAL REPORT
(INCLUDING A BRIDGING REPORT COMPONENT)
TO COVER EXPLORATION ACTIVITIES OVER MCC’s 174, 287, 288, 344, 365 & 366 and MLC’s 49, 212, 308, 527, 599 & 617
01 JANUARY 2001 – 31 December 2011

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617
Mt Samuel Group

LICENSEE:
SANTEXCO PTY LTD
A.C.N. 002 910 296

AUTHOR:
ADAM WALTERS

MAY 2012

DISTRIBUTION:
Department of Resources
Central Land Council
Emmerson Resources Ltd

MAP SHEETS:
☐ TENNANT CREEK SE53-14
☐ 1:250 000
☐ TENNANT CREEK 5758
☐ 1:100 000
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1. SUMMARY

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617, Mt Samuel Group, were acquired by Giants Reef Exploration Pty Ltd (Giants Reef) and Santexco Pty Ltd (Santexco) to search for Tennant Creek style iron oxide copper-gold deposits.

This Annual (& bridging) report records the exploration work done on these group of tenure during the term 01 January 2001 to 31 December 2011.

As detailed below Emmerson will continue to conduct exploration in the Gecko Area to further develop the application, understanding and execution of targeting HeliTEM and/or VRMI anomalies. Emmerson will continue to conduct exploration in the Gecko Area to further develop the application, understanding and execution of targeting HeliTEM and/or VRMI anomalies and during 2012 Emmerson will conduct a detailed interpretation, analysis and modelling of the HeliTEM data in the Mt Samuel block, which includes MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617, with the aim of identifying targets for initiating discussion with the Traditional Owners to have approved access for drill testing.
2. INTRODUCTION

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617, Mt Samuel Group, were acquired by Giants Reef Exploration Pty Ltd (Giants Reef) and Santexco Pty Ltd (Santexco) to search for Tennant Creek style iron oxide copper-gold deposits.

This Annual (& bridging) report records the exploration work done on these group of tenure during the term 01 January 2001 to 31 December 2011.

3. LOCATION

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617 are tenure located within Exploration Licence (EL) Application 7809 straddling and immediately west of the Stuart Highway, 4.5km south of the Tennant Creek Township.

Access to the group of tenure is gained south via the Stuart Highway then west via a series of 4WD tracks.

Figure 1 shows the location of the Mt Samuel Group tenure with respect to the Tennant Creek Township.
4. **TENURE**

Tenure details for the Mt Samuel Group is as follows:

<table>
<thead>
<tr>
<th>Tenure</th>
<th>License Holder</th>
<th>Blocks &amp; part-blocks</th>
<th>Area (ha)</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCC174</td>
<td>John Love (100%) (Emmerson is Agent)</td>
<td>13</td>
<td>7th February 2013</td>
<td></td>
</tr>
<tr>
<td>MCC 212</td>
<td>Giants Reef Exploration Pty Ltd (85%) &amp; Appel (15%)</td>
<td>5.6</td>
<td>25th November 2012</td>
<td></td>
</tr>
<tr>
<td>MCC 287</td>
<td>John Love (100%) (Emmerson is Agent)</td>
<td>7.82</td>
<td>7th February 2013</td>
<td></td>
</tr>
<tr>
<td>MCC 288</td>
<td>John Love (100%) (Emmerson is Agent)</td>
<td>15.17</td>
<td>7th February 2013</td>
<td></td>
</tr>
<tr>
<td>MCC 308</td>
<td>Giants Reef Exploration Pty Ltd (85%) &amp; Appel (15%)</td>
<td>18</td>
<td>15th September 2017</td>
<td></td>
</tr>
<tr>
<td>MCC 344</td>
<td>Giants Reef Exploration Pty Ltd</td>
<td>14</td>
<td>8th March 2017</td>
<td></td>
</tr>
<tr>
<td>MCC 365</td>
<td>Giants Reef Exploration Pty Ltd</td>
<td>13.48</td>
<td>31st December 2018</td>
<td></td>
</tr>
<tr>
<td>MCC 366</td>
<td>Giants Reef Exploration Pty Ltd</td>
<td>16.44</td>
<td>31st December 2018</td>
<td></td>
</tr>
<tr>
<td>MLC 49</td>
<td>Santexco Pty Ltd</td>
<td>16</td>
<td>31st December 2025</td>
<td></td>
</tr>
<tr>
<td>MLC 527</td>
<td>Giants Reef Exploration Pty Ltd</td>
<td>6</td>
<td>31st December 2016</td>
<td></td>
</tr>
<tr>
<td>MLC 599</td>
<td>Giants Reef Exploration Pty Ltd (85%) &amp; Appel (15%)</td>
<td>8</td>
<td>9th February 2017</td>
<td></td>
</tr>
<tr>
<td>MLC 617</td>
<td>Giants Reef Exploration Pty Ltd (50%), Johnson (33%) &amp; Appel (17%)</td>
<td>8</td>
<td>31st December 2029</td>
<td></td>
</tr>
</tbody>
</table>

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617 lie within Aboriginal Freehold Land, NT Parcel 04115, held by the Warumungu Land Trust. The overlying EL Application (ELA 7809) held Emmerson is under a 5year moratorium period to expire 22 June 2016, and the tenure subject to this report are located within a registered Sacred Site (M??).

Figure 1 shows the tenure area as it was during the reporting term.

5. **GEOLOGY**

5.1 Regional Geology
The reader is referred to AusIMM Monograph 14 (Geology of the Mineral Deposits of Australia and Papua New Guinea), Volume 1, pp. 829-861, to gain an introduction to the regional geology and styles of gold-copper mineralisation of the area.

In 1995 the Northern Territory Geological Survey released a geological map and explanatory notes for the Tennant Creek 1:100,000 sheet, which covers the area of the license.

The rocks of the Warramunga Formation host most of the ore bodies in the region and underlie the Exploration License.

### 5.2 Local Geology

The tenure covers an area of intermittent outcrops.

The cover is dominated by Quaternary sediments and these include dissected colluvial fan deposits, red soil plains and alluvial deposits in active channels and on floodplains. The Quaternary deposits are assumed by mapping to cover the Palaeoproterozoic Warramunga Formation meta-sediments that have been intruded by later quartz-feldspar porphyries.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Tennant Creek (5758) 1:100 000 sheets, which covers the area of the tenure.

### 6. PREVIOUS EXPLORATION

**MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617**

<table>
<thead>
<tr>
<th>Location</th>
<th>E</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt Samuel</td>
<td>411 301E</td>
<td>7 822 601N</td>
</tr>
<tr>
<td>Outlaw</td>
<td>411 901E</td>
<td>7 822 401N</td>
</tr>
<tr>
<td>Miriam</td>
<td>412 601E</td>
<td>7 822 301N</td>
</tr>
<tr>
<td>Hammerjack</td>
<td>412 801E</td>
<td>7 822 301N</td>
</tr>
</tbody>
</table>

**Exploration pre-Emmerson (up to 01 August 2006)**

Exploration activities during this period consisted of minor historical mine workings as summarised below. Exploration has been limited in recent years due to the identification and registration of a cultural sacred site over the Mt Samuel Area.
Mt Samuel – 4,469oz Au @ 38.3g/t (1934 – 62; 1978 – 81)
Outlaw – 189oz Au @ 38g/t (1959 – 60)
Red Ned – 558oz Au @ 44.2g/t (1935 – 41)
Miriam – 9.2oz Au @ 33.1g/t (1940)
Hammerjack – 7,086oz Au @ 36.9g/t (1934 – 51)

7. WORK DONE DURING THE REPORT PERIOD

MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617

<table>
<thead>
<tr>
<th>Location</th>
<th>Easting</th>
<th>Northing</th>
</tr>
</thead>
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<tr>
<td>Mt Samuel</td>
<td>411 301E</td>
<td>7 822 601N</td>
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<tr>
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<td>7 822 401N</td>
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<td>7 822 301N</td>
</tr>
</tbody>
</table>

Exploration post-Emmerson (after 01 August 2006)

Exploration activities over these leases have not occurred due to the identification and registration of a cultural sacred site - Mt Samuel Area. This has inhibited any on ground exploration of the subject tenure. During 2010 Emmerson and contract geophysical consultants, Spinifex Geophysics, further developed a processing technology, Vector Residual Magnetic Intensity (VRMI) aimed at existing magnetic data from Emmerson’s Tennant Creek tenure package, figures 2 (pre-VRMI) & 3 (VRMI) represent the success of the VRMI technology. Immediate identification of highly prospective VRMI targets reprioritised Emmerson’s target matrix, the Red Bluff Area in Emmerson’s Western Project Area became the No. 1 priority area for exploration activities. Drilling during 2010 at Red Bluff confirmed the VRMI technology with significant intercepts of thick ironstones, although assay results were mixed, the successful ironstone intercepts were evidence to support the development and use of VRMI technology. The VRMI preliminary assessment of MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617 identified a VRMI anomalous ridge that trends sub east – west through MLC’s 599, 617 & 527 and MCC 212, with subdued anomalism in the remaining tenure and coinciding with the historical mine workings as detailed above, refer to figure 4 below.
Mt Samuel Group MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617

ANNUAL (& bridging) REPORT up to 31 December 2011

Figure 2: Conventional Magnetics

Figure 3: VRMI

EMMERSON RESOURCES LTD
Further to the application of VRMI Emmerson conducted a geophysical survey called HeliTEM. Heli-TEM is a helicopter mounted system capable of measuring the conductivity of the rocks to significant depth and utilises the world’s most powerful airborne, time-domain electromagnetic system. A breakthrough during late 2010 and early 2011 has been the recognition that drill core from the mineralised portions of Tennant Creeks historic deposits is conductive up to 80 times the background levels. Emmerson completed the first round of ‘Proof of Concept’ drilling of identified HeliTEM targets in the Gecko and Orlando Areas and resulted in success with the several intersections of mineralisation, gold and copper rich. Further drilling will be conducted in this area to further define the economic potential and further develop and refine the application of HeliTEM.

The most significant factor in the application of HeliTEM has been the Goanna and Monitor discoveries (in the Gecko Area) as it occurs in subdued magnetic signatures, therefore confirming that magnetic anomalies are not the only potential hosts for economic mineralisation in the Tennant Creek Field. Figure 5 below shows the magnetic image (VRMI) of the Gecko Corridor, it can be seen that the drilling at both Monitor and Goanna has focused on the ‘blue’ area (magnetic low), compare this with the HeliTEM image in figure 6 and it can be seen that the drilling has focused on a HeliTEM anomaly not seen in the magnetics, this has vast implications for exploration in the rest of the field and
particularly the prospective tenure, including MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617.

Figure 5: Gecko Corridor vs. VRMI

The HeliTEM survey over the Chariot – TC8 corridor included the Mt Samuel Area and therefore MCC’s 174, 212, 287, 288, 308, 344, 365 & 366 and MLC’s 49, 527, 599 & 617, but has yet to analysed, interpreted and modelled due to the focus of ‘Proof of Concept’ in the Gecko Area. With the encouraging results from work in the Gecko Area the detailed interpretation, analysis and modelling of the HeliTEM data from the Chariot – TC8 corridor will occur during 2012, aimed at identifying target for drill testing, should results be encouraging and targets identified then Emmerson will begin discussions with the traditional owners of the Mt Samuel Area for access to these targets to conduct further geophysics and begin drill testing.
8. REHABILITATION

Exploration within the Mt Samuel Group consisted of non-invasive geophysical surveys and detailed desktop studies. As no on ground exploration was conducted no rehabilitation has been completed.

Any future exploration activity rehabilitation will be completed as per the guidelines and commitments made under the Southern Project Area (SPA) Mining Management Plan (MMP) Authorisation 0475-03.

9. CONCLUSIONS

As detailed above Emmerson will continue to conduct exploration in the Gecko Area to further develop the application, understanding and execution of targeting HeliTEM and/or VRMI anomalies. The HeliTEM survey over the Chariot – TC8 corridor, which included
the tenure subject to this report. With the encouraging results from work in the Gecko Area the detailed interpretation, analysis and modelling of the HeliTEM data from the Chariot – TC8 corridor will occur during 2012, aimed at identifying target for drill testing, should results be encouraging and targets identified then Emmerson will begin discussions with the traditional owners of the Mt Samuel Area for access to these targets to conduct further geophysics and begin drill testing.