COMBINED ANNUAL REPORT FOR THE NORTHERN PROJECT AREA

16 AUGUST 2009 – 15 AUGUST 2010

LICENCEES:

GIANTS REEF EXPLORATION PTY LTD
A.C.N. 009 200 346

SANTEXCO PTY LTD
A.B.N. 002 910 296

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SEPTEMBER 2010
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1. SUMMARY

Exploration Licences in the Northern Project Area were acquired by Giants Reef Exploration Pty Ltd, TC8 Pty Ltd and Santexco Pty Ltd to search for Tennant Creek style iron oxide copper-gold deposits. Giants Reef, TC8 and Santexco are wholly owned subsidiaries of Emmerson Resources Ltd.

This combined report records the exploration work completed on these EL’s during the NPA Combined Reporting period from 16 August 2009 to the 15 August 2010.

During the reporting term Emmerson conducted exploration activities at the following prospects and are detailed in Section 7;

Rising Star
Voltan
Vivid
Delphi
Troy
Hermitage
Bomber
Marathon
Kepler

Total expenditure on the EL’s and SEL’s during the reporting period was $1,437,831.70 versus covenants of $283,100.00.
2. INTRODUCTION

Exploration Licences (EL’s) and Substitute Exploration Licences (SEL’s) in the Northern Project Area (NPA), were acquired by Giants Reef Exploration Pty Ltd (Giants Reef) to search for Tennant Creek style iron oxide copper-gold deposits. Giants Reef is a wholly owned subsidiary of Emmerson Resources Ltd (Emmerson).

This combined report records the exploration work completed on these EL’s and SEL’s during the NPA Combined Reporting period from 16 August 2009 to the 15 August 2010.

On the 6 August 2005 the Manager of Customer Services – Minerals & Energy Titles (now the Department of Resources (DoR)) approved the Company’s request to combine its EL’s and SEL’s into four (4) project areas for purposes of combined annual reporting. The 4 areas are divided into the Northern, Southern, Eastern and Western regions, each initially averaging around 750km², but now range between 330km² and 770km². Details of the EL’s and SEL’s under the NPA are outlined in Section 4 Tenure.

The aim of creating the 4 tenement groups is to simplify tenement statutory reporting and project management, and also more clearly convey exploration expenditure aligned to the Company’s project work areas, which are not restricted to individual tenements.

3. LOCATION

EL’s and SEL’s making up the NPA cover an area of some 455.76 km² north of the Tennant Creek Township.

The principal access to EL’s and SEL’s in the NPA from Tennant Creek is north via the Stuart Highway, then east and west by various unsealed roads, tracks and fence line tracks. However, much of the Project area is rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 1 shows the location of the EL’s and SEL’s within the NPA with respect to the town of Tennant Creek.

3.1 EL 10016 GECKO ROAD

Exploration Licence 10016 GECKO ROAD, is located approximately 24km north west of the Tennant Creek Township.

Access to the Licence area is north west via the Warrego Road, which bisects the licence, from here EL 10016 is reached by via a series of unsealed, 4x4 and fence line tracks, either west or east. During and immediately after rain the area is generally inaccessible. EL 10016 is located on the Flynn (5759) 1:100 000 scale map sheet.

Figure 2 shows location EL 10016 with respect to the Tennant Creek Township.
3.2 EL 10077 WHIPPET EAST

Exploration Licence 10077 WHIPPET EAST, is located approximately 40km north north-east of Tennant Creek town. The Licence falls on the Flynn (5759) 1:100,000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then east by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 3 shows location EL 10077 with respect to the Tennant Creek Township.

3.3 EL 10101 BINARY

Exploration Licence 10101 BINARY, is located approximately 34km north of Tennant Creek. EL 10101 is located on the Flynn (5759) 1:100,000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then east or west by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 4 shows location EL 10101 with respect to the Tennant Creek Township.

3.4 EL 22165 COPERNICUS

Exploration Licence 22165 COPERNICUS, is located approximately 35km north north-west of the Tennant Creek Township on the Flynn (5759) 1:100,000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then west via road to the historical Jasper Hill’s, Granites and Northern Star Mine workings, then by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 5 shows location EL 22165 with respect to the Tennant Creek Township.

3.5 EL 22224 MONZONITE

Exploration Licence 22224 MONZONITE, is located approximately 46km north west of the Tennant Creek Township on the Short Range (5659) 1:100,000 scale map sheet.

There are two principal access routes into EL 22224 from Tennant Creek Township. One is north west via the Warrego road, from which a number of roads run in northerly directions into the licence area from the Gecko and Orlando mines, and from the various roads to the dams and bores that once supplied water to the Warrego mine. The cleared survey line track along the route of the proposed Alice Springs to Darwin railway line is outside the EL’s, but roughly parallels their south western boundaries. The other
principal access route is from the Stuart Highway, through Phillip Creek homestead. In the eastern part of EL 9909 there are many station tracks that link with tracks in the south and west of the licence area, and it is possible to drive from Phillip Creek right through the area to the western side of the area, and on to Warrego.

Figure 6 shows location EL 22224 with respect to the Tennant Creek Township.

3.6 EL 22589 WHIPPET HILL

Exploration Licence 22589 WHIPPET HILL, is located approximately 39km north north-east of the Tennant Creek Township on the Flynn 1:100 000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then east by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 7 shows location EL 22589 with respect to the Tennant Creek Township.

3.7 EL 23183 JUNCTION

Exploration Licence 23183 JUNCTION, covers an irregularly shaped tract of country spanning the Stuart Highway 22km north of Tennant Creek Township, and contains both the Orlando and Gecko mines. EL 23183 lies on the Flynn (5759) 1:100 000 scale map sheet.

The principal access to the general licence areas from Tennant Creek is north via the Stuart Highway then via various secondary unsealed tracks and fence line tracks that extend east and west from the Stuart Highway, the Barkly Highway also runs east through the licence area. However, much of the licence area comprises rugged terrain and many of the tracks become impassable during the wet season.

Figure 8 shows the Location of EL 23183 with respect to the Tennant Creek Township.

3.8 EL 9939 BATTERY BLOCK

Exploration Licence 9939 BATTERY BLOCK, is located approximately 26 km north west of Tennant Creek on the Flynn (5759) 1:100 000 scale map sheet.

The principal access from Tennant Creek is via the Warrego road and thence north via secondary unsealed tracks. Most of the access tracks require 4x4 vehicles and even these become impassable during the wet season.

Figure 9 shows the Location of EL 9939 with respect to the Tennant Creek Township.
3.9 SEL 26594 BILL

SEL 26594 BILLS is located between approximately 39km and 50km north of Tennant Creek Township, on the Flynn (5759) 1:100 000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway which bisects the licence, and then east or west by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 10 shows location SEL 26594 with respect to the Tennant Creek Township.

3.10 SEL 26595 RUSSELL

SEL 26595 RUSSELL is located between approximately 28km and 39km north east of Tennant Creek Township, on the Flynn (5759) and Short Range (5659) 1:100 000 scale map sheets.

The principal access to the southern and western areas of the licence area from Tennant Creek is north west via the Warrego road and then by the roads that lead to the historical Gecko and Orlando Mine workings, then from here via various dirt roads and tracks along fence lines. The principal access to the north and east areas of the license, from Tennant Creek, is north via the Stuart Highway which runs along the eastern boundary of the tenement, and then west and south west by various dirt roads and fence line tracks. However, much of the area is rocky, without tracks and difficult to reach, even in a 4WD vehicle. The unsealed tracks become impassable during the wet season.

Figure 11 shows location SEL 26595 with respect to the Tennant Creek Township.

3.11 SEL 26596 HANKINSON

SEL 26596 HANKINSON is located between approximately 42km and 48km north east of the Tennant Creek Township, on the Flynn (5759) 1:100 000 scale map sheet.

The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then east, past the Whippet Mine, by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 12 shows location SEL 26596 with respect to the Tennant Creek Township.

3.12 EL 27131 PATAGONIA

EL 27131 PATAGONIA is located between approximately 15km and 26km north north-east of the Tennant Creek Township, on the Flynn (5759) and Tennant Creek (5758) 1:100 000 scale map sheets.
The principal access to the general license area from Tennant Creek is north via the Stuart Highway and then west by various dirt roads and fence line tracks. However, much of the license areas are rocky, without tracks and difficult to reach, even in a 4x4 vehicle. The unsealed tracks become impassable during the wet season.

Figure 13 shows location EL 27131 with respect to the Tennant Creek Township.

4. TENURE

Tenure details for the 9 Exploration Licences and 3 Substitute Exploration Licences within the NPA are as follows:

Table 1: NPA Tenure details.

<table>
<thead>
<tr>
<th>Exploration Licence</th>
<th>Licence Holder</th>
<th>Blocks &amp; part-blocks</th>
<th>Area (km²)</th>
<th>Date of Grant/Renewal</th>
<th>Period of Grant/Renewal</th>
</tr>
</thead>
<tbody>
<tr>
<td>EL10016 GECKO ROAD</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>5</td>
<td>16.17</td>
<td>17 August 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 10077 WHIPPET EAST</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>3</td>
<td>9.725</td>
<td>25 September 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 10101 BINARY</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>12</td>
<td>34.25</td>
<td>25 September 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 22165 COPERNICUS</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>6</td>
<td>19.46</td>
<td>25 September 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 22224 MONZONITE</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>1</td>
<td>2.93</td>
<td>20 March 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 22589 WHIPPET HILL</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>11</td>
<td>31.43</td>
<td>25 September 2009</td>
<td>2</td>
</tr>
<tr>
<td>EL 23183 JUNCTION</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>38</td>
<td>99.66</td>
<td>8 October 2009</td>
<td>6</td>
</tr>
<tr>
<td>EL 9939 BATTERY BLOCK</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>3</td>
<td>9.716</td>
<td>17 August 2009</td>
<td>2</td>
</tr>
<tr>
<td>SEL 26594 BILLS</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>10</td>
<td>31.57</td>
<td>06 July 2012</td>
<td>4</td>
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<tr>
<td>SEL 26595 RUSSELL</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>43</td>
<td>139.3</td>
<td>06 July 2012</td>
<td>4</td>
</tr>
<tr>
<td>SEL 26596 HANKINSON</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>7</td>
<td>22.7</td>
<td>06 July 2012</td>
<td>4</td>
</tr>
</tbody>
</table>
Exploration Licences in the NPA lie within both NT Portion 408, Phillip Creek, Perpetual Pastoral Lease 946 and on Inalienable Aboriginal Freehold land held by the Warrumungu Land Trust.

An Agreement needs to be negotiated which would established land access for mineral exploration upon Warrumungu Land Trust areas, including EL Application 27539, which will form part of this combined report following its grant.

All of the EL’s and SEL’s in the NPA are on Perpetual Pastoral Lease and are subject to an Indigenous Land Use Agreement (ILUA), signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council, and Giants Reef.

4.1 EL 10016 GECKO ROAD

Exploration Licence 10016 was granted to Giants Reef Exploration Pty Ltd on the 17th August 2001, for a period of 6 years, and renewed for a term of 2 years on 17 August 2007 and a further 2 years on 17 August 2009.

The Exploration Licence area lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 10016 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the second, third, fourth, fifth and sixth tenure years waiver of reductions were submitted and granted for EL 10016.

4.2 EL 10077 WHIPPET EAST

Exploration Licence 10077 was granted to Giants Reef Exploration Pty Ltd on the 25th September 2001, for a period of 6 years, and renewed for a term of 2 years on 25 September 2007 and a further 2 years on 25 September 2009.

The Exploration Licence area lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 10077 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the fourth tenure year a statuary relinquishment was applied to EL 10077, the licence area was reduced from 10 graticular blocks to 5 graticular blocks.
4.3 EL 10101 BINARY

Exploration Licence 10101 was granted to Giants Reef Exploration Pty Ltd on the 25th September 2001, for a period of 6 years, and renewed for a term of 2 years on 25 September 2007 and a further 2 years on 25 September 2009.

The Exploration Licence area lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 10101 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the fourth tenure year a statutory relinquishment was required for EL 10101, and an application for waiver was applied for, the licence area remained at 12 graticular blocks.

4.4 EL 22165 COPERNICUS

Exploration Licence 22165 was granted to Giants Reef Exploration Pty Ltd on the 25th September 2001, for a period of 6 years, and renewed for a term of 2 years on 25 September 2007 and a further 2 years on 25 September 2009.

The Exploration Licence area lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 22165 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the fourth and fifth tenure years, statutory relinquishments were required for EL 22165, and an application for waiver was applied for, the licence area remained at 6 graticular blocks.

4.5 EL 22224 MONZONITE

Exploration Licence 22224 was granted to Giants Reef Exploration Pty Ltd on the 20th March 2001, for a period of 6 years, and renewed for a term of 2 years on 20 March 2007 and a further 2 years on 20 March 2009.

The exploration licence lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 22224 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the fourth tenure year a statutory relinquishment was applied to the licence area and EL 22224 was reduced from 3 graticular blocks to 2 graticular blocks.

4.6 EL 22589 WHIPPET HILL

Exploration Licence 22589 was granted to Giants Reef Exploration Pty Ltd on the 25th September 2001, for a period of 6 years, and renewed for a term of 2 years on 25 September 2007 and a further 2 years on 25 September 2009.
The Exploration Licence area lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 22589 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the fourth and fifth tenure years a statutory relinquishment was required for EL 22589, and an application for waiver was applied for, the licence area remained at 11 graticular blocks.

4.7 EL 23183 JUNCTION

Exploration Licence 23183 Junction, was granted to Giants Reef Exploration Pty Ltd (Giants Reef) on the 8th October 2003 for a period of six years with a 2 year renewal granted 8 October 2009.

The Licence covers an area of 38 graticular blocks (101 km2) and lies within NT Portion 408, Phillip Creek, Perpetual Pastoral Lease 946.

Exploration Licence 23183 is subject to an Indigenous Land Use Agreement (ILUA), signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council, and Giants Reef.

During this, second and third years of tenure, waiver of reductions on EL 23183 were approved by DPIFM.

4.8 EL 9939 BATTERY BLOCK

Exploration Licence 9939 was granted to Giants Reef Exploration Pty Ltd on the 17th August 2001, for a period of 6 years, and renewed for a term of 2 years on 17 August 2007 and a further 2 years on 17 August 2009.

The exploration licence lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 9939 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the second, third, fourth and fifth tenure years waiver of reductions were submitted and granted for EL 9939.

4.9 SEL 26594 BILLS

Substitute Exploration Licence 26594 was granted to Giants Reef Exploration Pty Ltd on the 07 July 2008, for a period of 4 years.

SEL 26594 is a licence in substitute of EL’s 22590, 10311 & 10129.

The SEL lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Substitute Exploration Licence 26594 is subject to an Indigenous Land Use Agreement
(ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the first tenure year an Application for a Waiver of Reductions was submitted and granted for SEL 26594. At the end of the second year a reduction of 5 blocks (50%) to retain a total of 5 Blocks was made for SEL 26594.

4.10 SEL 26595 RUSSELL

Substitute Exploration Licence 26595 was granted to Giants Reef Exploration Pty Ltd on the 07 July 2008, for a period of 4 years.

SEL 26595 is a licence in substitute of EL’s 22583, 10017, 23073, 23745, 23746 & 9909.

The SEL lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Substitute Exploration Licence 26595 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the first and second tenure years Applications for Waivers of Reductions were submitted and granted for SEL 26595.

4.11 SEL 26596 HANKINSON

Substitute Exploration Licence 26596 was granted to Giants Reef Exploration Pty Ltd on the 07 July 2008, for a period of 4 years.

SEL 26596 is a licence in substitute of EL’s 10166 & 7810.

The SEL lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Substitute Exploration Licence 26596 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.

At the end of the first tenure year an Application for a Waiver of Reductions was submitted and granted for SEL 26596.

At the end of the second year Emmerson submitted a surrender of the Licence Area of SEL 26596.

4.12 EL 27131 PATAGONIA

Exploration Licence 27131 was granted to Giants Reef Exploration Pty Ltd on the 22 May 2009, for a period of 6 years.

The EL lies within NT Portion 408, Perpetual Pastoral Lease 946, Phillip Creek Station. Exploration Licence 27131 is subject to an Indigenous Land Use Agreement (ILUA) signed in September 2000 between the Native Title holders of the Tennant Creek region, represented by the Central Land Council (CLC), and Giants Reef.
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 a good 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 Flynn and Short Range 1:100,000 sheets, which covers the area of the Licences.

The rocks of the Warramunga Formation host most of the orebodies in the region and underlie most of the Exploration Licences.

5.2 Geology of the Northern Project Area

The NPA covers a region of the Tennant Creek Province and includes deformed lower-greenschist facies flyshe sequence (Warramunga Formation) intruded by syn-orogenic granite and granodiorite as well as stratabound felsic porphyry. This sequence is overlain by silicic volcanics and volcaniclastics (Flynn Subgroup) and intruded by late orogenic granite, porphyry and lamprophyre. The Warramunga Formation comprises greywacke, siltstone, shale with interbedded felsic volcanics. Crustal melting resulted in the formation of dry, I-type granodiorite melts and granitic differentiates (Tennant Creek Supersuite), which intruded the Warramunga Formation and lower parts of the Flynn Subgroup during and subsequent to the Barramundi Orogeny. Deformation of the Warramunga Formation produced tight upright folds with a pervasive sub-vertical east west slaty cleavage accompanied by lower greenschist facies metamorphism. Deposition of the volcanosedimentary Flynn Subgroup more or less coincided with the plutonic events.

Progressive dextral shearing resulted in large-scale east trending open folds, as defined by the stratabound porphyries. Disharmonic folds, angular folds and plunging doubly peaking anticlines with a weak sub-vertical crenulation cleavage developed within the Warramunga Formation. North west trending open folds of disharmonic style were generated within the Flynn Subgroup.

The youngest igneous events in the Tennant Creek Province were intrusion of the Warrego and Gosse River East granites, as well as lamprophyre dykes and sills.

The NPA is largely covered by Quaternary sands and gravels in relict fluvial systems, active channels, floodplains and quartz-rich dissected colluvial fan deposits.

Outcrop within the NPA is limited to ridges and these comprise scattered outcrops of Palaeoproterozoic Warramunga Formation and Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group).
5.3 **EL 10016 GECKO ROAD**

The majority of the licence area is underlain by turbidite sediments of the Palaeoproterozoic Warramunga Formation (1865-1855 Ma), predominately greywacke and siltstones. This formation is host to virtually all the magnetite-haematite (ironstone–hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield. Exposure of the Proterozoic bedrock is fair to poor.

5.4 **EL 10077 WHIPPET EAST**

Outcrop is restricted to east-west trending sediment and quartz-haematite ironstone ridges. The dominant lithologies are Warramunga Formation siltstone, shale and greywacke with minor quartz porphyry in the south. Numerous quartz and quartz-haematite ironstones are present in the ridges. Several east striking shears traverse the area.

5.5 **EL 10101 BINARY**

The geology of Exploration Licence 10101 includes outcropping Warramunga Formation, comprising fine to medium grained lithic arenite, volcanic arenite (metagreywacke), siltstone, shale, slate and terrigenous mudstone. Ooradidgee Group units comprising conglomerate, sandstone, felsic crystal-lithic tuff and lapilli tuff also outcrop within the Licence. Much of the northern and eastern region of the tenement is covered by Quaternary alluvial deposits and includes sandy soil and sheet and dune sand.

5.6 **EL 22165 COPERNICUS**

The geology of EL 22165 is dominated by Cainozoic colluvium scree, alluvial red soil plains and less extensive quartz rich dissected colluvial fan deposits, alluvial deposits in active channels and on flood plains and also a region of clay soil in a poorly drained depression. Minor outcrops, which coincide with isolated hills are present in the eastern areas of 22165, these isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation, which most likely underlies the dominate Cainozoic sediments.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

5.7 **EL 22224 MONZONITE**

The EL 22224 comprises units of the Ooradidgee Group and these are dominated by the Wundirgi Formation which is comprised of arenite, siltstone, shale, tuff, chert and silicified tuff. These units are intruded by monzonite and quartz-monzonites of the Treasure Suite. Gold mineralisation is hosted by these felsic intrusives at two small prospects some 2 kms west of the EL and include the Last Hope (415 oz)and Bull Pup (55 oz).

Minor sedimentary and volcanic units of the younger Hatches Creek Group occur in the northern region of the EL. These include sub-lithic to lithic arenites, volcanic arenite,
pebbly arenite and intermediate volcanic rocks. No Warramunga Formation occurs in the EL.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Short Range (5659) 1:100 000 sheet, which covers the area of the license.

5.8 EL 22589 WHIPPET HILL

The geology of EL 22589 is dominated by outcrops, which coincide with ridges and isolated hills that dominate the central and northern regions of EL 22589. These ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation, and most likely underlie the Cainozoic colluvium scree, alluvial red soil plains and less extensive alluvial deposits in active channels and on flood plains.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

5.9 EL 23183 JUNCTION

The project area is located in the northern region of the Tennant Creek Province. The geology in the western half of the tenement is characterised by outcropping ridges which comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation and felsic volcanics or volcanically derived sedimentary rocks of the Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group), quartz-rich dissected colluvial fan deposits with minor, colluvium scree, felsic porphyry and alluvial deposits in active channels and on floodplains. The geology of the eastern half is characterised by large areas of Quaternary cover, including colluvium, scree, sheet and dune sand and sandy soil and alluvial deposits in active channels and on floodplains.

Known mineralisation in the Licence is generally located along NW trending structures, most notable of these being the “Quartz Hill Fault’. these structures also correlate well with the many mapped outcropping Ironstones, which represent potential hosts for ironstone related Au-Cu-Bi mineral deposits.

5.10 EL 9939 BATTERY BLOCK

The majority of the licence is underlain by turbidite sediments of the Palaeoproterozoic Warramunga Formation (1865-1855 Ma), predominately greywacke and siltstones. This formation is host to virtually all the magnetite-haematite (ironstone–hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.
5.11 SEL 26594 BILLS

The exposed geology in central portion of SEL 26594 consists of several extensive outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation. Much of the Licence is covered by Cainozoic sediments and includes soils and alluvial outwash deposits. Airborne and ground magnetic data and field mapping suggest that metasediments of the Palaeoproterozoic Warramunga Formation underlie the Licence area.

The northern most region of SEL 26594 includes outcrops, which coincide with ridges and isolated hills, these ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation, which most likely underlies Cainozoic colluvium scree, alluvial red soil plains and less extensive alluvial deposits in active channels and on flood plains.

The southern portion of the licence area is largely covered by the Tennant Creek drainage system and comprises Cainozoic alluvium and colluvium. The cover sediments include alluvial deposits in active channels and on floodplains, and sheet /dune sand and sandy soil on high floodplain terraces.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

5.12 SEL 26595 RUSSELL

More than 98% of EL south western portion of the licence comprises units of the Ooradidgee Group and these are dominated by the Wundirgi Formation which is comprised of arenite, siltstone, shale, tuff, chert and silicified tuff. Other units of the Ooradidgee Group include ignimbrites, lapilli tuff and rhyolitic lava. These units are intruded by monzonite and quartz-monzonites of the Treasure Suite. Gold mineralisation is hosted by these felsic intrusives at two small prospects some 5.5 kms to the west and include the Last Hope (415 oz) and Bull Pup (55 oz) mines.

Minor sedimentary and volcanic units of the younger Hatches Creek Group occur at the northern edge of the south west portion. Less than 2% of Warramunga Formation occurs in the south west portion, however this comprises sandstone dominated volcano lithic, turbiditic sequences as opposed to the more prospective highly magnetic siltstone dominated Warramunga Formation units.

Outcrops, which coincide with ridges and isolated hills, are dominate throughout the central portion of the licence area, these ridges and isolated hills consist of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation and most likely underlie Cainozoic colluvium scree, alluvial red soil plains, quartz rich dissected colluvial fan deposits and less extensive alluvial deposits in active channels and on flood plains. The Quartz Hill Fault system dominates the structure of the central portion of the licence, and is the major control on mineralisation and ironstone emplacement.
The majority of the south central portion of the licence area is underlain by turbidite sediments of the Palaeoproterozoic Warramunga Formation (1865-1855 Ma), predominately greywacke and siltstones. This formation is host to virtually all the magnetite-haematite (ironstone-hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.

The northern portion of the licence area is on the northern fringe of the established Tennant Creek goldfield. Except in a few localities, bedrock geology within the Licence area is not well revealed due to the discontinuous nature of sparse outcrops. Much of the northern Licence area is underlain by the predominantly felsic volcanics or volcanically derived sedimentary rocks of the Flynn Sub-group, while the more northern parts consist of sediments of the lower Tomkinson Creek Sub-group.

There are a number of intermittent outcrops of granite, metamorphosed sediments and ironstone throughout the eastern portion of the licence area.

The geology in central east consists of major outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation forming a series of ridges trending north west. The western region contains quartz rich dissected colluvial fan deposits with less extensive covering by Cainozoic colluvium, scree and alluvial deposits in active channels and on flood plains. The portion of the licence is dominated by Cainozoic colluvium, scree and alluvial deposits in active channels and on flood plains with less extensive quartz rich dissected colluvial fan deposits.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

5.13 SEL 26596 HANKINSON

The geology in northern portion of the licence area consists of minor outcrops of weathered siltstone and greywacke of the Paleoproterozoic Warramunga Formation, limited to the north west areas of the licence, these outcrops form a series of north westerly striking low ridges. In the western end of these low ridges the beds all dip steeply southwards with the occasional parasitic fold indicating a variable easterly plunge. Colluvium, scree and alluvial deposits in active channels and on flood plains dominates the geological landscape of the licence, with less extensive alluvial red soil plains confined to the north east area of the licence.

The licence area is located at the northern limit of the Tennant Creek Province. Outcrop within the tenements is limited to ridges and these comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation and felsic volcanics or volcanically derived sedimentary rocks of the Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group).

More than 90% of the region is covered by Quaternary sands and gravels in relict fluvial systems, active channels, floodplains and quartz-rich dissected colluvial fan deposits.
Known mineralisation in this EL is located along WNW trending structures.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

### 5.14 EL 27131 PATAGONIA

The Northern and Central portions of the licence area is underlain by turbidite sediments of the Palaeoproterozoic Warramunga Formation (1865-1855 Ma), predominately greywacke and siltstones. This formation is host to virtually all the magnetite-haematite (ironstone-hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.

The southern portion of the licence is characterised by large areas of Quaternary cover, including colluvium, scree, sheet and dune sand and sandy soil and alluvial deposits in active channels and on floodplains.

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Flynn (5759) 1:100 000 sheet, which covers the area of the license.

### 6. PREVIOUS EXPLORATION

#### Targets and Concepts

Exploration within the NPA has been aimed at discovering Tennant Creek style iron oxide copper-gold (IOCG) deposits within the Warramunga Formation.

This type of deposit is well documented. Better known examples of the primary copper-gold type in the region include Peko and Argo. These deposits are all hosted in ironstone (magnetite +/- haematite) masses with associated chloritic, dolomitic and silicic alteration. An example of the primary gold type is the Juno deposit. A local examples of the oxide gold type are the Nobles Nob and Eldorado deposits.

There are numerous ironstone outcrops and magnetic anomalies that represent non-outcropping ironstone masses, scattered throughout most of the NPA.

The discovery of the haematite-magnetite Chariot deposit in 1998 has shown the potential for variations on the classic magnetite ironstone hosted gold +/- copper deposits, where lower order magnetic anomalies, plus gravity methods can define new targets. Discoveries by Giants Reef of mineralisation such as at Malbec West, Marathon and Billy Boy further support this. Giants Reef considers the potential for the discovery of mineralisation in hematite dominant ironstones in this group of tenements is excellent.
A large area of the NPA is explored under a statutory exploration Mining Management Plan (MMP) termed Northern Project Area – Authorisation 0467-02.

6.1 EL 10016 GECKO ROAD

During the first year of tenure under Giants Reef Exploration, exploration work involved assessment of the geology of the area. It was concluded that outcrops of the Warramunga Formation are confined to the northern two blocks of this Licence. The Gecko Shear Zone runs through this part of the EL. The other three blocks are lacking in Proterozoic outcrops, although this basement appears to be quite shallow, and do not show any magnetic features of note. Research into previous geophysical studies has revealed two magnetic anomalies, Explorer 71 and Explorer 88, which are located on the margins of the northern block of the EL.

Explorer 71 (AGD84 co-ords, 402000E 7849100N) lies within Mineral Claims C313, C314, C1201 and C1202, on the northern boundary of the Licence and is thus excluded from EL 10016.

Explorer 88 (AGD84 co-ords, 403500E 7847250N) is situated at the southeast corner of the easternmost block, in an area of no outcrop, and is not under claims or leases. It is possible that the causative body is just outside the EL. Giants Reef did not find any information from GeoPeko or Normandy databases to suggest that this blind anomaly has been tested by drilling, and it is therefore regarded as a future target of some interest. Examination and review of the regional magnetics revealed that it can be construed as lying along a linear feature running SE from the Orlando mine, and although Explorer 88 is 6km along magnetic strike from Orlando, its setting gives it a reasonable to high level of prospectivity. It was planned to investigate the anomaly by magnetic modelling, and if justified a drill program would follow, Emmerson hasn’t located any supporting evidence to conclude that this work was conducted.

Exploration work in the second year of Giants Reef Exploration included tenement rationalisation - Shortly before the grant of the EL, Giants Reef purchased all the shares in Normandy Tennant Creek Pty Ltd (now re-named Santexco Pty Ltd). With the purchase, Giants Reef also acquired the extensive Normandy database containing a very large amount of information on the geology and history of exploration and mining over the greater part of the Tennant Creek goldfield. An internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities in September 2002 assessed the future exploration potential of all the tenements held by Giants Reef. The future exploration potential of the EL and enclosed Mineral Claims and Leases were assessed using an integrated geological, geochemical and geophysical approach. The review was based on the potential to discover high-grade gold mineralisation in both magnetic and haematite-dominant ironstones. During the second tenure year a program of high-priority definition drilling of the Chariot gold deposit was the immediate focus of Giants Reef. Further exploration focus by Giants Reef for 2002 was on the drilling of the Bluebush Project Area, EL’s 8882 and 8883, which came under an Alliance with BHP Billiton. The focus on the Bluebush area and the definition drilling at Chariot gold deposit prevented Giants Reef from undertaking on-ground exploration over the Licence area, therefore limiting the exploration over EL 10016.
The third year of tenure under Giants Reef also saw no on-ground exploration over the Licence. Giants Reef’s commitments in establishing mining operations at Chariot, Edna Beryl, Cats Whiskers and Malbec West prevented further exploration over the licences.

The fourth year of tenure under Giants Reef a comprehensive review of the vacuum geochemical data and geophysics over the tenement was undertaken during the year and this work resulted in the delineation of a highly prospective magnetic anomaly which coincides with a western, albeit low tenure Au anomaly. A reconnaissance survey was undertaken over this area and an inspection of outcrop in the region of the anomaly supports the presence of the prospective Warramunga Formation units. Follow-up exploration on this target was curtailed during the year due to the Company’s commitment in developing the Malbec West, Edna Beryl, Cat’s Whiskers deposits and other higher priority regional targets in the Tennant Creek Mineral Field.

During 2008 Emmerson conducted two major geophysical surveys;

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics and commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s Tennant Creek tenure package and included EL 10016. The survey was conducted by three teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing’s, on lines 500m apart orientated North – South. Readings in areas requiring more detail were taken on 50 station spacing’s on 100m spaced lines orientated North - South. The survey was completed during October 2008. 59 station readings were taken in EL 10016 and consisted of 59 Regional readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included all EL 10016. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing’s, with 750m tie line spacing’s and a sensor height of 25m for a total Line KM of 38,278, with 7,000km’s (approximately 28%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

### 6.2 EL 10077 WHIPPET EAST

EL 10077 was acquired to search for IOCG deposits hosted in Warramunga Formation units within the Northern Star - Edna Beryl – Whippet trend and to evaluate a dipole magnetic feature identified in a 1993 Western Mining (WMC) aeromagnetic survey. The magnetic feature is located approximately 2 km east of the Whippet Hill mine and is referred to as the “Whippet East” magnetic anomaly.

Exploration during the first year of tenure included:
Magnetic Assessment - Consultant geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, was engaged to examine the 1998 AGSO aeromagnetic data over the licence area. Several drill targets were produced from this work however most appeared to be low-order.

Frank Lindeman, of Lindeman Geophysics Pty Ltd modelled the Whippet East anomaly using the 1998 AGSO aeromagnetic data. Mr Lindeman’s assessment was not encouraging, however he suggested that a ground magnetic survey should be completed over the anomaly to provide detailed data which he could then model with more confidence. The presence of the Whippet Hill mine which produced 18,800 oz Au, located approximately 2km to the west of the anomaly within a highly gold-productive corridor that includes Edna Beryl, Troy, Marathon and others upgrades the anomaly substantially. This anomaly was considered a future target for magnetic modelling, and for subsequent drilling if warranted. The above recommendations were never followed up on.

Exploration conducted during the second and third tenure years included:

A review and assessment of the exploration potential and prospectivity of the Licence area. The review recommended the Whippet East magnetic anomaly for magnetic modelling, and subsequent drilling if warranted. The proposed magnetic modelling was not undertaken in the second tenure year due to Giants Reef’s commitments being else where in the Tennant Creek goldfield.

The main work completed during the fourth tenure year comprised collection and entry of exploration data into Giant’s Reefs GIS and Micromine databases.

It was decided not to extend the detailed ground gravity survey completed in 2004 over ELs 10101, 22165, 22583 and 22590 further to the west onto EL 10077. This survey has highlighted several promising anomalies, and subject to reconnaissance drilling testing of these, it was planned to extend the ground gravity survey further west, but never followed up on.

The 2 graticular blocks proposed for reduction during this tenure year were interpreted as Ooradidgee Group units and as such are not considered to represent an area of high prospectivity. The area proposed for retention and considered most prospective includes the north eastern region of the tenement which includes Warramunga Formation and the strike extensions to the Whippet deposit.

No further exploration has been conducted of the EL.

6.3 EL 10101 BINARY

Exploration Licence 10101 was initially applied to cover an area to the south of known mineralisation within Giants Reef’s Marathon, Troy and Edna Beryl prospects. The Licence area covered 8 full and 4 part graticular blocks.

Exploration work conducted during the first tenure year included:
A review of all previous exploration work, this identified that the Licence area contained at least 3 target areas that require further investigation.

- A possible trend of mineralisation form Giants Reef’s North Star mine, running east-northeast through the northwest corner of the Licence into adjoining EL 22165.

- The Rhodes magnetic anomaly east of the Stuart Highway, centred at 415700mE 7861300mN (AMG AGD84). Western Mining completed a large ground magnetic survey over this anomaly but decided not to drill it because it is in an area of low gravity, and not on a gravity ridge. This anomaly remains unexplained.

- Another aeromagnetic anomaly 1.5km southeast of Rhodes, at 417100mE 7860800mN (AMG AGD84). This anomaly was called Rhodes South by Giants Reef. Research indicates no work has been done on this anomaly, even though it appears to be stronger than Rhodes, and more importantly, lies on a northeast-trending gravity ridge which is clearly defined in WMC’s regional gravity survey. This gravity feature, though not as broad as the North Star to Whippet ridge, could well represent a narrower band of concealed Warramunga Formation rocks.

- Establishment of an AMG AGD 94 grid over the Rhodes and the Rhodes South anomalies, further geophysical assessment, modelling and the collection of soil and rock samples was planned for these two target areas.

Exploration and the proposed work over the above identified anomalies during the second tenure year was limited due to Giants Reef’s commitments being else where in the Tennant Creek goldfield.

Exploration during the third tenure year included:

Continuation of literature review - EL 10101 was examined through an extensive literature review in the first tenure year and was continued during this tenure year confirming the identification of 3 target areas that require further investigation.

- A possible trend of mineralisation form Giants Reef’s North Star mine, running east-northeast through the northwest corner of the Licence into adjoining EL 22165.

- The Rhodes magnetic anomaly.

- The Rhodes South magnetic.

During the fourth tenure year a detailed ground gravity survey of the area stretching from the Northern Star to Carraman/Klondyke deposits was completed. Daishsat Geodetic Surveyors were contracted to undertake a detailed ground gravity survey over some 7km² of Warramunga Formation extending from the Northern Star – Edna Beryl to Klondyke prospects. This survey covered 3.2km² of the north western region of EL 10101, including an area between the Troy and Rising Star prospects. This survey has highlighted several discrete gravity highs requiring follow-up work. Some of these are associated with known but poorly out-cropping ironstones. Also during the tenure year
Giants Reef completed a scoping study to evaluate all known copper-gold resources and prospects on its tenements. Work comprised:

- Compilation of an inventory of all copper-gold resources and drilled prospects;
- Assessment and ranking of resources and prospects;

The Troy deposit, which is located in MCC 908 within the License area, was assessed as part of this study.

During the fifth tenure year a desk top evaluation of the License was undertaken to assess the potential of the EL to be included in a package of tenements for JV. Given the location of the EL to Giants Reef’s operational Edna Beryl mine, and in the main north-east trending structural corridor, the License was excluded. Additionally a north-west striking magnetic ridge was noted as an additional area of review for exploration targets.

During 2008 Emmerson conducted two major geophysical surveys, one of which included EL 10101;

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included approximately 85% of EL 10101. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing’s, with 750m tie line spacing’s and a sensor height of 25m for a total Line KM of 38,278, with 7,000km’s (approximately 28%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

6.4 EL 22165 COPERNICUS

Exploration Licence 22165 was initially applied to cover a prospective area of land surrounding the North Star mine (102 000t @ 7.9 g/t Au) group of mineral claims that at the time of grant were owned by Normandy Tennant Creek Pty Ltd. These Mineral Claims and Leases cover approximately 40% of Licence area.

In the first tenure year Giants Reef’s contract geophysicist Mr Frank Lindeman of Lindeman Geophysics Pty Ltd, Melbourne geophysically assessed the Licence area. Mr Lindeman’s assessment of the 1998 AGSO aeromagnetic data covering the Licence area was encouraging with several low order magnetic anomalies identified for drill testing. The potential for gold-copper mineralisation in haematite dominant ironstone is considered high and acquisition of detailed gravity data over the area was suggested by Mr Lindeman.

Further geophysical assessment of the EL was not undertaken in the second tenure year due to Giants Reef’s commitments being else where in the Tennant Creek goldfield.
Exploration during the third tenure year was limited to desk top studies, re-evaluations and reviews of all previous exploration conducted over the EL, due to Giants Reef's commitments being else where in the Tennant Creek goldfield.

Exploration conducted during the fourth year of tenure included the initiation of a program to explore for shallow oxide gold resources. Leases within EL 22165, which include the North Star and Jasper Hill Shallows prospects, were reviewed and RC drilling was planned. A detailed gravity survey was also planned, part of which covered this EL.

A detailed ground gravity survey of the area stretching from the Northern Star to Carraman/Klondyke deposits was completed. The survey was undertaken by Daishsat Geodetic Surveyors over some 7 km² of Warramunga Formation. This survey covered 4.6 km² of the northern half of EL 22165, including an area abutting the North Star group of leases. This survey highlighted several discrete gravity highs requiring follow-up work. Some of these are associated with known but poorly out-cropping ironstones along WNW trending structures.

RC drilling planned at Jasper Hills Shallows, as part of Giants Reef's oxide gold program in the North Star group leases was unable to be implemented as clearances were not forthcoming from the traditional owners.

During 2008 Emmerson conducted two major geophysical surveys, one of which included EL 22165;

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included approximately 90% of EL 22165. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing's, with 750m tie line spacing's and a sensor height of 25m for a total Line KM of 38,278, with 7,000km’s (approximately 28%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

6.5 EL 22224 MONZONITE

The target in Exploration Licence 22224 was a major base metals or base metals/precious metals deposit. Giants Reef did not apply a precise model to the target, but the style of occurrence was envisaged as being situated in iron oxide-rich lithologies and therefore likely to be associated with a regional or district-scale gravity anomaly and probably also with a magnetic anomaly.

A regional gravity high, which Giants Reef refers to as the Rosella Gravity Anomaly, is centred approximately 17km northeast or NNE from Warrego. This gravity anomaly occurs within a much wider zone of elevated magnetic readings centred around the Warrego Granite intrusion to the west. The basement geology of the gravity anomaly
area was largely masked by Recent cover sequences, so that the cause of the gravity anomaly was not apparent.

Exploration work conducted during the first year of tenure included:

Literature search of all previous exploration work - Giants Reef made an initial examination of reports on exploration by previous companies in the area of Exploration Licence 22224. The research had not much direct value in the search for major base metals deposits, but was of assistance in locating possible future targets of the Tennant Creek-style ironstone-associated gold-copper-bismuth type.

Reconnaissance - Several vehicle trips were made to the area around the centre of the Rosella Gravity Anomaly. These trips revealed the difficulties of travelling in this area, without providing much in the way of additional geological knowledge.

NTGS/AGSO gravity survey assessment - In mid-2001, the Northern Territory Geological Survey and the Australian Geological Survey Organisation jointly carried out a gravity survey over the Tennant Creek 1:250,000 sheet and parts of some adjacent sheets. In the EL 22224 area, the station spacing was at 4km by 4km centres. The new survey information was a considerable improvement upon the old 11km by 11km coverage. Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over the Rosella Gravity Anomaly and EL 22224 for Giants Reef. After removing a residual gradient, the Rosella Gravity Anomaly now appears broken up into several separate anomalies and the highest amplitude, or peak, residual anomaly is located at AGD84 approximate co-ordinates 384000E 7864800N. Mr Lindeman commented that the “Rosella Gravity Anomaly, as defined by the Bouguer gravity and the Bouguer residual, is now part of a large and quite coherent ‘inverted U-shape’, which quite faithfully drapes around the northern edge of the Warrego granite. Its size and location truly does give it the feel of a ‘regional’ feature, probably reflecting the density contrast between the granite and the surrounding geology. The Rosella anomaly is only a part of the eastern section of this response and realistically does not now, in my opinion, constitute a specific or discrete anomaly, which might represent an ore environment.” This observation downgraded the exploration potential for the kind of target envisaged, and made it unlikely that Giants Reef’s proposal for drilling a deep test hole at the peak of the Rosella Gravity Anomaly, situated in the northern part of EL 22224 Monzonite, would be carried out.

Gravity and magnetics assessment - Further to his comments on the NTGS/AGSO gravity survey results, Mr Lindeman noted that within the Rosella project and adjacent areas, except for the area of the Warrego Granite, there is no correlation between gravity and magnetics. “The magnetic features occurring within the Rosella Gravity Anomaly extend well out of it, particularly as they trend well off to the ENE. Thus there is no reason to presume that the source of the magnetic and gravity bodies are the same.” The assessment led to the conclusion that “the magnetic and gravity and magnetic data do not define a specific target worthy of drill testing, whether it be magnetic, gravity or a combination of both. It could be argued that the (new) gravity data are still quite regional with stations many kilometres apart. However, the strong association of the gravity with a great proportion of the northern edge of the low-density Warrego granite, which is unlikely
to change with more closely spaced stations, suggested strongly that the gravity is reflecting a regional geological phenomenon and not a potential drill target.”

A large number of exclusion zones and culturally sensitive areas were marked on the map accompanying the clearance letter, dated 22 March 2002 (CLC map 2001/129a). Approximately 80% of EL 22224 Monzonite, as it stood then, was an exclusion zone, leaving only a small triangular area in the southern part free. While the existence of those areas did not entirely rule out exploration in the extensive stretches of the Rosella project area that they covered, they presented considerable difficulties if exploration were to be pursued in those areas.

Exploration work conducted during the second year of tenure included:

Exploration Focus under the BHP Alliance - Tennant Creek-style orebodies were regarded as secondary targets, as the focus of exploration, under the Strategic Alliance agreement with BHP Billiton, was to find major base metals or base metals/precious metals deposits. However, assessment of the base metals/precious metals prospect areas within EL 22224 downgraded the potential for this style of mineralisation occurring at the Rosella prospect. As a result of the downgrading of EL 22224 for base metals or base metals/precious metals deposits, the drill targets proposed in the first year of tenure for EL 22224 were reprioritised. Giants Reef focused their 2002 field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402. These tenements were also under the Alliance with BHP Billiton.

Tenement Review - An internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities in September 2002 assessed the future exploration potential of EL 22224, and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 22224 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 6 to 3 graticular blocks. Much of the relinquished area was identified as exclusion zones and culturally sensitive areas by the Central Land Council under instruction from the Native Title holders of the Tennant Creek region.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on recent drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Rosella area did not rate in comparison with the Bluebush area.

Exploration work conducted during the third year of tenure included:

Termination of Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint venture tenements, including EL 22224 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003,
confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.

Strategic Planning - No on-ground exploration was conducted over the Licences during the year. Giants Reef reviewed the geological targets and models for the exploration Licence to assess the likelihood of an immediate discovery. The review recognised a number of magnetic anomalies within EL 22224 which are indicative of Tennant Creek style gold-copper occurrences.

Exploration work conducted during the fourth year of tenure included a review and reassessment of all previous exploration work, from this the conclusion that the areas considered most prospective for exploration includes a proportion of the Treasure Suite monzonites, which are host to mineralisation at the Last Hope and Bull Pub prospects. The prospectivity of the EL to host economic gold/copper mineralisation was recently downgraded for the following reasons;

a.) The EL contains no prospective Warramunga Formation.

b.) Although the areas proposed for reduction includes monzonitic units of the Treasure Suite, which is the host to mineralisation at the small Last Hope and Bull Pup prospects, the tenement has no recorded occurrences of Au-Cu mineralisation.

c.) The area proposed for reduction includes the western region of the Rosella Gravity Anomaly, however its prospectivity has been down-graded due to it being interpreted as a regional feature, reflecting a thick package (up to 2km) of sediments (Ooradidgee and Hatches Creek Group) against lower density granites i.e. Warrego granite. The Rosella anomaly appears to be only a part of an extensive anomaly, and appears not to constitute a specific or discrete anomaly which might provide a drill target. Furthermore, magnetic features occurring within the Rosella Gravity Anomaly extend well away from it, suggesting that the magnetic and gravity features do not have a common source.

d.) A review of AAPA data shows that there is an unrecorded registered site (3 small hills) in the EL, however the graticular block containing these was proposed for reduction.

The EL was further reduced in area to one graticular block at the end of the fifth tenure year.

Following the completion of the detailed ground gravity survey and the airborne magnetics survey carried out by Emmerson during 2008, work commenced on the analysis, interpretation and modelling of the captured data. Although EL 22224 was not included in either of these surveys the interpretation, analysis and modelling of the captured data will have a significant effect on the prospectivity of the licence area. The first phase of the analysis was completed on 16 April 2009, which identified all the high priority targets (56 Green fields and 45 Brownfields), the second phase of analysis, interpretation and modelling of the data has commenced and will continue during the 2009 field season and into 2010. The next tenure year for EL 22224, will focus on the application of the geoscientific models developed from the analysis, interpretation and modelling of the recently captured geophysical data and the results of drill testing targets.
developed from the application of the developed models in higher priority areas within the NPA and greater Tennant Creek Mineral Field.

6.6 EL 22589 WHIPPET HILL

Exploration Licence 22589 was initially applied to cover a prospective area of Warramunga Formation and coincident gravity ridge running approximately east-west from North Star through Edna Beryl to the Whippet mine. The historical high-grade producing mine, Whippet is contained within this EL. Several deep regional aeromagnetic anomalies also exist along this gravity ridge in an area of soil cover and no outcrop.

The Licence area contained three targets that required further investigation.

- Mother of Olympus (AMG AGD84 421500mE 7865550mN) – This magnetic anomaly had a large lateral extent and a peak amplitude of 30 nT. The anomaly was complicated by several magnetic lineaments which cut across it in an ENE direction. Barrett suggested these lineaments are part of the magnetic fabric over a larger area and may reflect stratiform units within the Warramunga Formation. The causative body was sizeable but its modelled depth of more than 600m below surface made it a difficult exploration target. Frank Lindeman confirmed Barrett’s interpretation that the Mother of Olympus target was going to be deep (he suggested 450-500m to the top) and expensive to explore.

- Whippet Mine area – Frank Lindeman conducted a magnetic modelling exercise over the Whippet mine area during the first tenure period. His results indicated that “although a shallow, steeply dipping and depth-limited magnetic body appears to quite accurately represent the known and mined ironstone body, a deeper and presumably untested weakly magnetic body appeared to exist, just east of the mine”.

A reconnaissance trip was made earlier in year one to the Whippet mine site. All drill holes around the mine were picked-up using a differential GPS to an accuracy of 50cm. The collar positions are tabled below:

<table>
<thead>
<tr>
<th>LOCAL GRID</th>
<th>AMG AGD 66</th>
<th>PEKO GRID</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hole</td>
<td>Northing</td>
<td>Easting</td>
<td>Northing</td>
</tr>
<tr>
<td>WH01</td>
<td>65604.88</td>
<td>26005.04</td>
<td>7865604.83</td>
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<tr>
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<td>WH07</td>
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<td>26030.34</td>
<td>7865668.89</td>
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</table>
All drill holes had a star picket belted into the ground and an engraved metal tag bolted to the picket identifying the hole. All holes were capped with cement flower pots and a wire. Small pieces of scrap metal were collected and removed from the immediate Whippet mine site.

- **Whippet South** – This magnetic anomaly (AMG AGD66 - 429000mE 7862600mN) was identified by GeoPeko as Explorer 48 and occurs as a strong east-west magnetic anomaly in the south eastern corner of EL 22589. Several RC drill holes were drilled by WMC in late 1980 however they all failed to reach target depth. The magnetic anomaly also has a coincident gravity anomaly.

The Whippet South area continued to be intriguing and further interpretation of all available data was required with the aim of successfully drill testing this target in the future.

Further assessment of the EL and target generation was briefly undertaken in the second tenure year due to Giants Reef’s commitments being else where in the Tennant Creek goldfield.

Exploration work conducted on the EL during the third year of tenure included a number of reconnaissance trips to the anomalies and ground truthing was also conducted. Further assessment of the EL and magnetic anomalies was briefly undertaken in the third tenure year due to Giants Reef’s commitments being else where in the Tennant Creek goldfield.

Exploration work conducted on the EL during the fourth year of tenure included all historical geochemical data covering the EL being compiled and entered into Giant’s Reefs database. This work resulted in the delineation of a number of anomalies that warrant further investigation. Higher resolution geophysics being, either high resolution magnetics, or ground gravity was required to better refine drill targets.

It was decided not to extend the detailed ground gravity survey completed in 2004 over ELs 10101, 22165, 22583 and 22590 further to the west onto EL 22589. This survey has highlighted several promising anomalies, and subject to reconnaissance drilling testing of these, it was planned to extend the ground gravity survey further west.

Following the completion of the detailed ground gravity survey and the airborne magnetics survey conducted by Emmerson during 2008, work commenced on the
analysis, interpretation and modelling of the captured data. Although EL 22589 was not included in either of these surveys the interpretation, analysis and modelling of the captured data will have a significant effect on the prospectivity of the licence area. The first phase of the analysis was completed on 16 April 2009, which identified all the high priority targets (56 Green fields and 45 Brownfields), the second phase of analysis, interpretation and modelling of the data has commenced and will continue during the 2009 field season and into 2010. The next tenure year for EL 22589, will focus on the application of the geoscientific models developed from the analysis, interpretation and modelling of the recently captured geophysical data and the results of drill testing targets developed from the application of the developed models in higher priority areas within the NPA and greater Tennant Creek Mineral Field.

6.7 EL 23183 JUNCTION

EL 23183 was acquired to search for IOCG deposits hosted in Warramunga Formation units, predominately within the region of the Quartz Hill fault zone and to further evaluate magnetic features first identified in the Tennant Creek regional magnetic survey, with the most prominent features identified in greater detail by the 1998 heli-magnetics survey (and are located in the western region of EL 23183), the survey was flown between the Warrego and Gecko deposits and conducted by Kenron at the request of the company in 1998. The prominent magnetic features correlate with the Orlando and Gecko mines.

Previous exploration in EL 23183 was undertaken by several companies, and it fell under various EL’s during this time.

During the early to mid 1970’s using 1:12 000 scale coloured aerial photographs flown in 1969, Australian Development Limited (ADL) compiled detailed geological maps that cover EL 23183 and other surrounding areas. Newmont Australia Limited explored the area in a joint venture with ADL under EL’s 5067 & 5133 (White Hill Project) in the late 1980’s. The work completed by the joint venture partners included: Geological mapping – comprising systematic ground traverses to update and extend the existing ADL 1:12 000 geological maps; Interpretation of the low-level airborne magnetics survey - flown by Austirex in 1984 with a flight line spacing of 200m, sample interval of 30m for magnetics and 60m for radiometrics and sensor height of 80m; Satellite imagery; Regional and detailed soil and outcrop sampling – a total of 96 soil and drainage samples were taken at various localities to provide orientation for the Bulk Cyanide Leach method in this environment. The data demonstrates back-ground values of 0.2ppb AU to below detection for samples taken in residual soils over granitic basement. Anomalous values ranging up to 22.3ppb Au were returned from samples taken adjacent to know mineralised zones and anomalous drainage trains of greater than 1km downstream were detected.

Metana Minerals NL in a joint venture, first with Allender & Lebrun, and then with Placer Exploration Limited (Placer), explored the area in the late 1980’s under EL 5625 (Gecko East Prospect). Work completed by the joint venture partners targeted a magnetic anomaly referred to as ‘M1’ and included: Photogeological interpretation; Ground magnetics survey – carried out by Solo Geophysics to accurately position an identified airborne anomaly. Readings were taken at a height of 2.7m, an interval of 5m, on lines
spaced 80m apart. The results suggested an ironstone source steeply plunging south; Soil sampling – a total of 155 samples were taken on a 20m x 80m grid over the M1 anomaly, results received weren’t encouraging as no values exceeded the background level set by the partners of 0.2 ppb; Bedrock geochemistry – sampling was conducted with a RAB rig on a 40m x 80m grid over the centre of the M1 anomaly. The sample was taken from the bottom metre of the hole in recognised bedrock. Results reflected that, of the soil sampling results, there were no anomalous values. Bedrock lithologies were dominantly siltstone with minor vein quartz, clay and rare hematite; Rock chip samples – six samples were collected and assayed, no anomalous values were returned; RC drilling – two RC holes (GCRC001 & GCRC002) were targeted on the modelling of the ground magnetic data. The holes were drilled at a spacing of 40m to the north and were angled at -60 to a depth of 139m. GCRC001 intersected massive jasperitic quartz-hematite from 49.5m to 63.5m. Samples were taken every metre and there were no anomalous gold intersections, the best results were GCRC001 1m @ 0.20ppm Au from 135, GCRC002 1m @ 0.10ppm Au from 44m; Stream sediment sampling – a regional stream sediment sampling was carried out over the entire tenure. A 3kg sample of -2m fraction was collected at each site and analysed by the Bulk Leach Extractable Gold (BLEG) method, a 50g split of -180 microns fraction was taken from each and analysed for copper and bismuth, with the best results relating to EL 23183 being located near the M1 anomaly being 1.3ppb Au, 2ppm Cu, 0.3ppm Bi

PosGold Limited explored the area in the early 1990’s under EL 7099 (Mercury Prospect). Worked completed by PosGold included: Interpretation of the low-level airborne magnetics survey - flown by Austirex in 1984 with a flight line spacing of 200m, sample interval of 30m for magnetics and 60m for radiometrics and sensor height of 80m, from this survey and contour maps were produced at 1:100 000, 1:50 000 and 1:10 000 scales; Satellite imagery – interpretation of colour clay and colour gossan Landsat Thematic Mapper imagery showed the White Road Prospect as a distinct linear zone of silicification and clay alteration supported by ADL’s regional geological mapping; Regional gravity survey – the survey incorporated EL 7099, a set of 1:50 000 scale Bouguer Gravity Contour Maps were produced to aid in structural understanding. The results only showed one significant feature, a large gravity low, via a ground assessment it was interpreted to possibly represent a volcanic vent associated with the Bernborough Volcanics; Soil geochemistry – soil sampling targeted a zone of quartz veining, testing for hydrothermal gold mineralisation associated with quartz veining, structural setting and altered host volcanics. A total of 336 bulk soil samples were collected on a 50m x 100m grid which was oriented to 320° to correspond to the strike of the quartz veining and measures 1 500m x 1 000m. Results didn’t indicate any significant base metal anomalies, copper peaked at 16ppm, with only 6 samples assaying greater than 10ppm, Pb, Bi and As were all below 10ppm, 10 samples assayed in the range of 10ppm – 34ppm Zn, with one spot peak of 210ppm. Au results were generally low with the best assaying at 8ppb, 12.5ppb, and 16.4ppb. Following these results a second soil sampling was conducted over the quartz veining, a total of 76 samples were collected on 4, 200m spaced lines with 50m spaced samples, 14 samples were collected at 50m x 50m to further test the 16.4ppb Au anomalous results region. Gold peaked at 0.78ppb, with the repeat sampling of the initial anomalous 8.0ppb Au and 16.4ppb Au results, returned values of 0.27ppb Au and 0.24ppb Au respectively; Geomorphologic mapping – involving integration of aerial photograph mapping and interpretation with colour tm imagery and
field traversing; Aerial photographic interpretation – the results of this work concluded that
the Bernborough Volcanics and overlying Flynn Subgroup sediments cover the majority
of the tenement area. The main structures in the area are late dextral faults, commonly
quartz-filled.

Asarco Australia limited (Asarco) explored the area in a joint venture agreement with
North Flinders Mines Ltd (NFM) in the early 1990’s under EL 7181 (Orlando Prospect).
The work conducted by the joint venture partners included: Gridding – totalling 76.2 km at
either 100m or 200m line spacing and 50m peg spacing; Vacuum drilling – this was
carried out to test magnetic flexures identified along the edges of pronounced magnetic
ridges. The quoted lower limits used by the partners were, Au 0.001ppm, Cu 0.5ppm and
Bi 1.0ppm. Of this extensive programme the work carried out in the Orlando South, West
Block grid was within EL23183, it totalled 95 holes totalling 309 metres on seven lines.
Anomalous Au, Cu and Bi values were identified in a zone that extends 600m in an east
west trend and narrows from its widest point at the western edge of the grid to
approximately the centre of the grid. Elevated Cu values cover the largest area ranging
from 14 to 93.5ppm, averaging 20 to 30ppm. Bi values are less than 1ppm over most of
the Orlando south grid but range from 1 to 26ppm in the anomalous zone. Slightly
elevated Au values of 1 to 4ppb, with a 7ppb value, coinciding with the elevated Cu and
Bi values. The lower portion of the Queen of Sheeba grid encroaches on EL 23183, but
no significant results were returned; Geological mapping – mapping was carried out at
1:10 000 scale over areas which were gridded for vacuum drilling; Rock sampling – two
samples were taken from the Orlando south region for descriptions and analysis.

Roebuck Resources NL explored the area in a joint venture agreement with NFM in the
early 1990’s under EL’s 7407, 7408, 7446 & 7649 (Gecko Cleo group), work completed
by the partners included: Bedrock geochemical RAB drilling – only the Gecko east portion
of the partners programme is within EL23183, this portion of the programme was drilled
to determine the source of the 900m long, north-northwest trending, +50ppm copper
anomaly defined by the 1991 bedrock geochemical drilling. 8 inclined (60˚) holes were
drilled totalling 371m. Results indicated that the +50ppm bedrock copper anomaly relates
to mineralised shears within fractured, quartz veined, fine magnetic bearing quartz-felspar
porphyry. The mineralisation is cooper dominant, gold poor and mainly disseminated but
may occur as irregular pods; Geological mapping; Rock sampling. Roebuck furthered
explored the area in a joint venture with NFM under SEL 8777 in 1994 – 1997, but no
reports were available.

Western Mining Corporation Limited (WMC) explored the area in the early 1990’s under
EL 7527. During the period March 1992 – March 1993 work completed included:
Gridding – this established a 2km long baseline with 80m spaced lines extending 500m
north and south of the baseline; Detailed ground magnetic survey – stations were 10m
apart on 80m spaced lines with 40m spaced lines over significant anomalies with a 3m
sensor height. The data obtained from the survey reflected, just in more detail, that of the
aeromagnetics; Geological mapping and rock chip sampling – both gridded areas were
mapped at 1:2500 and rock-chipped sampled in August 1992. The results of this
revealed an anomalous Bi, Cu and lesser Au region. During the period March 1993 –
March 1994 work completed included: a 55 hole RAB drilling (TMMP001 -055), totalling
162m was conducted to test drill the anomalous Bi, Cu and lesser Au rock-chip region.
No ironstones were intersected, but a significant number of holes intersected vein quartz. Although some areas of quartzose were anomalous, no results prompted follow-up work.

NFM explored portions of the EL under EL 8640 between June 1994 – June 1996, but no reports on this EL were available.

Normandy explored areas covering portions of EL 23183 during the mid 1990’s under EL 7661 (Picasso prospect) focussing on the Explorer 85 prospect, but no reports were available.

The Bishops Creek leases contain two old mines (small historical workings): Occidental and Cleo’s Gift. Worked first conducted on these leases was by Nobelex NL, Poseidon Gold Limited and Normandy, the work included: soil sampling; geophysical surveys (IP, TDEM, aeromagnetics and ground magnetics), shallow RAB and RC drilling. The details of this work weren’t available.

The TC-39 prospect was explored by Nobelex NL in 1974 under EL 96, work conducted included: Geological mapping; Sampling; Geophysical surveying; Diamond drilling. No details of this work was available.

PosGold explored a portion of EL 23183 under EL 9150 (Leonardo). Work completed included: Vacuum drilling – holes were drilled along 200m spaced, 1800m lines with hole intervals of 50m. Closer spaced, shorter lines were used over specific targets. Hole depths averaged 5.1m and a total of 204 holes (LEV014-025, 057-076, 128-138, 175-198, 247-270, 089-100, 321-332, 042-043, 390-391, 397-398, 215-216, 378-379, 229-230, 357-358, 117-118, 349-350, 287-288, 304-305), for 1084m were drilled. The results returned anomalous assays of up to 5.2ppb Au, 220ppm Cu, 24ppm Bi, 22ppm Co and 13.4% Fe; RAB drilling – 7 holes, totalling 357m, results returned were not encouraging, with no significant mineralisation detected.

In the first tenure year exploration work involved the combined a quantitative/qualitative ranking, based on geological, geochemical & geophysical characteristics and other parameters covering work status, target type, land status and economics. As part of this work geochemical data sets, including all historical drilling data, were integrated into the Company’s database and GIS for analysis.

Results from this work generated targets for drill testing. This drill testing was never undertaken. The proximity of the magnetic features to the Orlando and Gecko mines (18,800 ounces of gold produced) and other significant features such as the Quartz Hill Fault lend some support to the prospectively of these generated targets.

Exploration work conducted during the second year of tenure was limited due to Giants Reef commitments elsewhere in the Tennant Creek Mineral Field.

During 2008 Emmerson conducted two major geophysical surveys;

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s Tennant Creek tenure package and included EL 23183. The survey was conducted by three
teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing’s, on lines 500m apart oriented North – South. Readings in areas requiring more detail were taken on 50 station spacing’s on 100m spaced lines oriented North - South. The survey was completed during October 2008. 142 station readings were taken in EL 23183 and consisted of 142 Regional readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included most of EL 23183. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing’s, with 750m tie line spacing’s and a sensor height of 25m for a total Line KM of 38,278, with 4,002km’s (approximately 10%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

6.8 EL 9939 BATTERY BLOCK

Shortly before the grant of this EL, Giants Reef purchased all the shares in Normandy Tennant Creek Pty Ltd (now re-named Santexco Pty Ltd). With the purchase, Giants Reef also acquired the extensive Normandy database containing a very large amount of information on the geology and history of exploration and mining over the greater part of the Tennant Creek goldfield.

During the first year of tenure, studies of the ex-Normandy database and other public domain information were conducted, which suggested that there are no magnetic targets in EL 9939 that might warrant follow up outside the various Mineral Claims and Mineral Leases that cover parts of the northern two blocks of the EL. These leases and claims cover the Olivewood, Ellen Ruby, One-Oh-Two, Havelock-Talisman and Orlando Extended workings.

There are several un-named workings on haematite outcrops within EL 9939 that are not under claims or leases, but the current practice of the Central Land Council is to regard all ironstone outcrops in the Tennant Creek region as sites of importance to the Aboriginal people, and hence Giants Reef had reservations about considering these occurrences as exploration targets.

The proximity of EL 9939 to the major Gecko and Orlando copper-gold mines, and the many old workings within the EL boundaries and nearby, gave the Licence a high level of prospectivity. It was planned to make further assessments of the ex-Normandy database to target non-magnetic and probably non-outcropping, structurally-controlled targets within EL 9939. A major magnetic linear, which corresponds with the NW-SE shear zone through the Gecko mine (Gecko Shear Zone), may host such targets, even though Giants Reef was aware that much previous exploration work had been done along this complex structure.
During the second tenure year studies of the ex-Normandy database and other public domain information continued. Results again indicated that there are no magnetic targets in EL 9939 that might warrant follow up outside the various Mineral Claims and Mineral Leases that cover parts of the northern two blocks of the EL. Due to the highly prospective nature of EL 9939, few of the Leases and Claims within the Licence were recommended for surrender during the tenement rationalisation review. Consequently the northern 2 blocks of the EL remain covered by Leases and Claims which are excluded from exploration under the EL. However, ML C693-Olivewood, and ML C20-One Oh Two, that cover the northern 2 blocks of EL 9939 were ranked as first class prospect areas for shallow gold exploration and recommended for near future Reverse Circulation (RC) drill programs to test the shallow target zones previously identified. Success from these programs would have possibly lead to mineralisation extensions within the southern portion of the EL.

On expiry in December 2002, the Mineral Claims C1211-C1215 were subsumed by EL 9939.

During the third year of tenure no on-ground exploration was completed over the Licence. Giants Reef’s commitments in establishing mining operations at Chariot, Edna Beryl, Cats Whiskers and Malbec West prevented further exploration over the licences. A review of prospects within EL 9939 was conducted and the conclusions from the detailed assessment of Olivewood, One-Oh-Two, Havelock-Tailsman and Orlando Extended workings generated drill targets for twelve (12) Reverse Circulation drill holes. Giants Reef Management ranked these prospects as first class exploration targets, and recommended them for immediate drilling. A drill contractor was secured, and CLC land clearances sought for the proposed drill sites. Drilling was expected to commence early within the fourth tenure year of the Licence.

Work during the fourth year of tenure included a compilation and database integration of all previous exploration data for tenement including the Olivewood and One-oh-Two prospects. This work highlighted several drill targets however upon inspection by CLC and traditional elders approval was not given for this work as the sites were considered to be sacred sites. One-Oh-Two coincides with a recorded sacred site however the Olivewood is approximately 250m from a registered sacred site.

The Olivewood prospect has an inferred resource of 19,050 t (SG3.0) at a grade of 18.0 g/t Au (uncut) and negligible copper (71 ppm) to 80 meters depth. This resource is some 33 meters below surface to the top of the resource. The resource strikes ~300 degrees and dips steeply south. Mineralization occurs with a package of chlorite-clay-ironstone alteration. Ironstone is dominant nearer the surface but is not necessarily auriferous. The One-oh-two prospect is North West and on strike to the Olivewood prospect and probably occurs within the same structure. Two en echelon ironstone lenses occur in a similar orientation to Olivewood (strike ~300).

Work completed over EL 9939 in the fourth tenure year included an inspection of outcropping ironstones in the eastern region of the tenement however while these do not appear to coincide with any known sacred sites, no further work is planned as their nature would suggest that CLC/indigenous clearance would not be obtained to explore these.
A review of airborne geophysics in the south western region of EL 9939 has delineated a low tenure anomaly which warrants further investigation.

During 2008 Emmerson conducted two major geophysical surveys;

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson's Tennant Creek tenure package and included EL 9939. The survey was conducted by three teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing's, on lines 500m apart oriented North – South. Readings in areas requiring more detail were taken on 50 station spacing's on 100m spaced lines oriented North - South. The survey was completed during October 2008. 34 station readings were taken in EL 9939 and consisted of 34 Regional readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included all EL 9939. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing's, with 750m tie line spacing's and a sensor height of 25m for a total Line KM of 38,278, with 7,000km's (approximately 28%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

6.9 SEL 26594 BILLS

SEL 26594 was a licence in substitute of EL’s 10129, 10311 & 22583, exploration conducted is detailed below;

EL 10129

Exploration within EL 10129 is aimed at discovering large deposits of base metals along with substantial gold and/or silver, probably accompanied or hosted by large volumes of iron oxide minerals. The project area is well away from the established Tennant Creek goldfield, in the relatively younger and geologically distinct Ashburton Province, and any mineral deposits found here are likely to be very different from the well-known ironstone-related gold-copper deposits of the Tennant Creek Province.

The focus of exploration was within the area of the major Alexander Gravity Anomaly (Giants Reef’s term) which is centred about the Stuart Highway, extending from EL 10129 through neighbouring EL 10311 and north into EL 7810. This gravity anomaly is interpreted as being caused by dense, probably iron-rich, rocks and may be a favourable geological environment in which to be searching for sort of large-scale mineral deposits envisaged.
Exploration during the first year of tenure included;

NTGS/AGSO gravity survey assessment - Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over EL 10129. This data came from the NTGS/AGSO gravity survey covering the whole Tennant Creek 1:250,000 sheet, plus some adjoining areas. The survey was conducted in mid-2001. Mr Lindeman’s assessment, dated 28 February 2002, deals with a number of areas both inside and outside the Alexander project area ELs. Mr Lindeman stated “Although the Alexander project area contains a wide gravity station spacing, the broad nature of the anomalous responses, and the lack of convincing and related magnetic anomalism, leads me to the conclusion that no geophysical target exists and no further closer spaced data need to be considered. This conclusion is supported by the absence of any other geoscientific data which could provide some encouragement.”

This observation downgraded the exploration potential of the Alexander Gravity Anomaly target.

Gravity ridge traverses - An elongate residual gravity anomaly or ‘gravity ridge’ runs east-west through EL 10129. As part of a B.Sc. Honours project for a student (Margarita Norvill), at Curtin University of Technology, WA, two 12km north-south gravity traverses were read across the gravity ridge. One traverse followed the eastern side of the Stuart Highway, from 7860000N (south end) to 7872000N. The line was cleared with a grader along the east side of the road fence line. Its north end is in EL 10311 Gibson Creek and the traverse passed through EL 10209 Alexander and through several other Giants Reef tenements to the south. The other line was approximately 9km east of the Stuart Highway, along ~423500E, from 7860000N to 7872000N. Approximately 3.6km was in EL 10129: the remainder in other adjoining tenements. The line was cleared with a front-end loader. Pegs were put in at 100m intervals along both lines, and optically levelled. The instrument used was a Scintrex CG-3/3M Autograv gravity meter.

The conclusion from the project (Curtin University Department of Exploration Geophysics Report 4/01; November 2001) was that the east-west gravity ridge through EL 10129 was probably caused by a swarm of dolerite dykes.

Hydrogeochemistry - Giants Reef sampled the ground water from three cattle station water bores in the Alexander project area, and the water samples were analysed by the CSIRO. This work was done in conjunction with a much larger groundwater sampling program over the Bluebush Gravity Anomaly, located about 50km southwest of Tennant Creek. The sampling was aimed at finding indications of mineralisation in the and around the regional Alexander Gravity Anomaly. The sampling and analytical techniques used have been developed over many years by the CSIRO, in particular by Senior Principal Research Scientist Angela Giblin, who visited Giants Reef’s Tennant Creek offices to discuss the project. Giants Reef’s field work was conducted under her guidance.

An initial step was to find out the locations of all old bores and drillholes in the Alexander area. This was done by visits to the Water Resources Section of the NT Government Department of Lands, Planning and Environment in Alice Springs, where a database on disk was obtained, and photocopies made of a large number of geological logs of all the
relevant drillholes and bores. Sampling involved making readings at each site for ambient and sample temperature, acidity, conductivity, water depth, sample depth, GPS location and remarks on the water quality. The sample bottles were sent to the CSIRO’s laboratory at North Ryde, NSW for the sensitive analysis work. None of the Alexander water samples displayed pH-redox conditions suggestive of sulphides or magnetite, or any indications of Cu, Pb or Zn in their source rocks. However, given that there were only three samples taken over a very wide area of the Alexander anomaly, these three samples were not expected to give a fair indication of the presence or otherwise of anomalous base metals somewhere in the district.

Access clearance from the Central Land Council - The Central Land Council commenced land access clearance for the work proposed by Giants Reef in a program submitted under the ILUA in February 2001.

Exploration during the second tenure year was not undertaken as a result of the downgrading of the Alexander Gravity Anomaly in EL 10129, the field activities proposed for year two during the first year for the Licences were reprioritised. Giants Reef focused their field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

A tenement review was conducted as part of an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities during the second tenure year, this assessed the future exploration potential of EL 10129 and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 10129 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 13 to 7 graticular blocks.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Alexander project area did not rate in comparison with the Bluebush project area. The minutes from the meeting were accepted as accurate, and were signed on the 16th December 2002 by Giants Reef and BHP Billiton.

Exploration during the third tenure year included the termination of the Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint venture tenements, including EL 10129 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.

Other exploration work during the third tenure year included Strategic Planning - No in-ground exploration was conducted over the Licences during the year. Giants Reef reviewed the geological targets and models to assess the likelihood of an immediate
discovery. The review recognised a number of magnetic anomalies within EL 10129 which are indicative of Tennant Creek style gold-copper occurrences and required further investigation.

Exploration during the fourth year of tenure included a Geophysical assessment of the Alexander Gravity Anomaly which, suggested that the magnetic and gravity data do not define a specific target worth drill testing and as such is no longer regarded has having significant potential to host a large base metal deposit. No in-ground exploration was conducted over the licence during the fourth tenure year.

**EL 10311**

Exploration within EL 10311 was aimed at discovering large deposits of base metals along with substantial gold and/or silver, probably accompanied or hosted by large volumes of iron oxide minerals. The project area was well away from the established Tennant Creek goldfield, in the relatively younger and geologically distinct Ashburton Province, and any mineral deposits found here are likely to be very different from the well-known ironstone-related gold-copper deposits of the Tennant Creek Province.

The focus of exploration is within the area of the major Alexander Gravity Anomaly (Giants Reef’s term) which is centred about the Stuart Highway, extending from neighbouring EL 10129 through EL 10311 and north into EL 7810. This gravity anomaly was interpreted as being caused by dense, probably iron-rich, rocks and may have been a favourable geological environment in which to be searching for sort of large-scale mineral deposits envisaged.

Exploration during the first year of tenure included;

**NTGS/AGSO gravity survey assessment** - Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over EL 10311. This data came from the NTGS/AGSO gravity survey covering the whole Tennant Creek 1:250,000 sheet, plus some adjoining areas. The survey was conducted in mid-2001. Mr Lindeman’s assessment, dated 28 February 2002, deals with a number of areas both inside and outside the Alexander project area ELs. Mr Lindeman stated “Although the Alexander project area contains a wide gravity station spacing, the broad nature of the anomalous responses, and the lack of convincing and related magnetic anomalism, leads me to the conclusion that no geophysical target exists and no further closer spaced data need to be considered. This conclusion is supported by the absence of any other geoscientific data which could provide some encouragement.”

This observation downgraded the exploration potential of the Alexander Gravity Anomaly target.

**Hydrogeochemistry** - Giants Reef sampled the ground water from three cattle station water bores in the Alexander project area, and the water samples were analysed by the CSIRO. This work was done in conjunction with a much larger groundwater sampling program over the Bluebush Gravity Anomaly, located about 50km southwest of Tennant Creek. The sampling was aimed at finding indications of mineralisation in the and around
the regional Alexander Gravity Anomaly. The sampling and analytical techniques used have been developed over many years by the CSIRO, in particular by Senior Principal Research Scientist Angela Giblin, who visited Giants Reef’s Tennant Creek offices to discuss the project. Giants Reef’s field work was conducted under her guidance.

An initial step was to find out the locations of all old bores and drillholes in the Alexander area. This was done by visits to the Water Resources Section of the NT Government Department of Lands, Planning and Environment in Alice Springs, where a database on disk was obtained, and photocopies made of a large number of geological logs of all the relevant drillholes and bores. Sampling involved making readings at each site for ambient and sample temperature, acidity, conductivity, water depth, sample depth, GPS location and remarks on the water quality. The sample bottles were sent to the CSIRO’s laboratory at North Ryde, NSW for the sensitive analysis work. None of the Alexander water samples displayed pH-redox conditions suggestive of sulphides or magnetite, or any indications of Cu, Pb or Zn in their source rocks. However, given that there were only three samples taken over a very wide area of the Alexander anomaly, these three samples were not expected to give a fair indication of the presence or otherwise of anomalous base metals somewhere in the district.

Access clearance from the Central Land Council - The Central Land Council commenced land access clearance for the work proposed by Giants Reef in a program submitted under the ILUA in February 2001.

Exploration during the second tenure year was not conducted as a result of the downgrading of the Alexander Gravity Anomaly in EL 1031, the field activities proposed in the first year for the Licences were reprioritised. Giants Reef focused their field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

A tenement review was conducted as part of an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities during the second tenure year, this assessed the future exploration potential of EL 10311 and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 10311 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 45 to 23 graticular blocks.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Alexander project area did not rate in comparison with the Bluebush project area. The minutes from the meeting were accepted as accurate, and were signed on the 16th December 2002 by Giants Reef and BHP Billiton.

Exploration during the third tenure year included the termination of the Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP
Billiton detailing all the exploration conducted over the joint venture tenements, including EL 10311 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.

Other exploration work during the third tenure year included Strategic Planning - No in-ground exploration was conducted over the Licences during the year. Giants Reef reviewed the geological targets and models to assess the likelihood of an immediate discovery. The review recognised a number of magnetic anomalies within EL 10311 which are indicative of Tennant Creek style gold-copper occurrences and require further investigation.

During the fourth tenure year the licence area was reviewed and the conclusion drawn that the tenement contained no prospective Warramunga Formation. A Geological assessment identified the Licence area to be located outside the traditional Tennant Creek goldfield, and within host rock not indicative to the typical Tennant Creek Au-Cu-Bi mineralization. The geology and geophysics over the EL were reviewed and the northern graticular blocks of the tenement reduced. No in-ground exploration was conducted over the licence during the year.

EL 22590

Very little work was completed over EL 22590 during the first tenure year. Lindeman Geophysics completed a brief geophysical appraisal, however this resulted in no identification of gravity or magnetic anomalies worthy of follow up ground exploration. Giants Reef planed to complete a literature review with the view of surrendering this tenement during the second tenure year.

Further assessment of the EL and target generation was briefly undertaken in the second tenure year due to Giants Reef’s commitments being elsewhere in the Tennant Creek goldfield.

During the third tenure year Giants Reef commissioned a Gold-Copper Expansion Study. The strategy for the study was to compile and review an inventory of potential copper bearing gold deposits as well as copper rich (gold poor) deposits. This was to form the basis of selecting process routes and completing a first pass conceptual study. The Marathon prospect formed part of this review due to its high-copper properties. No exploration was conducted during the third tenure year.

During the fourth tenure year a compilation of all available exploration data was undertaken. This was followed up by a detailed ground gravity survey of the area stretching from the Northern Star to Carraman/Klondyke deposits. The survey was undertaken by Daishsat Geodetic Surveyors over some 7 km2 of Warramunga Formation. This survey covered only a small area (4.6 km2) in the south east corner of EL 22590, directly east of the Marathon prospect and north of the Troy prospect. Results from the gravity survey did not highlight any anomalies of significance outside of these known prospects. Also during the tenure year Giants Reef completed a scoping study to
evaluate all known copper-gold resources and prospects on its tenements. Work comprised:

- Compilation of an inventory of all copper-gold resources and drilled prospects;
- Assessment and ranking of resources and prospects;

The Marathon group of deposits, which are located in MCC 1065 within the License area, were assessed as part of this study. This group comprises 3 large ironstones oriented along a broad northwest trending shear zone over a strike length of 2km. Patchy oxide gold mineralisation occurs in the east side of the main shear, with supergene copper mineralisation appearing at 40-60m below surface. There are also a number of significant copper and patchy gold intersections at depths of 100-200m below surface. Resources were insufficient to warrant development studies. The location of the Stuart Highway rendered any development of potential oxide gold resources problematic. Further work including extension drilling at depth was required to further explore this large system

SEL 26594

Following the completion of the detailed ground gravity survey and the airborne magnetics survey conducted by Emmerson during 2008, work commenced on the analysis, interpretation and modelling of the captured data. Although SEL 26594 was not included in either of these surveys the interpretation, analysis and modelling of the captured data will have a significant effect on the prospectivity of the licence area. The first phase of the analysis was completed on 16 April 2009, which identified all the high priority targets (56 Green fields and 45 Brownfields), the second phase of analysis, interpretation and modelling of the data has commenced and will continue during the 2009 field season and into 2010. The next tenure year for SEL 26594, will focus on the application of the geoscientific models developed from the analysis, interpretation and modelling of the recently captured geophysical data and the results of drill testing targets developed from the application of the developed models in higher priority areas within the NPA and greater Tennant Creek Mineral Field.

6.10 SEL 26595 RUSSELL

SEL 26595 was a licence in substitute of EL’s 10017, 9909, 23073, 22583, 23745 & 23746, exploration conducted is detailed below;

EL 10017

The target in Exploration Licence 10017 was major base metals or base metals/precious metals deposits. Giants Reef was not applying a precise model to the target, but the style of occurrence was envisaged as being situated in iron oxide-rich lithologies and therefore likely to be associated with a regional or district-scale gravity anomalies and probably also with a magnetic anomalies. A regional gravity high, which Giants Reef refers to as the Rosella Gravity Anomaly, was centred approximately 17km northeast or NNE from Warrego. This gravity anomaly occurs within a much wider zone of elevated magnetic readings centred around the Warrego Granite intrusion to the west. The
basement geology of the gravity anomaly area was largely masked by Recent cover sequences, so that the cause of the gravity anomaly was not apparent.

Exploration work conducted during the first year of tenure included a literature search of all previous exploration work conducted of the area of the EL. Giants Reef made an initial examination of reports on exploration by previous companies in the area of Exploration Licence 10017. The research was not of much direct value in the search for major base metals deposits, but was of assistance in locating possible future targets of the Tennant Creek-style ironstone-associated gold-copper-bismuth type.

Reconnaissance - Several vehicle trips were made to the area around the centre of the Rosella Gravity Anomaly. These trips revealed the difficulties of travelling in this area, without providing much in the way of additional geological knowledge.

NTGS/AGSO gravity survey assessment - In mid-2001, the Northern Territory Geological Survey and the Australian Geological Survey Organisation jointly carried out a gravity survey over the Tennant Creek 1:250,000 sheet and parts of some adjacent sheets. In the EL 10017 area, the station spacing was at 4km by 4km centres. The new survey information was a considerable improvement upon the old 11km by 11km coverage.

Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over the Rosella Gravity Anomaly and EL 10017 for Giants Reef. After removing a residual gradient, the Rosella Gravity Anomaly now appears broken up into several separate anomalies and the highest amplitude, or peak, residual anomaly is located at AGD84 approximate co-ordinates 384000E 7864800N. Mr Lindeman commented that the “Rosella Gravity Anomaly, as defined by the Bouguer gravity and the Bouguer residual, is now part of a large and quite coherent ‘inverted U-shape’, which quite faithfully drapes around the northern edge of the Warrego granite. Its size and location truly does give it the feel of a ‘regional’ feature, probably reflecting the density contrast between the granite and the surrounding geology. The Rosella anomaly is only a part of the eastern section of this response and realistically does not now, in my opinion, constitute a specific or discrete anomaly, which might represent an ore environment.”

This observation downgraded the exploration potential for the kind of target envisaged.

Gravity and magnetics assessment - Further to his comments on the NTGS/AGSO gravity survey results, Mr Lindeman noted that within the Rosella project and adjacent areas, except for the area of the Warrego Granite, there is no correlation between gravity and magnetics. “The magnetic features occurring within the Rosella Gravity Anomaly extend well out of it, particularly as they trend well off to the ENE. Thus there is no reason to presume that the source of the magnetic and gravity bodies are the same.” The assessment led to the conclusion that “the magnetic and gravity data do not define a specific target worthy of drill testing, whether it be magnetic, gravity or a combination of both. It could be argued that the (new) gravity data is still quite regional with stations many kilometres apart. However, the strong association of the gravity with a great proportion of the northern edge of the low-density Warrego granite, which is unlikely to
change with more closely spaced stations, suggests strongly that the gravity is reflecting a regional geological phenomenon and not a potential drill target."

Areas of interest identified by Giants Reef included the four Mineral Claims at Butchers Waterhole, which covered a complex aeromagnetic anomaly. Another area was the former Metana Minerals prospect once held under Mineral Claims C963 and C964, located in the southeast corner of the northern three blocks of EL 10017 Stoney Dam.

Access clearance from the Central Land Council - A work program under the Indigenous Land Use Agreement was submitted by Giants Reef to the Central Land Council when the three Exploration Licences were still in the application stage. The CLC later conducted a land access clearance of the work proposed. The CLC pointed that the clearance work was made difficult by the fact that Giants Reef did not have firm locations for any possible drilling at the time. EL 10017 Stoney Dam does not have any exclusion zones or culturally sensitive areas marked.

Exploration during the second year of tenure included:

Exploration Focus under the Alliance - Tennant Creek-style orebodies are regarded as secondary targets, with the focus of exploration, under the Strategic Alliance agreement with BHP Billiton, was to find major base metals or base metals/precious metals deposits. However, assessment of the base metals/precious metals prospect areas within EL 10017 downgraded the potential for this style of mineralisation occurring at the Rosella prospect. As a result of the downgrading of EL 10017 for base metals or base metals/precious metals deposits, Giants Reef focused their 2002 field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

Tenement Review - An internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities in September 2002 assessed the future exploration potential of EL 10017, and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 10017 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 9 to 5 graticular blocks.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Rosella area did not rate in comparison with the Bluebush area. The minutes from the meeting were accepted as accurate, and were signed on the 16th December 2002 by Giants Reef and BHP Billiton.

Exploration work conducted during the third year of tenure included:

Termination of Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint
venture tenements, including EL 10017 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.

Strategic Planning - No in-ground exploration was conducted over the Licence during the year. Giants Reef reviewed the geological targets and models, which recognised a number of magnetic anomalies within EL 10017 which are indicative of Tennant Creek style gold-copper occurrences. Giants Reef however, retained the view that the Licence was highly prospective for mineralisation.

Exploration work during the fourth year of tenure included a review and reassessment of all previous exploration. The prospectivity of the EL to host economic gold/copper mineralisation was downgraded for the following reasons;

a.) The EL contains no prospective Warramunga Formation.

b). The areas proposed for reduction have been largely tested by vacuum drilling and no significant results were returned from this work.

c.). The tenement has no recorded occurrences of Au-Cu mineralisation.

d.). The area proposed for reduction includes a western portion of the Rosella Gravity Anomaly, however its prospectivity has been down-graded due to it being interpreted as a regional feature, reflecting a thick package (up to 2km) of sediments (Ooradidgee and Hatches Creek Group) against lower density granites i.e. Warrego granite. The Rosella anomaly appeared to be only a part of an extensive anomaly, and appears not to constitute a specific or discrete anomaly which might provide a drill target. Furthermore, magnetic features occurring within the Rosella Gravity Anomaly extend well away from it, suggesting that the magnetic and gravity features do not have a common source.

**EL 22583**

Exploration Licence 22583 was initially applied to cover a prospective area of Warramunga Formation and coincident gravity ridge running from North Star mine south westerly to the Queen of Sheba and Gecko mines. It includes an old prospect called the Morning Star (also known as Queen Alexandria or Ria's Revenge) as well as Golden Slipper and Last Princess.

Newmont explored this area during 1987 to 1990 under Exploration Licence EL 5066 in joint venture with PosGold. Later, PosGold held the area under EL 8748. Six RAB holes (327m) were drilled at Morning Star by PosGold, with a two-metre best interval of 9.58 g/t Au from 27 metres. The other holes returned no significant result.

Exploration work conducted during the first year of tenure under Giants Reef included a reconnaissance metal detecting trip over the Morning Star workings in July 2002, which produced no nuggets however a great deal of historical iron was discovered. Large areas of quartz scree was also noted scattered over the general area. Giants Reef did not consider this area as a high exploration priority, however the proximity to many past
producing mines and many smaller historical mines in the area still made it an attractive area to explore.

Exploration work conducted during the second year of tenure included a detailed literature review conducted over the area covered by the Licence. As identified during the first tenure year Newmont explored this area during 1987 to 1990 under EL 5066 in a Joint Venture with PosGold. Later, PosGold held the area under EL 8748. Six RAB holes (327m) were drilled at Morning Star by PosGold, with a two-metre best interval of 9.58 g/t Au from 27 metres. The other holes returned no significant result.

Further assessment of the EL and target generation was briefly undertaken in the third tenure year due to Giants Reef’s commitments to defining the Chariot, Cats Whiskers, Malbec West deposits, and also the immediate and higher priority drilling and exploration in the Chariot Mineralised Corridor (CMC).

Work planned for Year 4 included RC and RAB drilling at the Golden Slipper and Golden Slipper North prospects. Although drilling was undertaken at Golden Slipper North, clearances for drilling at Golden Slipper were not forthcoming from CLC on the grounds that the area was a significant site. 5 RAB holes for 195m were completed at the Golden Slipper North prospect with the aim of testing the oxide gold potential. The drilling encountered a number of anomalous intercepts including 3m @ 1.41 g/t Au from 18m (GSRB043), 1m @ 5.67 g/t Au from 15m (GSRB044) and 6m @ 2.02 g/t Au from 27m (GSRB046), which included 1m @ 7.13 g/t from 28m. Zones of mineralisation were hosted within altered and sheared siltstone of the Warramunga Formation. Alteration included strong hematisation, weak silicification and minor talc. The mineralised zones in drill holes GSRB44 and 46 also included quartz veining.

A compilation and review of vacuum geochemistry for the License areas was completed. This study defined a number of anomalies in the southwest area of EL 22583 which warrant further investigation. These include two Au anomalies close to the major northwest trending structure, which is associated with the Queen of Sheba prospect. Further investigations were also required on a similar but more discrete Au geochemical anomaly trending northwest, which is located in a region surrounding the Golden Slipper prospect.

EL 23073

During the first year of tenure under Giants Reef exploration work involved a geological assessment of the licence, results from this assessment concluded that several of the southern and eastern blocks of this Licence cover areas of the Warramunga Formation but as with neighbouring EL’s, the areas of magnetic interest are held under claims and are therefore excluded from the EL. Further examination of the regional magnetics and regional geology indicated that areas of magnetic relief outside the Warramunga Formation are almost certainly due to dolerite sills or dykes in the overlying Flynn sub-group sediments, which appear to cover the northern eighty percent of the EL, and is generally regarded as un-prospective.
At the end of the second tenure year the geology, geophysics and geochemistry of EL 23073 was assessed to identify target areas within the Licence area. The review and assessment made during the first and second years of tenure concluded that areas of the EL would need to be looked at for relinquishment due to its lack of prospectivity, therefore at the end of the second year of tenure a statutory relinquishment of 50% of the EL was made, being 14 blocks. The northern portion of the EL, which overlies the Flynn sub-group sediments and partially consumed by the railway corridor was relinquished. This leaves only the southern blocks covering areas of Warramunga Formation for exploration over the EL.

During the third year of tenure no in-ground exploration was completed over the Licence. Giants Reef’s commitments in establishing mining operations at Chariot, Edna Beryl, Cats Whiskers and Malbec West prevented further exploration over the licence.

No in-ground exploration was conducted over the licence during the fourth tenure year, however, the geology and geophysics were reviewed and the north western half of the tenement was proposed for reduction. The only in-ground work associated with the Exploration Licence was at the Pigale prospect (MCC315) where seven angled RAB holes were drilled for a total of 417 meters. These holes were drilled on the projected up dip component of a shear zone along strike (1.2 km) from Orlando. Whilst some anomalous base metal zones have been intersected, no significant gold mineralisation was encountered.

Giants Reef’s commitments to mining operations at Chariot, Edna Beryl, Cats Whiskers and Malbec West prevented further exploration over EL 23703.

**EL 23745**

A geological re-assessment by Normandy, Tennant Creek (1991) of earlier drilling, which involved detailed re-logging of diamond core and geophysical reinterpretation, suggested that the existing 40m spaced drill sections were too broad to delineate the mineralised zone accurately, previously identified in the licence area. GeoPeko (1970 – 1990) - GeoPeko explored the general Phillip Creek region intermittently from 1970 through to 1990. One moderate magnetic anomaly, Explorer 166 (Vivid), was defined from aeromagnetics and was pegged for mineral leases in 1975, these applications were withdrawn prior to grant.

Australian Development Limited (pre-1991) - Exploration by ADL included the flying of a low level aeromagnetic survey in 1973, from which four magnetic features interpreted to possibly represent concealed magnetite-haematite ironstones, were chosen for detailed investigation. These anomalies were named PC1 to PC4.

Newmont Australia Limited (1987-1990) - Newmont completed an extensive exploration program encompassing the region from 1987 to 1990. This work was predominantly completed under a Joint Venture Agreement with ADL. Initially Newmont decided to undertake an empirical, non-model specific exploration program, aimed at detecting mineralisation associated with subtle magnetic signatures or structurally-controlled non-magnetic settings. The typical ‘Tennant Creek style’ magnetite ironstone target was not
pursued. Exploration included regional geochemical ‘BLEG’ soil surveys and follow-up soil sampling and RAB drilling, a low level airborne magnetic and radiometric survey, semi-regional gravity surveys and regional geological mapping. Anomaly PC2 (Geopeko’s Explorer 166) was flagged for further work.

The Vivid magnetic anomaly (anomaly PC2 / Exp 166) was investigated further in 1989, with geophysical modelling undertaken to determine the size, depth and attitude of the source of the dipolar aeromagnetic anomaly. A program of RC drilling and downhole magnetic probing led to the discovery of the buried PC2 ironstone (in the second hole), which was subsequently renamed Vivid. Encouraging Au-Cu mineralisation was encountered in Newmont’s initial drilling, and a total of nine combined RC and diamond drillholes were completed into the ironstone. All holes intersected anomalous Au and Cu and better results include:

VIRC-002: 30m @ 2.45% Cu from 159m downhole
8m @ 4.76 g/t Au from 177m downhole
2m @ 3.48 g/t Au from 203m downhole

VIVD-003: 1.9m @ 3.11 g/t Au, 2.07% Cu from 255.1m downhole

VIVD-005: 10m @ 2.65% Cu from 239m downhole
12m @ 2.10% Cu from 267m downhole
10m @ 10.11 g/t Au from 268m downhole

VIVD-006: 3m @ 5.07 g/t Au from 327m downhole

VIVD-007: 1m @ 4.73 g/t Au from 334m downhole

VIVD-008: 7.5m @ 3.00% Cu from 278.5m downhole
10m @ 1.83 g/t Au from 348m downhole incl.
1m @ 6.00 g/t Au from 355m downhole

In a concerted effort to understand the geometry of the ironstone and its geochemical and geophysical expression, detailed soil sampling, RAB drilling, IP, EMP, ground magnetics and gravity surveys were completed over the ironstone. Angled RAB drilling to a vertical depth of 70m was successful in outlining a geochemical ‘halo’ in the weathered sediments above the ironstone, above 20 ppm Cu.

The IP and EMP surveys did not conclusively identify conductive anomalies which could be directly attributed to the ironstone. The gravity survey was successful in indicating the position of several structures thought to control the location of the ironstone, but did not define the body as a discrete anomaly of high density. It was concluded that the surface
and downhole magnetics were the best geophysical tools for direct detection of the ironstone.

All RC / Diamond drillholes were probed with the downhole magnetometer, and detailed modelling and interpretation of this data was undertaken. Modelling indicated the ironstone was a westerly plunging body, which flattened in plunge from the centre of the ironstone. A mass in the order of 2Mt of ‘ironstone’ was estimated. The magnetite-quartz ironstone displays a characteristic alteration envelope of magnetite-chlorite, chlorite, an upper haematite-talc-jasper-carbonate zone, and an upper dolomite-rich zone.

Newmont concluded that the Vivid ironstone system had the potential to host a significant tonnage of Au and/or Cu mineralisation. Recommendations were made for close spaced pattern drilling of the ironstone to determine the existence and continuity of a high grade zone. The ironstone was not closed off down plunge by Newmont's drilling, and had a strike extent in excess of 200m.

Modelling of the residual magnetics resulted in the recognition of a small magnetic anomaly located approximately 300m to the north of Vivid, at a depth of 235m vertical.

Normandy Tennant Creek (1991 - 2002) - Normandy Tennant Creek (NTC) explored the Licence Area under EL 5066 (containing the Vivid Prospect) which expired and then continued under EL 7451 which was granted to NTC in its place, thus enabling continuation of exploration of the Vivid Prospect and surrounds.

A reassessment of the potential of the Vivid prospect was undertaken to determine if the system was capable of hosting a significant tonnage of mineralisation. It was determined that the maximum target size in the ironstone was 80,000t at between 10 – 15 g/t Au. The review involved detailed re-logging of the Newmont diamond core, and reinterpretation of the magnetics in conjunction with L.Farrar. This work concluded that the ironstone system was probably smaller than originally thought (2Mt), due to non-distinction between chlorite-magnetite alteration and chlorite-rich sediments. A factor of magnetic remanence also complicated the interpretation and enhanced the magnetic anomaly relative to the size of the ironstone. It was also felt that the 40m spaced drill sections were too broad to provide an accurate assessment of mineralisation.

A further four RC/Diamond drillholes were completed into the ironstone in 1991, infilling the 40m sections in the upper (eastern) part of the body to 20m spacings. Drillholes VIVD-010 to 013 were completed in 1991. Holes VIVD-010 and VIVD-013 failed to lift and passed beneath the ironstone, intersecting altered sediments only. Holes VIVD-011 and VIVD-012 intersected the body, encountering 60m and 40m (downhole) of ironstone and alteration respectively.

These holes returned mildly encouraging assay results:

VIVD-010:  
1m @ 2.34% Cu from 178m downhole  
1m @ 1.00 g/t Au from 181m downhole  
2m @ 2.75% Cu from 216m downhole
VIVD-011: 1m @ 0.91 g/t Au from 167m downhole
1m @ 2.86% Cu from 208m downhole

VIVD-012: 1m @ 1.31% Cu from 209.15m downhole
1m @ 3.00% Cu from 214.50m downhole
1m @ 1.12% Cu from 227.70m downhole

VIVD-013: N.S.R – Au (all < 0.01 ppm), Cu (all < 0.27%)

Several conclusions were drawn from this drilling:

- the ironstone body was significantly smaller than originally interpreted.
- the mineralisation is patchy and discontinuous, with an upper Cu-(Au) zone within the ironstone proper, and a lower Au-(Cu) zone on the ‘keel’ of the ironstone.
- The tonnage / grade potential for these zones were estimated to be small.

No further drilling of the ironstone was undertaken after 1991. A conservative ‘estimate’ of the potential of the gold and copper pods was:

- Lower Au pod: 10060E to 9980E, -230m to –350m vertical depth, open down-plunge to the west of 9980E, and possibly up-plunge to 10100E. Dimensions in the order of 80m x 40m x 5m x 3.5 (SG) = 60,000t @ 5 –7 g/t Au.

- Upper Cu pod: 10060E to 10100E, -150m to –250m vertical depth, open down-plunge to the west of 10060E (intersection of 7.5m @ 3.0% Cu in VIVD-008 on section 9980E, in the same position of the ironstone). Dimensions in the order of 40m x 40m x 10m x 4 (SG) = 60,000t @ 2.5% Cu. (Possibly up to 180,000t if strike extended to 9980E).

Exploration work conducted during the first year of tenure included;

Reconnaissance - Several geological field trips were conducted during the reporting year. These reconnaissance trips confirm low-lying nature of the area with very little outcrop identified. No rock chip samples were collected however the project geologist considered the Licence area to be suitable to conduct shallow geochemical surveying by either soil sampling or shallow vacuum drilling. Regional vacuum drilling has been conducted by Normandy, Tennant Creek on surrounding tenure with variable results. Strong geological control plus correct sample media sampling would enhance the potential to identify subtle geochemical relationships and anomalism.

Data Compilation - Data compilation utilising both paper reports and various digital format databases was completed for the Vivid Prospect within EL 23745.
Geophysical Assessment - A review of the aeromagnetic and gravity data within the Licence area and focussed on the Vivid Prospect was completed by Mathew Cooper, of Resource Potentials, Perth, Western Australia during the year. Resource Potentials commented that a 0.3 mgal gravity anomaly, associated with the previously explored Vivid aeromagnetic anomaly, had not been tested. The gravity anomaly lies on the eastern half of the Vivid aeromagnetic anomaly, which has been previously drilled and intersected mineralised ironstone at depth. The gravity anomaly is further enhanced in the first vertical derivative image, with the peak being approximately 40m to the east of previous RAB drilling at GDA 94 408930E, 7857270N.

To estimate the depth, modelling was trialled using density contrasts of 0.5g/cc and 1g/cc. For both cases the model body was an ellipse 100m long striking 65° with a 100m depth extent. At 0.5 g/cc the model body was 120m wide and located at 35m depth, while for 1.0 g/cc the model body was 75m wide at 45m depth. The 1.0 g/cc model appears to be more geologically plausible as the ironstone was considered not likely to be greater than 100m in width.

Previous RAB drill holes (VIB1-3) targeting the Vivid magnetic anomaly, are collared very close to the position of the modelled body, and did not intersect ironstone within 87m of surface. If the peak of the gravity anomaly was drilled and mineralised ironstone intersected, then some of the smaller residual gravity anomalies may have been of interest.

Reverse Circulation Drill Program - A two hole reverse circulation (VIB014-VIB015) program was planned, budgeted and scheduled to commence in October 2004. Unfortunately, due to rig breakdown this program never commenced. Proposed hole detail is tabulated below.

<table>
<thead>
<tr>
<th>Hole ID</th>
<th>Easting (GDA)</th>
<th>Northing (GDA)</th>
<th>Depth (m)</th>
<th>Azimuth (Grid)</th>
<th>Dip</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>VIB014</td>
<td>408720</td>
<td>7857124</td>
<td>120</td>
<td>North</td>
<td>-60</td>
<td>Deepen old holes into upper plunge of ore zone</td>
</tr>
<tr>
<td>VIB015</td>
<td>408720</td>
<td>7857104</td>
<td>120</td>
<td>North</td>
<td>-60</td>
<td>Deepen old holes into upper plunge of ore zone</td>
</tr>
</tbody>
</table>

The CLC later conducted a land access clearance of the work proposed. The CLC, under instruction from the Traditional Owners conducting the site clearance provided written consent to commence drilling providing no large, mature trees were disturbed.

EL 23746

Exploration Licence 23746 was granted just prior to Giants Reef entering administration and Emmerson’s purchase, therefore no previous exploration on this licence has been conducted by Emmerson Resources or any of its subsidiaries (inc. Giants Reef Exploration).
EL 9909

The target in Exploration Licence 9909 was a major base metals or base metals/precious metals deposit. Giants Reef did not apply a precise model to the target, but the style of occurrence was envisaged as being situated in iron oxide-rich lithologies and therefore likely to be associated with a regional or district-scale gravity anomaly and probably also with a magnetic anomaly.

A regional gravity high, which Giants Reef refers to as the Rosella Gravity Anomaly, is centred approximately 17km northeast or NNE from Warrego. This gravity anomaly occurs within a much wider zone of elevated magnetic readings centred around the Warrego Granite intrusion to the west. The basement geology of the gravity anomaly area is largely masked by Recent cover sequences, so that the cause of the gravity anomaly was not apparent.

Exploration work conducted during the first year of tenure included:

- Literature search and previous work - Giants Reef made an initial examination of reports on exploration by previous companies in the area of Exploration Licence 9909. This research was not of much direct value in the search for major base metals deposits, but was of assistance in locating possible future targets of the Tennant Creek-style ironstone-associated gold-copper-bismuth type.

- Reconnaissance - Several vehicle trips were made to the area around the centre of the Rosella Gravity Anomaly. These trips revealed the difficulties of travelling in this area, without providing much in the way of additional geological knowledge.

- NTGS/AGSO gravity survey assessment - In mid-2001, the Northern Territory Geological Survey and the Australian Geological Survey Organisation jointly carried out a gravity survey over the Tennant Creek 1:250,000 sheet and parts of some adjacent sheets. In the EL 9909 area, the station spacing was at 4km by 4km centres. The new survey information was a considerable improvement upon the old 11km by 11km coverage.

Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over the Rosella Gravity Anomaly and EL 9909 for Giants Reef. After removing a residual gradient, the Rosella Gravity Anomaly now appears broken up into several separate anomalies and the highest amplitude, or peak, residual anomaly is located at AGD84 approximate co-ordinates 384000E 7864800N. Mr Lindeman commented that the "Rosella Gravity Anomaly, as defined by the Bouguer gravity and the Bouguer residual, is now part of a large and quite coherent ‘inverted U-shape’, which quite faithfully drapes around the northern edge of the Warrego granite. Its size and location truly does give it the feel of a ‘regional’ feature, probably reflecting the density contrast between the granite and the surrounding geology. The Rosella anomaly is only a part of the eastern section of this response and realistically does not now, in my opinion, constitute a specific or discrete anomaly, which might represent an ore environment." This observation downgraded the exploration potential for the kind of target envisaged.
Gravity and magnetics assessment - Further to his comments on the NTGS/AGSO gravity survey results, Mr Lindeman noted that within the Rosella project and adjacent areas, except for the area of the Warrego Granite, there is no correlation between gravity and magnetics. “The magnetic features occurring within the Rosella Gravity Anomaly extend well out of it, particularly as they trend well off to the ENE. Thus there is no reason to presume that the source of the magnetic and gravity bodies are the same.”

The assessment led to the conclusion that “the magnetic and gravity data do not define a specific target worthy of drill testing, whether it be magnetic, gravity or a combination of both. It could be argued that the (new) gravity data are still quite regional with stations many kilometres apart. However, the strong association of the gravity with a great proportion of the northern edge of the low-density Warrego granite, which is unlikely to change with more closely spaced stations, suggests strongly that the gravity is reflecting a regional geological phenomenon and not a potential drill target.”

A second major geophysical target area is partly within the extreme eastern end of EL 9909, where a small portion of the Alexander Gravity Anomaly is located. The target here was a very large base metals deposit, similar to the target originally considered for the Rosella Anomaly.

Access clearance from the Central Land Council - A work program under the Indigenous Land Use Agreement was submitted by Giants Reef to the Central Land Council when the Exploration Licence was still in the application stage. The CLC later conducted a land access clearance of the work proposed. The CLC pointed that the clearance work was made difficult by the fact that Giants Reef did not have firm locations for any possible drilling at the time. A large number of exclusion zones and culturally sensitive areas were marked on the map accompanying the clearance letter, dated 22 March 2002 (CLC map 2001/129a). Approximately 40% of EL 9909 Star Wars is either under large exclusion zones or culturally sensitive areas that cover its northern and western areas, and there are exclusion zones around Lily Dam and Butchers Waterhole in the southern parts.

While the existence of these areas did not entirely rule out exploration in the extensive stretches of the Rosella project area that they cover, they presented considerable difficulties if exploration were had been pursued in these areas.

Exploration during the second year of tenure included:

Exploration Focus under the Alliance - Tennant Creek-style orebodies were regarded as secondary targets, as the focus of exploration under the Strategic Alliance agreement with BHP Billiton, was to find major base metals or base metals/precious metals deposits. However, assessment of the base metals/precious metals prospect areas within EL 9909 downgraded the potential for this style of mineralisation occurring at the Rosella prospect. As a result of the downgrading of EL 9909 for base metals or base metals/precious metals deposits Giants Reef focused their 2002 field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

Tenement Review - An internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities in September 2002 assessed the future
exploration potential of EL 9909 and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 9909 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 102 to 51 graticular blocks. Much of the relinquished areas were identified as exclusion zones and culturally sensitive areas by the Central Land Council under instruction from the Native Title holders of the Tennant Creek region.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Rosella area did not rate in comparison with the Bluebush area.

Exploration during the third year of tenure included:

Termination of Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint venture tenements, including EL 9909 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.

Surrender of Mineral Claims - Mineral Claims C1147-C1149 Butchers Waterhole were not renewed by Giants Reef at the end of their second tenure and were allowed to expire on the 31st December 2003. The Claims were located in EL 9909 and the area were subsequently explored and reported under EL 9909. No in-ground work over the Claim area was conducted by Giants Reef in their ten year tenure, and no prospect areas were identified.


Strategic Planning - No in-ground exploration was conducted over the Licence during the year. Giants Reef reviewed the geological targets and models to assess the likelihood of an immediate discovery. The review recognised a number of magnetic anomalies within EL 9909 which are indicative of Tennant Creek style gold-copper occurrences.

Exploration work conducted during the fourth year of tenure included a review and reassessment of all previous exploration work, from this a conclusion was reached; the area considered most prospective includes the south eastern region of the tenement which comprises units of the Warramunga Formation. These units are however more low magnetic variants and include more sandstone dominated volcano lithic turbiditic sequences (Pws). The far south-eastern corner of the EL includes a small segment of the more siltstone dominated volcano lithic sequence (Pw m (lm)) of the Warramunga. These areas containing units of Warramunga are, however, some 3 kms northeast of the
Orlando-Gecko-Golden Slipper line of mineralisation. A number of cohesive vacuum gold anomalies that have a general North West trend and align with Orlando – Gecko – TC35.

The prospectivity of the EL to host economic gold/copper mineralisation was downgraded for the following reasons:

a.) The EL contains less than 13% of prospective Warramunga Formation, with the remainder of the geology comprising younger units of the Ooradidgee Group. The former comprise low magnetic variants, sandstone dominated units which have been found to be less prospective in the field. The area proposed for reduction includes only units of the Ooradidgee and Hatches Creek Group.

b.) Although the areas proposed for reduction includes monzonitic units of the Treasure Suite, which is the host to mineralisation at the small Last Hope and Bull Pup prospects, the tenement has no recorded occurrences of Au-Cu mineralisation.

c.) The area proposed for reduction includes the northern region of the Rosella Gravity Anomaly, however its prospectivity has been down-graded due to it being interpreted as a regional feature, reflecting a thick package (up to 2km) of sediments (Ooradidgee and Hatches Creek Group) against lower density granites i.e. Warrego granite. The Rosella anomaly appears to be only a part of an extensive anomaly, and appears not to constitute a specific or discrete anomaly which might provide a drill target. Furthermore, magnetic features occurring within the Rosella Gravity Anomaly extend well away from it, suggesting that the magnetic and gravity features do not have a common source.

SEL 26595

During 2008 Emmerson conducted two major geophysical surveys;

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s Tennant Creek tenure package and included SEL 26595. The survey was conducted by three teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing’s, on lines 500m apart oriented North – South. Readings in areas requiring more detail were taken on 50 station spacing’s on 100m spaced lines oriented North - South. The survey was completed during October 2008. 429 station readings were taken in SEL 26595 and consisted of 429 Regional readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included almost the entire area of SEL 26595. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing’s, with 750m tie line spacing’s and a sensor height of 25m for a total Line KM of 38,278, with 4,002km’s (approximately 10%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring
Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

6.24 SEL 26596 HANKINSON

SEL 26596 was a licence in substitute of EL's 7810 & 10166, exploration conducted is detailed below;

EL 10166

EL 10166 was acquired to search for IOCG deposits hosted in Warramunga Formation units within the Northern Star - Edna Beryl – Whippet trend and to evaluate a dipole magnetic feature identified in a 1993 Western Mining (WMC) aeromagnetic survey. The magnetic feature is located approximately 2 km east of the Whippet Hill mine and is referred to as the “Whippet East” magnetic anomaly.

The work completed on the Whippet East magnetic anomaly, which includes areas of EL 10166, included modelling the Whippet East anomaly, by Lindeman Geophysics Pty Ltd, using the 1998 AGSO aeromagnetic data, however due to the lack of detailed resolution in this data no encouraging bodies were delineated and a more detailed ground magnetic survey was recommended in order to better define potential ironstone bodies/magnetic anomalies. The proximity of the anomaly to the Whippet Hill mine (18,800 ounces of gold produced) and other significant prospects such as Edna Beryl, Troy, Marathon lended some support to the prospectively of this particular trend.

Exploration work conducted included;

- Collection and entry of exploration data into Giant’s Reefs GIS and MicroMine databases.
- Compilation of an inventory of all copper-gold resources and drilled prospects;
- Assessment and ranking of resources and prospects;

No further exploration work was conducted over the licence area.

EL 7810

Introduction and target concept - Exploration within EL 7810 was aimed at discovering large deposits of base metals along with substantial gold and/or silver, probably accompanied or hosted by large volumes of iron oxide minerals. The project area was well away from the established Tennant Creek goldfield, in the relatively younger and geologically distinct Ashburton Province, and any mineral deposits found here are likely to be very different from the well-known ironstone-related gold-copper deposits of the Tennant Creek Province.

The focus of exploration is within the area of the major Alexander Gravity Anomaly (Giants Reef's term) which is centred about the Stuart Highway, extending from neighbouring EL 10129 through EL 10311 and north into EL 7810. This gravity anomaly
was interpreted as being caused by dense, probably iron-rich, rocks and may be a favourable geological environment in which to be searching for sort of large-scale mineral deposits envisaged.

Exploration during the first year of tenure included;

Literature search and secondary targets - Apart from the Alexander Gravity Anomaly, which was the most important target in the Alexander project area, there are five other prospects or anomalies that Giants Reef had identified from various reports on previous work and the geology of the region, all within EL 7810. These are all outside the central area of the Alexander Gravity Anomaly, and were therefore regarded as secondary targets. They are:

1. The Explorer 98 magnetic anomaly, located in the Hayward Creek drainage about 9km east of the highway, in an area of no outcrop. GeoPeko identified this anomaly in the 1970s and attributed it to a magnetic basic dyke, but Giants Reef did not have reports of the work that led to this conclusion.


3. A “dark gossanous rock” at the head of the northern branch of Phillip Creek (same reference, page 24).

4. A magnetic anomaly in the north-central part of EL 7810, at (AGD84) AMG 408800E 7888000N.

These are regarded as secondary targets, as the focus of exploration, under the alliance agreement with BHP Billiton, was to find major base metals or base metals/precious metals deposits possibly associated with the Alexander Gravity Anomaly.

Reconnaissance and rock sampling - A ground reconnaissance trip was made to locate and sample the magnetic anomaly in the north-central part of EL 7810. The anomaly stood out well on the old 1970’s magnetic contours, but was not so clearly visible on the 1999 AGSO aeromagnetic images. The target wasn’t reached because the old tracks were very overgrown or had disappeared altogether, and there were still patches of soft ground along the Attack Creek valley. Six rock samples (74585-74590) were taken from very ferruginous exposures of the Morphett Creek Formation at several locations. This material was probably a duricrust or ferricrete.

On a later occasion, a helicopter was used to visit several of the above target areas in EL 7810. The target 5 magnetic anomaly was located and sampled. It occupies an area of dark recessive outcrops of basic or intermediate volcanics, probably belonging to the Whittington Range Member at the top of the Hayward Creek Formation, a unit that includes volcanic lithologies.

Finding the gossanous laterite outcrops (target 2) reported by Dunnet and Harding 1967, from “near the confluence of Phillip Creek and Gibson Creek” proved to be unsuccessful, perhaps because the location description covers a rather broad area.
Target 3 in the headwaters of the northern branch of Phillip Creek, where Dunnet and Harding had reported gossanous-looking exposures, was also visited and sampled. The exposures were very ferruginised, and were probably dolerite sills or dykes.

Another area of EL 7810 visited and sampled during the helicopter reconnaissance was a road metal quarry a few hundred metres west of the Stuart Highway at (very approximately) 412300E 7885600N. These very dark weathered and ferruginised outcrops, probably of Tertiary ferricrete developed on the Brumbreu Formation.

In all, 24 rock samples (422757-780) were taken from the areas visited by helicopter. Nearly all of them were iron-rich (20% to 44% Fe) but none of them showed any notable base metals or gold anomalism. This was also true of the earlier ground reconnaissance rock samples (74585-74590).

NTGS/AGSO gravity survey assessment - Consulting geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, Melbourne, assessed the new NTGS/AGSO gravity data over ELs 7810, 10129 and 10311. This data came from the NTGS/AGSO gravity survey covering the whole Tennant Creek 1:250,000 sheet, plus some adjoining areas. The survey was conducted in mid-2001.

Mr Lindeman’s assessment, dated 28 February 2002, deals with a number of areas both inside and outside the Alexander project area ELs, and is therefore not appended to this report. However, an extract of the relevant paragraphs is reproduced here: “The (Alexander project) ground holdings ... were designed to cover a discrete N-S trending lozenge-shaped Bouguer gravity response as defined on the original gravity data. Although many of the gravity stations in the area are from the original regional 11 km station interval survey, the regional stations, which define this anomaly, were augmented by a roughly N-S road gravity traverse. It had been hoped that any additional data would have produced a more confined and definite anomaly on which to focus. The new 4 km spaced gravity data however failed to “deliver” for this anomaly, but appears to have developed a small response of some interest to the east of the original response. The Bouguer gravity response in the Alexander tenements should be discussed at two levels; from the Bouguer gravity and residual Bouguer gravity perspectives. The new Alexander Bouguer gravity data divides the original response into (1) two separate responses plus (2) the new anomaly to the east. The first anomaly is a >35 km NNE trending response, the southern half of which parallels, some 30 km to the NW, the eastern “leg” of the inverted U-shape of the Rosella Bouguer response (located about 25km to the west). The second is a small response centred at 412000E, 7889000N and which emanated from the northern end of the original response. Neither of these responses is compelling from a targeting perspective, as they appear to be more like part of the same regional response than being caused by possible ore deposits. The processed Bouguer residual for both these anomalies, while showing the anomalous responses discussed above without the anomalous background, also shows that the broad station density of mostly ~4 km, which defines this anomaly. It is my contention that it is this station density, rather than being due to a series of higher density “possible ore deposit geology” which is principally responsible for the individual anomaly peaks within this response. It is likely that more data would smooth out these responses into much more convincing looking regional responses. So despite the insufficient station spacing, the gravity data fails to
enthusiasm enough to demand closer station follow-up, which would be necessary to define possible targets. Centred at 425000E 78976000N, (a separate) small and discrete response is well located within the gradient of the large gravity response. It is defined by both some of the recent 4km-spaced data and several additional stations, probably read by Normandy. Despite this coverage, more data would need to be collected if it was thought that this anomaly maintained some potential. Comparison of the three gravity responses above with the aeromagnetic data shows ... that there is little correlation between the two data sets. The strongly magnetic sediment horizons are seen within and outside of the gravity anomalies although locally it does appear that there appears some relationship between magnetic and gravity responses. However it would be magnetic responses from other than from these sediments and coincident with gravity responses that could constitute an area of interest. It is therefore difficult to find an area in the Alexander holdings where interesting coincident gravity and magnetic responses could be seen as a possible drill target. The anomaly described in (2) above is devoid of any coincident magnetic response, sediment or otherwise. Although the Alexander project area contains a wide gravity station spacing, the broad nature of the anomalous responses, and the lack of convincing and related magnetic anomalism, leads me to the conclusion that no geophysical target exists and no further closer spaced data need to be considered. This conclusion is supported by the absence of any other geoscientific data which could provide some encouragement.

This observation downgraded the exploration potential of the Alexander Gravity Anomaly target, and the previous intention of drilling a test hole or holes in the centre of the residual Alexander Gravity Anomaly peak was reconsidered.

Explorer 98 magnetic anomaly - The Explorer 98 magnetic anomaly was centred at approximate AGD84 co-ordinates 422400E 7883000N. In images of the AGSO 1999 aeromagnetic data, this anomaly does not stand out very clearly from the strong neighbouring magnetic activity, whereas in the old 1970’s magnetic contours, it appears as a more discrete or isolated anomaly. This may simply be a function of the broader flight line spacing of the older survey. On images of the residual Bouguer gravity data from the mid-2001 NTGS/AGSO gravity survey, Explorer 98 shows a moderate amplitude one-station gravity high. Giants Reef did not examine the Explorer 98 magnetic anomaly in any detail, but the apparent coincidence of elevated magnetic and gravity responses at this locality suggested that a short study may have been warranted.

Hydrogeochemistry - Giants Reef sampled the ground water from three cattle station water bores in the Alexander project area, and the water samples were analysed by the CSIRO. This work was done in conjunction with a much larger groundwater sampling program over the Bluebush Gravity Anomaly, located about 50km southwest of Tennant Creek. The sampling was aimed at finding indications of mineralisation in the and around the regional Alexander Gravity Anomaly. The sampling and analytical techniques used have been developed over many years by the CSIRO, in particular by Senior Principal Research Scientist Angela Giblin, who visited Giants Reef’s Tennant Creek offices to discuss the project. Giants Reef’s field work was conducted under her guidance.

An initial step was to find out the locations of all old bores and drillholes in the Alexander area. This was done by visits to the Water Resources Section of the NT Government
Department of Lands, Planning and Environment in Alice Springs, where a database on disk was obtained, and photocopies made of a large number of geological logs of all the relevant drillholes and bores. Sampling involved making readings at each site for ambient and sample temperature, acidity, conductivity, water depth, sample depth, GPS location and remarks on the water quality. The sample bottles were sent to the CSIRO’s laboratory at North Ryde, NSW for the sensitive analysis work.

None of the Alexander water samples displayed pH-redox conditions suggestive of sulphides or magnetite, or any indications of Cu, Pb or Zn in their source rocks. However, given that there were only three samples taken over a very wide area of the Alexander anomaly, these three samples cannot be expected to give a fair indication of the presence or otherwise of anomalous base metals somewhere in the district.

Access clearance from the Central Land Council - The Central Land Council commenced land access clearance for the work proposed by Giants Reef in a program submitted under the ILUA in February 2001.

Exploration during the second tenure year was limited as a result of the downgrading of the Alexander Gravity Anomaly in EL 7810. Giants Reef focused their field season commitments primarily within the Bluebush tenements of EL 8882, 8883 and 10402.

As a result no in ground exploration was undertaken over the Alexander project area (including EL 7810) in the second tenure year.

A tenement review was conducted as part of an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities during the tenure year, this assessed the future exploration potential of EL 7810 and the prospects within the Licence. The review recommended that Giants Reef substantially reduce the tenement holding of EL 7810 and retain only the areas covering the targets which may still hold potential for Tennant Creek style shallow or substantial gold mineralisation. At the end of the second year of tenure the Licence area was reduced from 83 to 13 graticular blocks.

Alliance Meeting - A technical meeting was held between Giants Reef and BHP Billiton in Melbourne on the 2nd December 2002. The meeting focussed on drilling results from the Bluebush Project Area. Information was presented to BHP Billiton representatives. There was a general agreement at the meeting that the gravity anomalies in the Alexander project area did not rate in comparison with the Bluebush project area. The minutes from the meeting were accepted as accurate, and were signed on the 16th December 2002 by Giants Reef and BHP Billiton.

Exploration during the third tenure year included the termination of the Strategic Alliance - In early 2003, BHP Billiton indicated to Giants Reef that they no longer wished to continue with the Strategic Alliance. Giants Reef prepared a summary report for BHP Billiton detailing all the exploration conducted over the joint venture tenements, including EL 7810 during the period of the Strategic Alliance between 1999 to 2003. Correspondence from BHP Billiton on the 25th July 2003, confirmed the termination of the Bluebush Joint Venture and hence the closure of the Strategic Alliance.
During the fourth tenure year Giants Reef reviewed the company’s data base and cross referenced old geographic data with the current data in the system. After extensively studying the geology and geophysics over the Licence area it was recommended that Giants Reef Exploration relinquish the northern half of the tenement, which occurred at the end of the fourth year.

No in-ground exploration was conducted over the licence during the following years.

**SEL 26596**

Following the completion of the detailed ground gravity survey and the airborne magnetics survey conducted by Emmerson in 2008, work commenced on the analysis, interpretation and modelling of the captured data. Although SEL 26596 was not included in either of these surveys the interpretation, analysis and modelling of the captured data will have a significant effect on the prospectivity of the licence area. The first phase of the analysis was completed on 16 April 2009, which identified all the high priority targets (56 Green fields and 45 Brownfields), the second phase of analysis, interpretation and modelling of the data has commenced and will continue during the 2009 field season and into 2010. The next tenure year for SEL 26596, will focus on the application of the geoscientific models developed from the analysis, interpretation and modelling of the recently captured geophysical data and the results of drill testing targets developed from the application of the developed models in higher priority areas within the NPA and greater Tennant Creek Mineral Field.

**6.12 EL 27131 PATAGONIA**

EL 27131 contains the historical prospect ‘Bomber’ this area was originally named Explorer 86. One diamond hole, DDH001 was drilled in 1971 by GeoPeko to a depth of 386.5m to test the EX86 magnetic anomaly. The hole intersected a fine-grained siltstone – greywacke sequence that contained four discrete magnetic shale intervals that measured up to +70m thick. The hole intersected several quartz-chlorite veins with epidote alteration selvages and trace disseminated pyrite and chalcopyrite. Assay results were disappointing with most Au below detection and a peak of 60ppb.

124 RAB holes were drilled by North Flinders Mining in 1993 on a 50 x 200m grid. Au and Bi assays were all below detection and copper peaked at 15ppm. The RAB shows a weak Cu trend that follows an alluvial channel which may indicate a structure.

During 2008 Emmerson conducted two major geophysical surveys;

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s Tennant Creek tenure package and included the area now covered by EL 27131. The survey was conducted by three teams, each team consisted of a quad bike and rider equipped with a station meter. The three teams were supported by a Toyota Landcruiser 4WD Ute. The readings were taken on a 500m station spacing’s, on lines 500m apart oriented North – South. Readings in areas requiring more detail were taken on 50 station spacing’s on 100m spaced lines oriented North - South. The survey was completed during October.
A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008. The survey included areas of the NPA and included the entire area of EL 27131. The survey was flown with a FU24 – 954 fixed wing survey aircraft on 75m line spacing’s, with 750m tie line spacing’s and a sensor height of 25m for a total Line KM of 38,278, with 4,002km’s (approximately 10%) being in the NPA. Magnetic Data was captured using a Scintrex Cesium Vapour CS-2 total field magnetometer, Fluxgate three component vector magnetometer, RMS Aeromagnetic Automatic Digital Compensator (AADC II) and a Diurnal monitoring Magnetometer (Scintrex Envi8mag). Radiometric Data was captured using an Exploranium GR-820 gamma ray spectrometer and Exploranium gamma ray detectors.

7. WORK DONE DURING THE REPORT PERIOD

Exploration Licences and Substitute Exploration Licences in the Northern Project Area were explored by Emmerson, for Tennant Creek style iron oxide copper-gold deposits (IOCG deposits).

The following sections records the exploration work completed on these EL’s and SEL’s during the NPA Combined Reporting period from 16 August 2009 to the 15 August 2010.

7.1 EL 10016 GECKO ROAD

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL's 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.2 EL 10077 WHIPPET EAST

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL's 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.3 EL 10101 BINARY

Exploration conducted in EL 10101 was focused at the Kepler, Delphi and Troy Areas. The exploration conducted during the reporting period is detailed as follows;

Data Compilation
Final collar coordinates for historic drillholes in the Troy, Delphi and Kepler areas was conducted, and coordinates will be tied into the 2009 gravity survey datum. Available geology (from Geopeko / Normandy drilling) has been reviewed and entered into Emmerson DataShed database using the Emmerson geology codes.

**DELPHI**

The Delphi magnetic target was remodelled, with a proposed best fit of 2 modelled bodies that are deeper than the Lindeman model.

[Diagram of Delphi magnetic target with 190m, 270m, and 376m depth annotations. Diagram includes text: "Drilling designed to test 3 generations of magnetic model(s); WMC / Lindeman / B. Adams. Delphi 2 tests all 3 models (800m depth). Or Delphi 1A (700m) tests stronger mag response to north.

Plan View"]
Delphi target and proposed T1 drill hole test.

One diamond tail was completed during November 2009 at Delphi.

The diamond tail DERD001 (200-513.3m) was drilled and logged during November. The hole was designed to test modelled magnetic bodies by both Lindeman (2003) and Massey (2009) with a target depth of 345m (Massey target) and 415m (Lindeman target). The hole did not lift as much as planned, so it went below the Massey model. From 200 – 363.15m the sediments are a regular reddish-brown hematitic siltstone, with bedding dipping to the north. A few small folds were noted (with quartz veining) eg; at 325-332m. At 363.15m, a redox change was noted, with interbedded wacke beds from 386m. At 412m there are several notable changes; minor hematite-pyrite in gash quartz veins in disturbed/sheared wacke/siltstone beds, with an increase in chlorite until at 420m, which is logged as a strongly altered chlorite rock. At 421m, there are stringers of bornite and chalcopyrite in chlorite-magnetite rock for around 0.5m. Below 421.85m no sulphides are noted and there is decreasing chlorite alteration that becomes patchy with depth. The interbedded wacke and siltstone sequences below the chlorite magnetite zone are less 'uniform' than the hangingwall sediments and contain sporadic quartz veining. Minor euhedral pyrite is infrequently noted along open fractures and within discordant quartz veins.

While the drillhole intersected a small zone of chlorite-magnetite-chalcopyrite-bornite alteration, the magnetic susceptibility response over this zone was quite subdued. The chlorite-magnetite zone is below the Massey magnetic model and adjacent to the Lindeman magnetic model. The small zone of alteration indicates that either the hole ‘clipped’ a zone with a larger zone of alteration/mineralisation off to one side, or that the zone of alteration/mineralisation has only a small extent. SG measurements ranged between 2.7 and 3.0, with most values being around 2.8.

Assay results for diamond drillhole, DERD001 were returned with no significant assays (>0.5g/t Au and >0.5% Cu) were returned. The best results were 1m @ 0.27g/t Ag, 6.6ppm Bi, 1178ppm Cu, 15.5% Fe and 565ppm Zn from 421m. This interval comprises chlorite-magnetite altered rock (421-421.3m) with 3% stringer chalcopyrite and 1% stringer bornite. Chlorite rock (421.3-423.5m) with 2% blebby chalcopyrite (421.3-421.85m).
Down hole probing has not been possible due to a collapsed drill hole. Opening the hole for down hole probing has been recommended, but not followed up with to date.

7.4 EL 22165 COPERNICUS

Exploration conducted in EL 22165 was focused at the Northern Star, Hermitage and Rising Star Areas. The exploration conducted during the reporting period is detailed as follows;

An IP / AMT survey was conducted by Zong Geophysics over the Hermitage and Rising Star prospects, refer to figure 14, during August 2009. The purpose of the survey was to obtain the electrical signature over known mineralisation associated with a distinct magnetic-gravity anomaly and then compare / contrast with that over the peak gravity only anomaly which extends just to the NE of Rising Star. Emmerson consultant Geophysicist Steve Massey modelled the results, these indicated a shallow response over the known mineralisation, plus 2 other responses to the north and south of Hermitage (below figure). The Massey report delineated 7 IP anomalies that were interpreted to be within Warramunga sediments adjacent to intrusive bodies (interpreted from the AMT resistivity response). The targets were reviewed in relation to historical drilling, plus previous geophysical data (gravity and a modelled magnetic body by Lindeman in 2003). It became apparent that deepening of historical drillhole RS-1 could test the coincident gravity/magnetic anomalies as well as test the IP anomaly. The target depth of the IP anomaly was a broad zone from 99 – 320m.

![HERMITAGE – RISING STAR](image)

**IP ANOMALY OVER GRAVITY LOW**

**RISING STAR (CU)**

**HERMITAGE ORE ZONE SHALLOW IP RESPONSE**

**GRAVITY CONTOURS OVER ASVI MAG WITH IP LINE OVER HERMITAGE**
RISING STAR

Emmerson conducted a review and validation of historical drilling over the Rising Star Area, prior to conducting drilling. One diamond tail RSD001 (extension of historical RS-1), totalling 299m (from 99.9m – 398.9m) was drilled at Rising Star. The core was extremely broken, with several zones of fault gouge, variable but consistent chlorite alteration through much of the hole and several zones of hematite+/-dolomite +/- chlorite +/- bornite +/- chalcopyrite (see figure below).

![Figure: RSDD001 – Bornite Vein 202m – Niton Result (39.6% Cu, 0.1% Zn, 12% Fe, 0.5% Ti)](image)

From the faulting at a low angle to core axis plus repetition of alteration zones it is likely that the hole was drilling down-structure, which was unexpected. The appearance of zones of disseminated pyrite in siltstone may explain the IP response. The modelled magnetic response remains unexplained. Unfortunately 50mm PVC casing could only be laid to 180m DHD as hole closed off in fracture zone.

Further drilling was conducted during December, the holes were designed to test an interpretation of magnetic and gravity that suggests the TC granite may have developed ironstones from hematitic siltstones within its cupola (contact metasomatic halo?). Drilling aimed to test this theory as well as to investigate the upper portion (?cupola) of the interpreted highly resistive granite. Drill hole RSDD002 was finalised at a depth of 317.2m. Drilling was sub-parallel to bedding, with a 5-15° angle between bedding and core axis over most of the hole. The IP conductivity target was tested and nothing of economic significance was evident. The hole did not provide an optimum representation of a geological section through the lithology due to the reason above. The final 24m of the hole encountered very silicified and cherty sediments which could be speculated to be the cause of the AMT resistance anomaly.
<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>51</td>
<td>RC pre-collar - hematitic siltstone/sandstone</td>
</tr>
<tr>
<td>51</td>
<td>62.2</td>
<td>Hematised sediments dominantly siltstones with MnO on fractures and as blebs</td>
</tr>
<tr>
<td>62.2</td>
<td>68</td>
<td>Hematised siltstones with QV and MnO on fractures within qv</td>
</tr>
<tr>
<td>68</td>
<td>104.9</td>
<td>Hematised siltstone, rarer bands of gw or &lt;1cm qv’s (&lt;1%)</td>
</tr>
<tr>
<td>104.9</td>
<td>105.1</td>
<td>Shear Zone</td>
</tr>
<tr>
<td>105.1</td>
<td>119.3</td>
<td>Hematised siltstone</td>
</tr>
<tr>
<td>119.3</td>
<td>119.6</td>
<td>Hematised siltstone with bx’d qv with chlorite infill</td>
</tr>
<tr>
<td>119.6</td>
<td>130.5</td>
<td>Hematised siltstone</td>
</tr>
<tr>
<td>130.5</td>
<td>150.5</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>150.5</td>
<td>151</td>
<td>Sandstone unit</td>
</tr>
<tr>
<td>151</td>
<td>155</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>155</td>
<td>155.3</td>
<td>Sandstone/siltstone</td>
</tr>
<tr>
<td>155.3</td>
<td>157.3</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>157.3</td>
<td>157.5</td>
<td>Sandstone</td>
</tr>
<tr>
<td>157.5</td>
<td>181</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>181</td>
<td>182.2</td>
<td>Sandstone/siltstone</td>
</tr>
<tr>
<td>182.2</td>
<td>187</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>187</td>
<td>207.3</td>
<td>Graded and sst/gw/silt unit</td>
</tr>
<tr>
<td>207.3</td>
<td>292.6</td>
<td>Interbedded hematitised siltstone and wackes</td>
</tr>
<tr>
<td>292.6</td>
<td>293</td>
<td>Sheared sandstone/wacke</td>
</tr>
<tr>
<td>293</td>
<td>317.2</td>
<td>Very silicified silts and cherty units to EOH</td>
</tr>
</tbody>
</table>
Drill hole RSDD003 was finalised at a depth of 239.9m. Preliminary logging suggested the IP response may be associated with purple haematized siltstones, variably folded with pytomatic quartz veins. Main zone of IP conductivity is 120m – 220m down hole depth;

<table>
<thead>
<tr>
<th>From</th>
<th>To</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>51</td>
<td>RC pre-collar - hematitic siltstone/sandstone</td>
</tr>
<tr>
<td>51</td>
<td>72.5</td>
<td>Haematized sediments dominantly siltstones</td>
</tr>
<tr>
<td>72.5</td>
<td>72.6</td>
<td>Fault gouge, haematized siltstone</td>
</tr>
<tr>
<td>72.6</td>
<td>73.8</td>
<td>Purple haematized siltstone</td>
</tr>
<tr>
<td>73.8</td>
<td>81.6</td>
<td>Purple haematized siltstone with occasional pytomatic qv’s</td>
</tr>
<tr>
<td>81.6</td>
<td>92.5</td>
<td>Purple haematized siltstone variable pytomatic qv’s, vuggy and folded</td>
</tr>
<tr>
<td>92.5</td>
<td>97</td>
<td>Purple haematized siltstone</td>
</tr>
<tr>
<td>97</td>
<td>100.2</td>
<td>Purple haematized siltstone with &lt;5% pytomatic qv’s</td>
</tr>
<tr>
<td>100.2</td>
<td>107</td>
<td>Purple haematized siltstone with stkwk qv’s</td>
</tr>
<tr>
<td>107</td>
<td>110.5</td>
<td>Purple haematized siltstone, sheared, friable with 5-10% qv’s</td>
</tr>
<tr>
<td>110.5</td>
<td>111.6</td>
<td>Pink Purple haematized siltstone, silicified, bx’d in part, with blebs of MnO</td>
</tr>
<tr>
<td>111.6</td>
<td>114.1</td>
<td>Purple haematized siltstone, bx’d sheared, friable, with stk qv’s</td>
</tr>
<tr>
<td>114.1</td>
<td>&gt;153</td>
<td>Purple haematized siltstone, variably folded with pytomatic qv’s</td>
</tr>
</tbody>
</table>

Evidence from both RSDD002 and RSDD003 gives reason that it may be plausible to relate the gravity anomalism in the area to the haematized sediments, the IP conductivity anomaly to these sediments also along with the presence of MnO on fractures and as blebs. The CSAMT resistive anomaly related to the cherty & silicified sediments at the BOH of RSDD002.

Results were received from RSDD001 - High grade copper was returned from the bornite vein intersected in the hole. A result of 1.9m @ 6.49% Cu including 0.6m @ 18.3% Cu was returned.
Four petrology samples were collected from RSDD002 from the siliceous sediment between 293.27-317.2m (EOH). These samples were sent to Emmerson consultant Roger Taylor for analysis, details are shown below;

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Hole ID/ Source</th>
<th>M from</th>
<th>M to</th>
<th>Sample Type</th>
<th>Description</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>94188</td>
<td>RSDD002</td>
<td>300.17</td>
<td>300.24</td>
<td>NQ2</td>
<td>Siliceous sediment with thin CLT-bearing beds and intraformational (?) CLT-bed breccia</td>
<td>MCC915</td>
</tr>
<tr>
<td>94189</td>
<td>RSDD002</td>
<td>310.16</td>
<td>310.25</td>
<td>NQ2</td>
<td>Siliceous Sediment/wacke contact with flame structures accentuated by S1 cleavage</td>
<td>MCC915</td>
</tr>
<tr>
<td>94190</td>
<td>RSDD002</td>
<td>315.45</td>
<td>315.54</td>
<td>NQ2</td>
<td>Siliceous Quartzite (possibly even felsic volcanic?) contact with greywacke overprinted by Q2VN</td>
<td>MCC915</td>
</tr>
<tr>
<td>94191</td>
<td>RSDD002</td>
<td>316.72</td>
<td>316.78</td>
<td>NQ2</td>
<td>Siliceous Siltstone with Chlorite &quot;pods&quot; accentuated by transposed cleavage (Rip-up clasts?)</td>
<td>MCC915</td>
</tr>
</tbody>
</table>
Petrophysics samples were collected from RSDD001 and RSDD002 and sent to Emmerson consultant Don Emerson for analysis. Details are shown below;

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Hole ID/ Source</th>
<th>M from</th>
<th>M to</th>
<th>Sample Type</th>
<th>Description</th>
<th>Tenure</th>
</tr>
</thead>
<tbody>
<tr>
<td>94316</td>
<td>RSDD002</td>
<td>52.96</td>
<td>53.11</td>
<td>HQ</td>
<td>Saprolitic red hematite bedded siltstone-greywacke with black MnOx (pyrolusite) occurring as blebs and stringers, some are dendritic in form. Approx 1-2% MnOx in this sample.</td>
<td>MCC915</td>
</tr>
<tr>
<td>94317</td>
<td>RSDD002</td>
<td>123.37</td>
<td>123.55</td>
<td>NQ2</td>
<td>Hematite red-purple bedded siltstone-greywacke</td>
<td>MCC915</td>
</tr>
<tr>
<td>94318</td>
<td>RSDD002</td>
<td>305.8</td>
<td>305.93</td>
<td>NQ2</td>
<td>Pale grey, silicified to cherty bedded siltstone with blebby chlorite</td>
<td>MCC915</td>
</tr>
<tr>
<td>94319</td>
<td>RSDD001</td>
<td>127.04</td>
<td>127.22</td>
<td>NQ2</td>
<td>Partially oxidised weakly bedded dark purple siltstone with clays after quartz and limonite on fractures.</td>
<td>MCC915</td>
</tr>
<tr>
<td>94320</td>
<td>RSDD001</td>
<td>202.5</td>
<td>202.7</td>
<td>1/2 NQ2</td>
<td>Dolomite rock with minor chlorite with bornite as blebs and rimming chalcopyrite with minor cross-cutting quartz-dolomite veins.</td>
<td>MCC915</td>
</tr>
<tr>
<td>94321</td>
<td>RSDD001</td>
<td>220.88</td>
<td>221</td>
<td>1/2 NQ2</td>
<td>Chloritic siltstone with quartz-carbonate veining and coarse chalcopyrite blebs.</td>
<td>MCC915</td>
</tr>
<tr>
<td>94322</td>
<td>RSDD001</td>
<td>283.63</td>
<td>283.81</td>
<td>1/2 NQ2</td>
<td>Bladed specular hematite and bright green chlorite with irregular quartz veining.</td>
<td>MCC915</td>
</tr>
</tbody>
</table>

Further assay results for RSDD003 returned significant Mn results with 4m @ 1.1% Mn from 109m including 1m @ 2.0% Mn from 111m. RSDD002 returned a maximum Mn result of 1m @ 0.32% Mn from 62m.
Specific Gravity readings were taken for both RSDD002 and RSDD003.

A full compilation was completed which included, 3D gravity inversions, 2D IP inversions, and existing magnetic and geological data. The compilation clearly showed that the existing mineralization in RSDD001 is related to a break in the IP chargeability at the edge of a dense body coincident with a weak magnetic anomaly. This was interpreted to represent a structurally emplaced ironstone within the hematite siltstone package. This same structural setting characterized the historic Hermitage mineralization (120 kt at 3% Cu and 5 g/t Au) and may extend to the Rising Star area.

RSDD004 was drilled to 412 m, this hole was drilled as a scissor hole under RSDD001 to test the extent of the mineralization in this hole (60 cm at 20.2% Cu). RSDD004 is structurally complex but preliminary logging indicates that the Warramunga Formation is folded as there is a clear change in younging direction. At ~260 m younging direction is down the hole and at ~320 m, after the alteration zone, younging direction is uphole. A 60 cm bornite vein was intersected at 185.3 m dipping subvertically to the northwest in hematite but is clearly different to that intersected in RSDD001. From 258.2 to 264 m a zone of quartz-chlorite-hematite alteration is present with minor amounts of mineralization. A late hematite alteration event overprints(?) the main quartz-carbonate alteration, is pytgmatically folded and has trace bornite present with secondary specular hematite. Pyrite with lesser chalcopyrite is present within the zone of quartz-chlorite-carbonate-hematite alteration. Interestingly a significant amount of hematite overprints and replaces the Warramunga, this is clearly visible over the intraformational breccias indicating that a large oxidized event was present in the area.

Precollars for RSDD005 (119m) and RSDD006 (77m) were completed and assay results for the RC precollars contained no significant intersections. RSDD006 was prioritized as RSDD004, 130 metres along strike to the east, had intersected two zones of significant ironstone alteration with some Cu mineralization. RSDD006 targeted the SG-3.8 inversion model and was designed to test down dip of the shallow forward magnetic model, see below figure.

RSDD006 intersected hematite shales - siltstones and a substantial dolomite-talc alteration zone within the SG-3.8 shell. The zone of dolomite-talc alteration, with trace chalcopyrite, was intersected at 259.9 – 284 metres. Localised specular hematite veining is present at 208.3 - 212 metres. Both drill holes, RSDD004 and RSDD006 have significant structural complexity with small scale faulting and pytgmatic folding present in the finely interbedded hematite shales – siltstones. Down hole changes in younging direction indicate larger scale folding is present.

RSDD005 is currently down the priority list for the diamond drill rig. Access to drill hole RSDD007 is subject to pending CLC clearance.
Figure: View to 245 degrees showing RSDD006 targeting the SG-3.8 inversion model and testing down dip of the shallow forward magnetic model.

NORTH STAR

Database validation commenced for the North Star Area, which has involved the identification of historical drilling data and validation against hard copy data were available.

7.5 EL 22224 MONZONITE

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL’s 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.6 EL 22589 WHIPPET HILL

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL’s 26594 & 26595. The
licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.7 EL 23183 JUNCTION

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL’s 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.8 EL 9939 BATTERY BLOCK

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL’s 10101, 22165, SEL’s 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.9 SEL 26594 BILLS

Exploration conducted in EL 10101 was focused at the Marathon Area. The exploration conducted during the reporting period is detailed as follows;

Data Compilation

Final collar coordinates for historic drillholes in the Marathon area was conducted, and coordinates will be tied into the 2009 gravity survey datum. Available geology (from Geopeko / Normandy drilling) has been reviewed and entered into Emmerson DataShed database using the Emmerson geology codes.

Work conducted was aimed at enhancing the geological understanding of the known mineralisation, at Marathon, the +2ppm Au intercepts appear to follow a pitch of around 40° towards 313° (which is roughly the D3 orientation). Due to focus elsewhere, namely at Vivid and Voltan further work on Marathon has been postponed.

7.10 SEL 26595 RUSSELL

Exploration conducted in SEL 26595 was focused at the Queen of Sheba, Voltan (including the historical Golden Slipper Area) and Vivid Areas. The exploration conducted during the reporting period is detailed as follows;

QUEEN OF SHEBA

Work focused on the Southern Queen prospect where there are several unexplained magnetic anomalies and current CLC access clearance. The Southern Queen prospect was reviewed, cross-sectional interpretation completed and wireframes were constructed for both the Southern Queen Shear and the intense alteration zones contained within the shear. Review confirms previous interpretations of a steep, west-dipping, north-south-
trending shear. The Southern Queen prospect has remained prospective because several rounds of deep drilling (up to 791.6m, QSDD006) have not been able to identify the source of the large and intense magnetic anomaly (based on both airmagnetic data and downhole probe models).

Downhole magnetic data, revised D. Inkster magnetic models and historic drilling all indicate that the Southern Queen magnetic anomaly consists of several smaller magnetic bodies, not a single larger one. Downhole data indicates that several historic holes narrowly missed magnetic bodies in the 100 – 200k tonne range. Magnetic remanence was measured by Normandy (core from hole QSDD006) and indicated a Koenigsberger ratio of between 3 and 5 (i.e. relatively high remanence). This ratio indicates that as little as one fifth of the magnetic material would be required to account for the observed anomaly. This was also confirmed with historical Queen of Sheba prospect drilling that resulted in significantly less drilled material than the magnetic model predicted.

The current review has not been able to identify any Tier 1 or Tier 2 targets within the main complex. Despite this current thinking geological summary logging of the three deep Normandy holes is required to complete the Southern Queen geological model (currently Emmerson does not have any geological data for these holes). Also, there are a number of smaller magnetic anomalies to the south of the complex that require review and will be addressed at a later date.

VIVID

A wireframe of the Vivid alteration and ironstone package was created and the model remains unchanged, consisting of a single, cigar-shaped body that plunges moderately steeply towards 250°. Three historic diamond holes were selected for geological summary logging which will also involve collection of a number of samples to better constrain the magnetic properties of the ironstone and alteration package.

The Vivid prospect had its status uplifted to a potential Tier 1 target, based on the preliminary work completed, which includes;

1. Review and scan logging of holes VIVD-005, 006, 007, 008 and 012.
2. Magnetic susceptibility measurements on core and recalibration of historic results. This data was used to refine the magnetic residual models and to produce 3D Voxel models.
3. Magnetic forward modelling on the main magnetic anomaly. Modelling confirmed that the observed ironstone in drill core cannot account for the observed anomaly and further modelling revealed two residual magnetic models.
4. Gravity forward modelling identified a reasonably significant anomaly to the east of the main ironstone.
5. Geological interpretation and drillhole planning
Review of historical diamond holes confirmed the complexity of the hydrothermal system with multiple magnetite and hematite alteration events as well as at least two mineralizing events (earlier high Cu +/- low gold and later high Au w/ low to moderate Cu). The high grade gold event transects both the chlorite alteration selvedge and the magnetite and hematite ironstones. Gold and copper mineralization is best developed in brittle structural zones within the hanging wall and footwall contacts of the ironstone bodies creating high grade, but low-tonnage mineralization zones. Less well-developed mineralization is present throughout the ironstone bodies were clearly less brittle deformation and space creation has occurred. Review of historic geological data combined with the recent detailed ground gravity survey has produced a clearer understanding of the broader Vivid geologic framework (Figure 1 and 2). Residual 1VD gravity data and diamond core show a package of hematite siltstone and shale that strikes 250 and dips steeply to moderately towards the north. This stratigraphic package is transected by parallel D1 structures, one of which hosts the Vivid ironstone. Gravity lows indicate the presence of felsic intrusive at depth, however, none was identified in historic drilling. It is thought that the Warramunga sedimentary rocks all strike 250 within the broader Vivid area, except their expression is obscured by the lows associated with the deep intrusive bodies. This rock package appears to be cut by a series of northwest-trending D3 mineralization age structures. The two residual magnetic models and the forward gravity models all strike NW which is potentially a favourable orientation for D3 structural deformation and introduction of hydrothermal fluids. Deep drilling at Vivid (VIVD-008, 408m) identified abundant hematite alteration (replaces magnetite and jasper-quartz alteration packages) and a substantial zone of dolomite alteration. Geological interpretation indicates that this dolomite package may represent the top of a deeper hematite-dominated ironstone system down-plunge from the main Vivid ironstone.
Figure; 1VD residual Gravity image showing the 250 striking Warramunga hematite sediments and D1 structures cut by NW-trending D3 mineralization structures (hosts the residual magnetic and forward gravity models).
Figure: ASVI Tilt magnetic image showing the identified Vivid ironstone and the two residual magnetic models. The residual models, if real, are in a favourable structural position being sub-parallel to the D3 mineralization structures.

Nine drillholes were completed at Vivid during October (see table below). See also Figures below for drillhole locations relative to gravity and magnetic anomalies. Considerable drilling difficulties were encountered with most holes refusing to lift and showing a strong tendency to swing against rotation. Structural analysis of drill core reveals that bedding orientations are significantly different from the historic holes (strikes NE, NNE and SE compared to the dominant ENE trend of historic drilling) which may have affected the drillhole trace direction.
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1198  656.9  1854.9
Drilling highlights include:

1. VIDD016 extends ironstone 30m up-plunge from previous known ironstone (the ironstone was thought to terminate at 100m below surface, 30m down-plunge from the VIDD016 intersection)

2. VIRC019 intersected jasper-rich ironstone directly beneath shallow cover (10m). This ironstone represents the surface expression (daylight) of the Vivid ironstone and extends the ironstone strike 130m up-plunge of previously know ironstone. The best RC results came from this hole intersecting 12m @ 180ppb Au, 407ppm Cu, from 69m.

3. All holes intersected iron-rich hematite siltstone (HSL) except for VIDD016 (0 – 212.05m) and VIDD021 (0 – 87m). This confirms that the gravity high is associated with HSL, a rock type with significantly more oxidised iron than the typical chloritic siltstone observed throughout the district

4. VIDD016 confirms the ‘big picture’ metallogenetic model of metal deposition at the interface between relatively reduced chloritic siltstone and oxidised HSL. In this hole the REDOX boundary is marked by a well-developed fault that lies within the Vivid structural position, albeit 130m east along strike.

5. Downhole magnetic probe data in VIDD015 indicates a ‘near-miss’, off-hole magnetic anomaly for the shallow residual magnetic anomaly. This data effectively confirms the validity and position of Steve Massey’s residual magnetic models.
This hole was originally planned as a DD hole to target the shallow residual magnetic body, however, the hole swung 10° against rotation and dropped 1° so was abandoned at
119m. Drilling intersected purple Hematite Siltstone (HSL) with minor interbedded purple-red, fine-grained sandstone. No alteration or mineralization was identified.

VIDD015 (RC 125m, DD 62m, TD = 187)

This hole was drilled to re-test the shallow residual magnetic anomaly. Swing issues were removed by setting the hole up 15m further to the west, however, the hole failed to lift and drilled underneath the magnetic model. Downhole magnetic probe analysis confirms an off-hole anomaly in approximately the same position as Steve Massey’s original model. Drilling intersected similar rocks to VIRC014, dominated by purple hematite siltstone.

VIDD015W (DD 27.9m, TD = 152.9m)

A wedge was drilled from the bottom of the RC part of VIDD015 (from 125m) in an attempt to intersect the residual magnetic model. Unfortunately, the wedge failed to lift (dropped 0.5 within the first 20m) and the hole was abandoned. This target is still untested. The wedge intersected similar HSL to that in VIDD015 and VIRC014.

VIDD016 (RC 119, DD 157.9, TD = 276.9m)

This hole was drilled to test the up-plunge extension of the Vivid ironstone which was thought by previous explorers to terminate approximately 30m west of this hole at about 100m below surface. The hole intersected a narrow zone of intense alteration (15m) consisting of footwall and hangingwall chlorite rock alteration (CRK) that enveloped an alteration package of both jasper- and chlorite-magnetite +/- hematite dominated ironstones. The alteration zone was poorly mineralized with sulphides restricted to narrow, semi-massive chalcopyrite zones and disseminated pyrite zones. The alteration zone was much narrower than expected, possibly indicating that the ironstone does “Pieter-out” up-plunge, or alternatively, the hole possibly drilled beneath the projected position due a failure to lift in the first 150m of the hole.

VIDD016 was successful at drilling through an interpreted REDOX boundary, marked by a well-developed fault – shear zone at around 212m that separates a stratigraphical lower package of, relatively reduced chloritic siltstone from blood red, siliceous hematitic siltstone. The fault lies within the interpreted Vivid structural position and confirms the presence of a significant ENE-trending structure within the northern part of the main residual gravity anomaly. No downhole magnetic probe data was able to be collected from this hole because the PVC casing got stuck downhole at (56m?).

VIRC017 (RC 233m, TD = 233m)

This hole was drilled to test the centre of the shallow gravity anomaly that was interpreted to lie within a northwest-trending structure. The hole intersected purple HSL immediately below shallow cover (9m) to 69m where the rocks changed to the same blood-red, siliceous hematite siltstone intersected in VIDD016. This lithological change is spatially associated with the northern edge of the residual gravity high and probably represents a structural contact as in VIDD016. The blood-red HSL continues to 129m where rocks form a gradational contact with relatively reduced chloritic siltstones. The Blood-red HSL
package contains abundant, bedding parallel specular hematite bands as well as hematite veins +/- ironstone development (<0.5m wide), quartz veins and manganese oxide coated fractures and veinlets.

VIDD018 (RC 197, DD 248.1, TD = 445.1m)

This hole was planned to intersect the deeper residual magnetic model defined by Steve Massey, however, the hole failed to lift and swung violently against rotation as it approached the interpreted magnetic model position, ultimately missing the target. The hole was continued an extra 50m despite directional difficulties in an attempt to get as close to the target as possible to give the downhole mag probe the best chance of detecting Steve Massey’s interpreted model (eventually terminated hole 18m northeast of the model position). The hole intersected strongly developed alteration zones at 105 – 127m and 196.6 – 279m that consist of pervasive silicification with sheeted and conjugate quartz veins (Figure below). This alteration package is possibly associated with poorly-developed pervasive sericite alteration (sometimes intensely-developed, <30cm zones). The silicified alteration package appears to be overprinted by a well-developed chlorite +/- quartz vein network and crackle breccia. Purple hematite siltstone is the dominant lithology and is commonly interbedded with chloritic siltstone and fine-grained sandstone throughout the hole indicating a transitional REDOX environment.

Downhole magnetic probe data do not indicate any proximal off-hole anomalies.
Figure; VIDD018 Tray 4 and 5, 208.8 – 217.05m Strongly silicified siltstone (possibly after hematite siltstone) with sheeted and conjugate quartz veins. The interval is cut by a network of thin chlorite +/- quartz veins that form a crackle breccia.

VIRC019 (RC 149, TD = 149m)

This hole was not part of the original programme but was added because of the encouraging signs observed in VIRC017. The hole was drilled 35m west of VIRC017 and is sited on the peak residual gravity anomaly. The hole intersected narrow zones of jasper and hematite ironstone directly beneath 9m of transported cover (15 – 18m, 26 – 27m, trace jasper in 78 – 79m). These poorly-developed ironstone lenses are thought to represent the up-plunge surface expression of the Vivid ironstone. The hole intersected dark brown, ferruginous to highly-ferruginous hematite siltstone throughout with abundant thin massive buff hematite bands and minor specular hematite veins. No blood red, siliceous hematite siltstone was observed in this hole as in VIRC017 and VIDD016 but this is probably because of the shallowness of VIRC019. The intensity of hematite development in this hole (up to 20% iron) clearly explains the gravity anomaly.

Downhole mag probe data did not observe any off-hole magnetic anomalies, not surprising in a hematite-dominated system.

VIDD020 (RC 59m, DD 161m, TD = 220m)

This hole was drilled to target beneath the highly ferruginous intercepts in VIRC019. The hole intersected highly ferruginous hematite siltstone from 10 – 139.65m and 174.8 – 220m E.O.H with abundant bedding parallel buff hematite bands (up to 10%) and minor specular hematite veins (up to 2%) (Figure below). Blood red, siliceous hematite siltstone was intersected between 139.65 – 174.8m. The bedding-parallel hematite bands appear to be primary sedimentary in origin and indicate that the rocks are part of a very oxidised part of the sedimentary basin. This indicates that the highly ferruginous material in VIRC019 is simply oxidised HSL, not oxidized ironstone as first thought. No off-hole magnetic anomalies were detected with the downhole probe.
Figure; VIDD020 Tray 18 and 19, 135.71 – 144.21m. Fault contact? Between purple hematite siltstone (upper tray) and blood red, siliceous hematite siltstone (lower tray). The purple HSL has abundant bedding-parallel buff hematite bands that appears to be primary sedimentary. Gold anomalism is associated with specular hematite veins that cut the rock. The blood red HSL is possibly a pre-cursor to jasper formation.

VIRC021 (RC 197m, TD = 197m)

This hole was drilled as a precollar to target the down-plunge extension of the Vivid ironstone (approximately 50m down-plunge). The diamond tail has not been drilled to date. The hole intersected purple hematite siltstone between 8 – 87 and dark green, highly siliceous chloritic siltstone from 87 – 197m E.O.H.

VIVID STRUCTURAL ANALYSIS

VIDD015 is the only diamond hole that has comparable bedding measurements to the historic holes (VIDD015 dip/dip direction is 59 / 116 and 42 / 167, compared to a general dip direction of 160 in historic holes). Bedding in the other three holes is VIDD016 (69/289 and 70/031), VIDD018 (61/325 and 45/287) and VIDD020 (70/342, 49/305). This means that most of the holes were drilled at low angles to bedding which probably explains the difficulty with controlling hole direction. Two types of veins were observed in core (quartz-only and quartz-chlorite / chlorite-quartz). Quartz-only veins are probably related to a later brittle deformation event (D4) and in VIDD018 these veins are sheeted and associated with pervasive silicification. Quartz-chlorite / chlorite-quartz veins appear to be related to the mineralizing event as they sometimes contain specular hematite and rare jasper and sulphides. All vein types strike between northwest and northeast and dip
moderately to steeply to the west and east. Chlorite and sericite shears also have a similar orientation. No evidence was observed for the interpreted northwest-trending D3 mineralization structure (thought to host the gravity and residual magnetic models).

VIVID ASSAY RESULTS

Assay results have been received for all RC holes and several anomalous results were returned. The best result was from VIRC019 within a highly ferruginous hematite siltstone containing abundant bedding-parallel buff hematite bands, minor specular hematite veins and trace jasper (12m @ 180 ppb Au, 407ppm Cu, 18ppm Bi and 77ppm Zn, from 69m). This interval is located within a broader anomalous package of ferruginous hematite siltstones that averaged 30m @ 90ppb Au, 231ppm Cu, 12ppm Bi and 59ppm Zn. Anomalous intervals were also recorded in VIRC017, approximately 35m east along strike from VIRC019, also within ferruginous siltstone (6m @ 13ppb Au, 30ppm Cu, 2ppm Bi and 84ppm Zn, from 75m). These anomalous intervals lie broadly within the Vivid structural zone and it is thought that they represent peripheral zones of the near-surface expression of the Vivid ironstone.

VIDD016 returned a broad low grade interval within the ironstone/chlorite alteration package, which is seen in photo's below of Tray 12 & 13 of VIDD016.

VIDD020 returned no significant assays, despite drilling beneath a weak intersection in VIDD019 (12m @ 180ppb Au, 407 ppm Cu, reported in October monthly) containing significant hematite bands +/- specular hematite veins throughout the hole.

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<th>RL (GDA)</th>
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<th>Azi (deg)</th>
<th>Depth From (m)</th>
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Figure; VIDD016, Tray 12, 161.46 – 165.01m. Jasper-dominated alteration within chlorite +/- magnetite-hematite alteration.
Further Geological interpretation of the nine holes drilled in October was completed (cross-section and plan). Interpretation confirms previous geological models (i.e. west-plunging, south dipping ironstone within an essentially east-striking, north-dipping hematite sedimentary package). A new interpretation outlines the presence of a northwest-trending blood-red, siliceous hematite siltstone package that is coincident with the 1VD gravity anomaly. This package may represent the early stages of jasper formation and possibly reflecting distal alteration, above a hematite breccia system. There remains 130m of strike that has not been tested and the chance of a deeper hematite breccia body within the gravity anomaly'

Following the Emmerson internal geological review held during February 2010 Vivid was ranked as a Tier 2 target, with magnetic models to the north remaining untested, therefore under Emmerson obligations to the Ivanhoe Joint Venture further exploration of Vivid will be put on hold while focus continues to identify Tier 1 targets.

VOLTAN AREA (including the historical Golden Slipper Area & Queen of Sheba Area)

Key geological characteristics of the broader Voltan Area include:

1. 5km long NNE-trending gravity ridge with smaller, 2km long, parallel ridges to the east and to the west. This anomaly probably represents folded Warramunga hematite siltstone and shale and is most likely the same stratigraphic package that hosts the Vivid system.

2. The gravity ridge is located at a major change in strike of Warramunga rocks and sub-parallel D1 structures from E-W / WNW (southern part of district) to NNE / NE-trending (Northern Project Area)

3. The Voltan Area structural zone (D1 structure) runs down the western edge of the main gravity ridge and the Queen of Sheba structural zone runs down the eastern edge of the smaller eastern gravity anomaly.

4. The gravity anomaly is cut at the north and central south by WNW-trending, D3 mineralization-age structures.
5. Several jasper-quartz-hematite outcrops (D1 Golden Slipper structure) and abundant quartz blows (D4 brittle Quartz Hill structural event) dominate the flat alluvial plain that covers the Voltan Area. The poor surface expression of the Golden Slipper structure either indicates that the system is exposed at a relatively high level to Queen of Sheba (i.e. better developed at depth) or simply received less hydrothermal fluid.

6. Historical vacuum drilling located highly anomalous samples are from the Heavy Mineral Concentrate fraction of the transported cover profile. PosGold follow-up infill vacuum drilling returned significantly lower tenor results from bedrock samples. Subtle copper-gold anomalies were identified along the Golden Slipper structure and north of the Queen of Sheba system.

Figure; Voltan Area reprocessed residual gravity image. Note how the main NNE trend of the gravity ridge is cut by several NW-trending, D3 mineralizing structures. Also note the inflexion / change in strike of the gravity ridge near ERM003 from NNE- to NE-trending and then how the strike changes back to NNE-trending towards ERM004.

During November 2009 CLC approval cleared the entire area required for the planned RAB program. As expected, Exclusion zones were enforced around the Golden Slipper historic mine and over the entire Queen of Sheba, Evening Star and Southern Queen complex. These exclusion zones will not affect the 2009 RAB program. The program
has been designed to test the central part of the gravity anomaly where intersection of major D1 and D3 faults has been interpreted. The RAB program consists of 206 holes with 180, 36m holes and 26, 60m holes. The 36m holes were designed to test the broader gravity anomaly for large-scale hematite breccia zones whereas the 60m holes were specifically targeted at ironstone zones identified during field mapping.

Three days of geological mapping and rock chipping were completed over the entire planned RAB program, mapping identified several extensive quartz +/- hematite veins that appear to be related to the D1 Golden Slipper structure, not the later brittle D4 structures as had been previously thought. Three ironstone / jasper zones were identified within the central core of the gravity anomaly. It appears as though the three ironstone outcrops form a north-northeast to northeast-trending structural / alteration zone, possibly formed by en echelon, left-lateral structural movement within the main Golden Slipper structural zone, located along the western edge of the gravity anomaly (the zone is 600m long). Mapping confirmed the presence of both NNE-trending Golden Slipper structural fabric and WNW-trending, D3 cross-structures within the central zone as had been interpreted from the gravity anomaly. The Voltan prospect is potentially exposed at a high level within a typical tenant Creek system (i.e. abundant quartz veins) and testing this very prospective target will require using deep RC drilling. Rock chipping conducted involved the chipping of 52 samples. Nine (9) samples were collected from a mullock pile of ore material from the Golden Slipper mine, results returned from these samples a maximum of 18.1g/t Au, with supporting samples including 4.6g/t Au, 3.6g/t Au, 1.4g/t Au. Notably the samples off massive and semi-massive specularite within siltstone and late stage quartz veins returned negligible Cu grades – max of 80ppm. They however had elevated (not anomalous) Bi, Mo and Te results. Significantly one sample from a partially jasperised siltstone cut by 1-3% quartz veins returned a result of 4.93g/t Au. The outcrop is an strike extensive linear outcrop within the centre of the gravity anomaly. A second significant result of 4.2g/t Au was returned from a float sample of massive specularite in the southern portion of the RAB grid area. This sample is spurious as was located in an area of extensive quartz float and was possibly introduced. A maximum value of 52ppb was returned from the Voltan outcrop.

201 RAB drillholes (GSR003 – GSR203) were completed by Bullion Drilling in December 2009 for a total of 5474m. Most drillholes were between 24-36m deep into the lower saprolite layer with 4m composite samples collected. A large number of drillholes intersected purple hematite siltstone which closely matches the gravity ridge anomaly at the prospect. Transported cover was typically 1 to 2m deep over the northern part of the gravity ridge increasing to 5 to 10m away from the central “spine” of the anomaly. This may reflect the more enduring nature of the hematite siltstone and the structure – possibly an anticlinal ridge. Drillholes at the south of the prospect typically had more cover (6 to 10m) and much greater clay development necessitating deeper drilling to penetrate into the lower saprolite regolith. Some moderate to strong hematite alteration was noted in the grid program which could relate to hydrothermal alteration associated with ironstone emplacement.

Three deeper RAB holes were completed beneath prospective outcrop. GSR201 was drilled to 49m beneath a silicified outcrop with minor quartz-hematite float. Hematitic clays and hematite siltstone at depth was intersected. Two scissor holes to 67m depth were
also completed targeting the Voltan outcrop. Bands of hematite-quartz and quartz-hematite from 2 to 5 m width were drilled within an intensely hematite altered, red-brown siltstone/sandstone.

Assay results from the RAB drilling showed a number of coincident multi-element anomalies.

- One large anomaly with maximum results of 0.64g/t Au, 1163ppm Cu and 48ppm Bi remains open to the SW, two parallel anomalies one to the east and another to the west are also evident.

- 2 lesser multi-element anomalies exist parallel to the large anomaly in the central portion of the grid.

- Narrow continuous Cu/Au/Bi anomaly exists in the southern grid and in the northern grid extending into the Golden Slipper deposit.

- Best RAB drilling intercepts were returned from a pair of scissor holes (GSR202 & GSR203) into an outcropping jasperoidal/hematite in the central grid. Result included 8m @ 0.56g/t Au and 0.11% Cu from 24m.

Figure: Thematic Max Cu in Hole on satellite image. Figure: Thematic Max Cu in Hole and contour image.
It is apparent from the trend of the anomalism when overlain on the geophysical images that the multi-element anomalism lies along the western edge of the gravity high. This may be interpreted to suggest the mineralisation is manifesting itself on the contact of the hematised sediments (interpreted source of gravity anomalism) and the non-hematised sediments containing weak/low tenor magnetic anomalism (primary magnetite/weak magnetite alteration). This contact is conceivably a REDOX boundary and could be the mechanism or trigger for metal precipitation.

A interpretation for the Golden Slipper/Voltan anomalism is shown below:
A reconnaissance trip was undertaken by Emmerson geologist Kim Hurd on the 10th February to ground truth several gravity and magnetic anomalies. An extension of the RAB program drilled at Voltan in December was designed (blue dots shown in figure below, black dots represent the December 2009 program).

In total, the RAB program totalled 276 holes for 8,825m drilled in March-April 2010.

*RAB drilling over residual gravity image; black = 2009 RAB program, white = 2010 RAB program*
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<th>North (GDA)</th>
<th>RL (GDA)</th>
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Emmerson geologists Kim Hurd and Dominic Sadsad collected a further 13 rock chips (sample numbers 94331-94344) from the Morning Star ironstone in the Voltan Area on a field trip on the 31st March 2010. No anomalous Au or Cu were returned.
The assay data indicates that both the northern and southern areas of the RAB grid is prospective for Cu-Au mineralisation. Logas images of Au and Cu are shown below; purple text indicates the recent results.
Au ppb RAB contours
Two RC precollars were drilled at Voltan during April, VNDD001 and VNDD002 for 41 and 83m respectively. VNDD001 is designed to test stratigraphy beneath the geochemical anomalism encountered in the RAB last year. VNDD002 is designed to test the mineralisation beneath RAB holes, GSR202 and GSR203. VNDD001 intersected hematitic, bedded siltstone. VNDD002 intersected hematitic siltstone and interbedded siltstone-greywacke. Three RC holes were drilled during the month (VNRC003-005) for a total of 693m. VNRC003 and VNRC005 were designed to test the down dip extension of geochemical anomalism associated with the Voltan ironstones identified in the 2009 RAB drilling program. VNRC005 was designed to test the gravity anomaly and underneath weak Cu anomalism intersected in GSR100 and GSR101. VNRC003 intersected hematitic sediments to 156m, chloritic sediments to 197m and more hematitic sediments to 215m (EOH). A shear zone from 161-170m is chlorite-sericite-talc altered with approx 5% disseminated pyrite, a quartz vein with chalcopyrite-bornite is present between 169-170m and rare malachite between 170-171m. VNRC004 intersected
hematitic sediments to 95m and chloritic sediments to 263m (EOH). This hole didn't intersect any mineralised or intensely altered lithologies. VNRC005 intersected hematitic sediments to 99m and chloritic sediments to 215m (EOH). Similarly to VNRC003, a shear zone from 99-105m is chlorite-sericite-talc altered with approx 3% disseminated pyrite. All holes were cased with PVC for mag probe.
Results received for Voltan RC holes VNRC003, VNRC004 and VNRC005 are shown below using a lower cut-off of 20ppb Au and 100ppm Cu.
VNRC003 intersected hematitic sediments to 156m, chloritic sediments to 197m and more hematitic sediments to 215m (EOH). A shear zone from 161-170m is chlorite-sericite-talc altered with approximately 5% disseminated pyrite, a quartz vein with chalcopyrite-bornite is present between 169-170m and rare malachite between 170-171m.

VNRC003 significant intercepts;

- 24m @ 181ppm Cu from 90m (including 3m @ 11ppb Au from 90m).
- 39m @ 456ppm Cu from 141m including 3m @ 25ppb Au; 23ppm Bi and 0.21% Cu from 168m

VNRC004 intersected hematitic sediments to 95m and chloritic sediments to 263m (EOH). This hole didn’t intersect any mineralised or intensely altered lithologies.

VNRC004 significant intercepts;

- 3m @ 38ppb Au from 90m
- 15m @ 59.5ppb Au from 129m including 3m @ 235ppb Au *(repeat 250ppb Au)* from 138m (no coincident Bi or Cu)

VNRC005 intersected hematitic sediments to 99m and chloritic sediments to 215m (EOH). Similarly to VNRC003, a shear zone from 99-105m is chlorite-sericite-talc altered with approx 3% disseminated pyrite.

VNRC005 significant intercepts;

- 3m @ 12ppb Au and 150ppm Cu from 42m
- 42m @ 23ppb Au and 407ppm Cu from 72m including 3m @ 657ppm Cu from 87m and 3m @ 61ppb Au from 90m
- 6m @ 246ppm Cu from 141m and 6m @ 71ppb Au from 144m
- 3m @ 266ppm Cu from 156m
- 9m @ 25ppb Au from 168m
- 3m @ 154ppm Cu from 195m

All holes were cased with PVC for downhole mag probing, no anomalies were identified. Given the AMAG has not defined a magnetic anomaly in the proximity of these holes; a clear DHMAG anomaly was unlikely.

Diamond tails, VNDD001 and VNDD002, were drilled during June 2010. VNDD001 was diamond tailed from 41m to 251m and VNDD002 from 83.3 to 169.4m for a total of 296.1m of diamond drilling.
VNDD001 is a stratigraphic hole designed to test 80-90m beneath the geochemical anomalism intersected in RAB holes, GSR024 and GSR025. VNDD002 tested directly beneath the Voltan ironstone that was cross-drilled with RAB holes, GSR202 and GSR203. These holes intersected significant Au-Cu anomalism with the best intercept of 8m @ 0.56g/t Au and 0.11% Cu from 32m.

VNDD001 intersected variably hematitic siltstones >> greywackes and minor intra-formational breccia. The zone of anomalous geochemistry that was targeted correlates with a quartz vein array developed around a steeply west dipping reverse fault. Generally barren moderately east dipping tension gashes are occupied by barren quartz-chlorite veins. Small millimetric-centimetric subvertical hematite-quartz-chlorite ± bornite ironstone veinlets occur locally and define two principal orthogonal orientations dipping 40° and 80° towards 110°-120° and 70° to 75° towards 180°-210°. The shallower dipping feature corresponds to the tension gash orientation while the steeper features are exactly those defined by Brett Adams from the gravity.

VNDD002 intersected interbedded hematitic siltstone-greywacke to 111.57m, hematitic arkose and siltstone to 143.38m, a quartz vein with blebby specular hematite to 143.87m and siltstone to EOH (169.4m). The narrow quartz vein is suspected to be the source of the ironstone outcrop. No sulphides were intersected in this hole. VNDD001 and VNDD002 will be sampled early next month.

Assay results for VNDD001 and VNDD002 were received with the best intersections shown below;

VNDD001

- 1m @ 122.5ppm Bi from 167m
- 2m @ 0.37% Cu from 236m

Two petrology samples were sent from VNDD002 during the month to determine the type and nature of the carbonate present within bedded hematitic siltstone. It is currently interpreted as manganese carbonate (rhodocrosite?) oxidising to Mnox (pyrolusite). The mineral fizzes with 10% hydrochloric acid and oxidises further to brown-black clay.

VNDD006 was drilled during July targeting gravity model, ‘V5’. The hole was rock-rolled to 47.4m, HQ drilled to 59.5m and NQ drilled to EOH (444.9m). VNDD006 intersected bornite and chalcocite stringers hosted by carbonate-hematite veins at 185-195m and several quartz-chlorite zones. No ironstone was intersected.

The precollar for VNDD007 was drilled to 101m and is designed to test coincident anomalous RAB geochemistry, ‘V1’ gravity model and the interpreted fold hinge. The diamond tail has not been completed to date.
Emmerson consultant geophysicist Brett Adams completed a report covering the DDH density measurements reconciled against drilling results from drilling of VNDD001, VNDD002 and VNDD006. Main points are summarised below:

- Holes VNDD001 and VNDD002 tested geological targets not corresponding to gravity anomalies.
- VNDD006 targeted a gravity anomaly and model, which was intersected. Failure to intersect increased density implies the source is either deeper or offset.
- Holes VNDD001, VNDD002 and VNDD006 do not display density contrasts to explain the gravity anomalies.
- VNRC003 intersected a gravity model returning minor geochemical anomalism.
- Density gradually increases between 50m-150m at which point the holes enter fresh bedrock.
- VNDD006 results do not display increased density compared to VNDD001 and VNDD002 implying the source of the gravity anomaly has not been intersected.
- Chlorite appears to provide a mag-susc boundary in VNDD001
- Presence of hematite within the siltstone has produced increased density above background (approx 2.8g/cc) in VNDD002
- Marked density contrast at faulting implies localised alteration in VNDD006
- Increased alteration below 400m coincides with subtle decrease in density in VNDD006
| HOLE ID | East   | North  | RL     | Dip  | Grid Azimuth | Depth | From | To   | Width | Au   | Ag   | As   | Bi   | Cu   | Fe   | Mo   | Pb   | Sb   | Te   | Zn   |
|---------|--------|--------|--------|------|--------------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| VNDD001 | 404129.45 | 7855170.19 | 339.04 | -65  | (GDA)        | (deg) | (m)  | (m)  | (m)  | (ppb) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) | (ppm) |
|         |        |        |        |      | (GDA)        | (deg) | 251.0 | 141  | 145  | 4    | 6.4  | 0.085 | 6.9  | 24.9 | 534  | 5.2  | 1.5  | 33   | 0.19 | 0.036 | 696  |
|         |        |        |        |      | Incl.        |       | 144  | 145  | 1    | 17.0 | 0.110 | 12.1 | 25.7 | 1399 | 6.4  | 4.4  | 91   | 0.25 | 0.070 | 723  |
|         |        |        |        |      |              |       | 153  | 155  | 2    | 3.5  | 0.053 | 6.6  | 78.2 | 88   | 3.3  | 1.2  | 7    | 0.82 | 0.025 | 239  |
|         |        |        |        |      |              |       | 165  | 171  | 6    | 1.0  | 0.056 | 6.4  | 53.6 | 233  | 3.6  | 0.8  | 6    | 0.79 | 0.108 | 151  |
|         |        |        |        |      | Incl.        |       | 167  | 168  | 1    | 0.5  | 0.110 | 11.7 | 122.5 | 572  | 3.8  | 1.5  | 6    | 0.69 | 0.025 | 156  |
|         |        |        |        |      |              |       | 208  | 210  | 2    | 0.8  | 0.065 | 1.4  | 4.2  | 1477 | 4.2  | 0.9  | 9    | 0.33 | 0.053 | 75   |
|         |        |        |        |      |              |       | 236  | 238  | 2    | 2.5  | 0.145 | 0.9  | 35.1 | 3667 | 3.2  | 3.2  | 1    | 0.10 | 0.025 | 43   |
| HOLE ID  | East      | North     | RL      | Dip   | Grid Azi | Depth | From | To   | Width | Au   | Ag   | As   | Bi   | Cu   | Fe   | Mo   | Pb   | Sb   | Te   | Zn   |
|---------|-----------|-----------|---------|-------|----------|-------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| VNRC003 | 404164.91 | 7855329.64| 340.09  | -65   | 120.00   | 215   | 78   | 81   | 3     | 2.0  | 0.080| 4.1  | 0.4  | 1    | 5.8  | 0.2  | 4    | 1.25 | 0.025| 600  |
|         |           |           |         |       |          |       | 87   | 90   | 3     | 0.5  | 0.025| 5.6  | 0.4  | 1    | 9.4  | 0.3  | 5    | 2.37 | 0.025| 663  |
|         |           |           |         |       |          |       | 156  | 162  | 6     | 0.5  | 0.025| 3.0  | 0.8  | 74   | 6.5  | 1.1  | 5    | 0.71 | 0.025| 563  |
|         |           |           |         |       |          |       | 168  | 180  | 12    | 16.0 | 0.245| 20.6 | 9.3  | 1055 | 3.4  | 2.9  | 26   | 0.89 | 0.025| 450  |
| VNRC004 | 404514.73 | 7855500.06| 334.64  | -65   | 120.00   | 263   | 138  | 141  | 3     | 235.0| 0.025| 0.5  | 0.9  | 1    | 6.2  | 0.3  | 1    | 0.11 | 0.025| 111  |
7.11 SEL 26596 HANKINSON

No Exploration activity was conducted over the area during the reporting period due to focus elsewhere in the NPA, namely in EL's 10101, 22165, SEL's 26594 & 26595. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.

7.12 EL 27131 PATAGONIA

Exploration conducted in EL 27131 was focused at the Bomber Area. The exploration conducted during the reporting period is detailed as follows;

The Bomber prospect is a moderate-sized, high-intensity bullseye magnetic anomaly hosted within northwest-trending magnetic sediments. MGA53 and tilt magnetic data indicate that both the Bomber and the nearby Pedro prospect are both located on a structure that appears to splay off from the Quartz Hill Fault Zone that passes through the Olivewood – One-Oh-Two prospects ± the Orlando deposit. This east-west-trending structure cuts the northwest-trending sedimentary strike.

Justin Hankinson and Kim Hurd field checked the area on the 29th March 2010, the collar of Hole 1, Explorer 86 (DDH001) was located and picked up with a hand-held GPS. The RAB collars could not be validated as the collars were unable to be located in the field. However, Justin Hankinson was able to correlate the geology that was logged in the RAB holes to the surface geology. Also, an old grid peg that was left undrilled due to steep ground was useful in constraining the grid.
Magnetic susceptibility measurements were taken from Explorer 86 DDH001 every metre interval by Emmerson consultant Phil Merry (AES). Magnetic modelling will be conducted by Brett Adams but is yet to be completed, following that a decision will then be made for further exploration if warranted.
8. REHABILITATION

Rehabilitation is conducted as per detailed in the NPA Mining Management Plan – Authorisation 0467-02, rehabilitation conducted during the reporting period is as follows:

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Below is a picture of the rehabilitated DERD001 hole and associated sumps.
9. CONCLUSIONS

9.1 EL 10016 GECKO ROAD

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. From the initial analysis, assessment and interpretation of this data Emmerson has identified a number of prospective targets that warrant further exploration. EL 10016 is located to the south east of the Orlando historical mine and to the south of the Gecko historical Mine, covering a very prospective tract of the Tennant Creek Mineral Field. The Greenfields targets identified are EMR 010, 011, 012, 013 and 114. Figure 15 displays the identified targets draped over the ground gravity data, Figure 16 displays the identified targets draped over the magnetics data.

Currently Emmerson’s exploration activities are largely driven by Emmerson’s Joint Venture with Ivanhoe Australia. Emmerson entered into a Joint Venture Agreement (JV) with Ivanhoe Australia (Ivanhoe) on 16 April 2009. The JV is aimed at the discovery of economic IOCG deposits in the majority of Emmerson’s Tennant Creek Tenements, and includes all EL’s, SEL’s and A’s within the NPA, more specifically EL 10016. Ivanhoe must spend a minimum of $18 million dollars in the first three years to earn a 51% interest in the tenure subject to the JV, and spend an additional $10 million over years four and five to retain that interest. The JV is specific in relation to targeting of deposits, such that, JV exploration is targeting Tier 1 (>1 000 000oz Au) deposits in Emmerson’s Tennant Creek Tenements that are subject of the JV, where Ivanhoe can earn up to a 70% interest in such a deposit, by sole funding the project to production.

The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 10016 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within EL 10016 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 10016 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.2 EL 10077 WHIPPET EAST

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. Emmerson didn’t identify any targets from the first phase analysis, interpretation and modelling of the data captured from the detailed ground gravity survey. But Emmerson is confident that EL 10077 does hold significant potential to host targets with economic potential. As can be seen from figure 17 EL 10077 is located on the eastern limb of the North Star, Edna
Beryl & Marathon trend, this close geological relationship with historical mine workings and the identified structures hold potential for generating targets for discovery of economic deposits. The trend can be clearly identified in figure 18 as an area of subtle magnetics sandwiched between areas of high anomalism to the north and south east.

Currently Emmerson’s exploration activities are largely driven by Emmerson’s Joint Venture with Ivanhoe Australia. Emmerson entered into a Joint Venture Agreement (JV) with Ivanhoe Australia (Ivanhoe) on 16 April 2009. The JV is aimed at the discovery of economic IOCG deposits in the majority of Emmerson’s Tennant Creek Tenements, and includes all EL’s, SEL’s and A’s within the NPA, more specifically EL 10077. Ivanhoe must spend a minimum of $18 million dollars in the first three years to earn a 51% interest in the tenure subject to the JV, and spend an additional $10 million over years four and five to retain that interest. The JV is specific in relation to targeting of deposits, such that, JV exploration is targeting Tier 1 (>1 000 000oz Au) deposits in Emmerson’s Tennant Creek Tenements that are subject of the JV, where Ivanhoe can earn up to a 70% interest in such a deposit, by sole funding the project to production.

The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 10077 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within EL 10077 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 10077 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.3 EL 10101 BINARY

Drilling at the Delphi prospect failed to confirm or refute the presence of an ironstone or any mineralisation, due to inaccurate drilling and lack of data. The hole collapsed therefore down hole probing could not be conducted without re-entering and clearing the hole. Emmerson still needs to conduct further analysis and gather the down hole probe data to confirm the existence of an off hole anomaly. Due to success at other priority areas in the NPA, namely Voltan and Rising Star further exploration has been postponed until more resources come available.

The prospectiveness of the licence can be clearly seen from the number of targets identified. The Greenfields targets identified are EMR 001 and Brownfields targets identified are Kepler and Troy.

Future exploration will be aimed at further developing models for drill testing related to the above identified brown and green field targets, as well as further developing exploration at Delphi.
9.4 EL 22165 COPERNICUS

Drilling at the Rising Star prospect provided further encouragement for the potential location of a significant ironstone body and mineralisation within that body. Exploration and understanding the Rising Star system is still in its infancy and has continued throughout the entire reporting period and is scheduled to continue into the next reporting period. Exploration will aim to further develop the understanding of the system, locating any ironstone and its associated mineralisation. Understanding the rising Star system with lend much weight to developing other targets in the area, both within the licence and in neighbouring licences. Due to success at other priority areas in the NPA, namely Voltan exploration slowed at Rising Star but still remains as a high priority target.

Future exploration will be aimed at further developing models and understanding of the Rising Star system and will involve more drilling, RC, DDH and possibly RAB, further geophysical surveys during the next reporting term.

9.5 EL 22224 MONZONITE

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. Emmerson didn’t identify any targets from the first phase analysis, interpretation and modelling of the data captured from the detailed ground gravity survey. But Emmerson is confident that EL 22224 does hold significant potential to host targets with economic potential.

Emmerson plans to analysis these areas of subtle anomalism, including EL 22224, in greater detail during the next reporting term, with the aim of generating targets for drill testing during 2011/12. The delay is due to Emmerson’s commitments to higher priority targets elsewhere in the NPA, namely the Voltan and Rising Star Areas. Encouraging results from these targets may speed up the current timeframe for analysing, interpreting and modelling of the more subtle anomalism within EL 22224.

Currently Emmerson’s exploration activities are largely driven by Emmerson’s Joint Venture with Ivanhoe Australia. Emmerson entered into a Joint Venture Agreement (JV) with Ivanhoe Australia (Ivanhoe) on 16 April 2009. The JV is aimed at the discovery of economic IOCG deposits in the majority of Emmerson’s Tennant Creek Tenements, and includes all EL’s, SEL’s and A’s within the NPA, more specifically EL 22224. Ivanhoe must spend a minimum of $18 million dollars in the first three years to earn a 51% interest in the tenure subject to the JV, and spend an additional $10 million over years four and five to retain that interest. The JV is specific in relation to targeting of deposits, such that, JV exploration is targeting Tier 1 (>1 000 000oz Au) deposits in Emmerson’s Tennant Creek Tenements that are subject of the JV, where Ivanhoe can earn up to a 70% interest in such a deposit, by sole funding the project to production.

The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 22224 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement
and its anomalism remains highly prospective with further analysis to be conducted. Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within EL 22224 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 22224 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.6 EL 22589 WHIPPET HILL

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. From the initial analysis, interpretation and modelling of the historical drilling and geophysical data conducted during the last tenure term, Emmerson has identified a number of prospective targets that warrant further exploration. EL 22589 is located north of the Tennant Creek township and covers the Whippet Historical, covering a very prospective area of the Tennant Creek Mineral Field.

The prospectiviness of the licence can be clearly seen from the number of targets identified from the historical data alone;

- Mother of Olympus (GDA94 421629mE 7865721mN) – This magnetic anomaly has a large lateral extent and a peak amplitude of 30 nT. The anomaly is complicated by several magnetic lineaments which cut across it in an ENE direction. It was suggested these lineaments are part of the magnetic fabric over a larger area and may reflect stratiform units within the Warramunga Formation. The causative body is sizeable but its modelled depth of more than 600m below surface makes it a difficult exploration target. Frank Lindeman confirmed the interpretation that the Mother of Olympus target was going to be deep (he suggested 450-500m to the top) and expensive to explore.

- Whippet Mine area – Frank Lindeman conducted a magnetic modelling exercise over the Whippet mine area. His results indicated that “although a shallow, steeply dipping and depth-limited magnetic body appears to quite accurately represent the known and mined ironstone body, a deeper and presumably untested weakly magnetic body appears to exist, just east of the mine”.

- Whippet South – This magnetic anomaly (GDA94 - 429127mE 7862768mN) was identified by GeoPeko as Explorer 48 and occurs as a strong east-west magnetic anomaly in the south eastern corner of EL 22589. Several RC drill holes were drilled by WMC in late 1980 however they all failed to reach target depth. The magnetic anomaly also has a coincident gravity anomaly.

The Whippet South area continues to be intriguing and further interpretation of all available data is required with the aim of successfully drill testing this target in the future.

Figure 19 displays the identified targets draped over the magnetics data.
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The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 22589 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within EL 22589 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 22589 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.7 EL 23183 JUNCTION

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. From the initial analysis, interpretation and modelling of the historical drilling and geophysical data conducted during the last tenure term, Emmerson has identified a number of prospective targets that warrant further exploration. EL 23183 is located north west of the Tennant Creek township and covers the Orlando & Gecko Historical Mines, covering a very prospective area of the Tennant Creek Mineral Field.

The prospectiveness of the licence can be clearly seen from the number of targets identified from the data, these targets include; ERM’s 005, 007, 113, 118; TC35 & Orlando West. Figure 20 shows the targets and magnetics; figure 21 shows the targets and gravity.

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such that, JV exploration is targeting Tier 1 (>1 000 000oz Au) deposits in Emmerson’s Tennant Creek Tenements that are subject of the JV, where Ivanhoe can earn up to a 70% interest in such a deposit, by sole funding the project to production.

The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 23183 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within EL 23183 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 23183 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.8 EL 9939 BATTERY BLOCK

Although no exploration work was conducted over the licence area during the reporting period, Emmerson stills considers the licence to be prospective drawing reference to anomalies identified from the two major geophysical conducted in 2008. From the analysis, interpretation and modelling of the geophysical surveys conducted during the last tenure term, Emmerson has identified a number of prospective targets that warrant further exploration. EL 9939 is located between the Gecko and Orlando historical mines, covering a very prospective tract of the Tennant Creek Mineral Field.

The Greenfields targets identified are EMR 069, 070 and 151 and the Brownfields targets identified are Aristocrat and Pedro (on the boundary between EL 9939 and EL 27131). Figure 22 displays the identified targets draped over the ground gravity data, Figure 23 displays the identified targets draped over the magnetics data.

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The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in EL 9939 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration
activities within EL 9939 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly EL 9939 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

**9.9 SEL 26594 BILLS**

SEL 26594 is ranked as a high-priority exploration area, given the historical identification of the Marathon Prospect, and its proximal location close to the Edna Beryl and North Star historical mine workings.

Following the completion of the 2008 two geophysical surveys work commenced immediately on the analysis, interpretation and modelling of the data captured. The quality of the data has resulted in the identification and generation of numerous targets within the NPA and the greater Tennant Creek Mineral Field, including the continued interest in the Marathon prospect.

Previous companies exploration work has revealed Marathon to be 3 large ironstones oriented along a broad northwest trending shear zone over a strike length of 2km. Patchy oxide gold mineralisation occurs in the east side of the main shear, with supergene copper mineralisation appearing at 40-60m below surface. There are also a number of significant copper and patchy gold intersections at depths of 100-200m below surface. Further work including extension drilling at depth is required to further explore this large system.

No drill testing of any targets within SEL 26594 has been scheduled for the next year due to higher priority areas scheduled for drill testing, but further development of the Marathon prospect will occur with the aim of determining its potential has a Tier 1 target. Currently Emmerson’s exploration activities are largely driven by Emmerson’s Joint Venture with Ivanhoe Australia. Emmerson entered into a Joint Venture Agreement (JV) with Ivanhoe Australia (Ivanhoe) on 16 April 2009. The JV is aimed at the discovery of economic IOCG deposits in the majority of Emmerson’s Tennant Creek Tenements, and includes all EL’s, SEL’s and A’s within the NPA, more specifically SEL 26594. Ivanhoe must spend a minimum of $18 million dollars in the first three years to earn a 51% interest in the tenure subject to the JV, and spend an additional $10 million over years four and five to retain that interest. The JV is specific in relation to targeting of deposits, such that, JV exploration is targeting Tier 1 (>1 000 000oz Au) deposits in Emmerson’s Tennant Creek Tenements that are subject of the JV, where Ivanhoe can earn up to a 70% interest in such a deposit, by sole funding the project to production.

The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in SEL 26594 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within SEL 26594 will be postponed. This JV places Emmerson in a
very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly SEL 26594 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

9.10 SEL 26595 RUSSELL

Exploration conducted over the licence was significant during the reporting term as the Voltan Area is considered to be highly prospective. Emmerson will continue the work to develop the understanding of the Voltan area by conducting further drilling, RC, DDH and RAB, further geophysical surveys and other geoscientific methods such as geochemistry to determine its potential as a tier 1 target and its economic potential in general.

The work completed at Vivid as confirmed its potential to host a mineralised ore body, but questions remain as to the potential to host a Tier 1 target as per the current JV terms further exploration has been postponed, but Emmerson rates its prospectivity for an economic deposit as high.

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The Tier 1 driving factor of the JV agreement has therefore postponed further work on the identified anomalism in SEL 26595 as detailed above as it has been deemed to have lower ranking Tier 1 targets or to not have potential for Tier 1 status. Although the tenement and its anomalism remains highly prospective with further analysis to be conducted Emmerson must focus elsewhere on potential Tier 1 deposits, and therefore exploration activities within SEL 26595 will be postponed. This JV places Emmerson in a very strong position to deliver significant in-ground exploration activities and hence expenditure over its Tennant Creek tenure, including all EL’s, SEL’s and A’s, particularly SEL 26595 over the next 5 years, with the possibility of, into the long term should JV Tier 1 exploration be successful.

Work still to be conducted would include;

Vivid

- Interrogate the downhole magnetic probe model for VIDD018 to confirm or disprove the presence of an off-hole magnetic anomaly.
• If the VIDD018 downhole probe data identifies and anomaly, drill HQ casing wedge in VIDD018 to drill residual magnetic anomaly. We have enough space between the bottom of the RC pre-collar (197m) and the top of the target (approx 375m) to allow the hole to lift. VIDD015 wedge failed to lift due to broken ground and not enough drill length to allow for lift.

• If no anomaly can be generated for VIDD018 then Vivid will struggle to produce a Tier 1 target. VIDD015 looks like it narrowly missed an ironstone body, however, modelling indicates that it might not be very big. If neither the residual magnetic anomalies can produce a Tier 1 target then Vivid’s chances are quite slim.

• There is still a valid target in VIRC021 to drill the down-plunge extension to Vivid, however, it is unlikely at these depths (+300m) that a Tier 1 target will be identified. This target should only be drilled if further encouragement can be extracted from VIDD018 or VIDD015.

• Potential may still lie with the gravity anomaly. It is a modest-sized HSL zone (200 x 135m) that is cut by the Vivid structure (northern boundary) and two more sub-parallel structures, one through the centre of the anomaly and another bounding the southern margin. The presence of specular hematite veins (+/-gold anomalism) throughout holes within the anomaly (VIRC017, VIRC019, VIDD020) and clear structural controls may warrant close-spaces aircore or deep RAB grid. This anomaly may yield a hematite-rich ironstone system but at this stage it is difficult to see a Tier 1 target there.

• There is still scope to test the up-plunge extension of the Vivid ironstone.

• Following the Emmerson internal geological review held during February 2010 Vivid was ranked as a Tier 2 target, with magnetic models to the north remaining untested, therefore under Emmerson obligations to the Ivanhoe Joint Venture further exploration of Vivid will be put on hold while focus continues to identify Tier 1 targets.

Voltan

• The conclusions are that the current drilling does not explain the gravity anomalies; however only VNRC003, VNRC004 and VNDD006 are over gravity anomalies. This implies the source is either deeper or offset from the current gravity coverage. Brett has suggested additional drilling below (100m) hole VNRC004 and VNDD006 however this is up for discussion.

9.11 SEL 26596 HANKINSON

No exploration work was conducted over the licence area and following a review conducted at the end of the reporting period, which was completed outside the reporting period Emmerson has actioned the surrender of the entirety of SEL 26596.
9.12 EL 27131 PATAGONIA

Exploration within the licence area has only just commenced, but is scheduled for a lot of work early in the next reporting period (end of 2010 drill season), given encouraging results exploration within the licence area will continue throughout the entire next reporting period.

Emmerson will conduct an exploration focus at Bomber but has identified a number of other targets within the licence area that will also be developed with the aim of drill testing in the next reporting period.
EMMERSON RESOURCES LTD

HARD COPY REPORT META DATA FORM

REPORT NAME: COMBINED ANNUAL REPORT FOR THE NORTHERN PROJECT AREA 16 AUGUST 2009 – 15 AUGUST 2010

PROSPECT NAMES(s): GECKO ROAD, STONEY DAM, WHIPPET EAST, SETTLEMENT, BINARY, ALEXANDER, WHIPPET NORTH, GIBSON CREEK, COPERNICUS, MONZONITE, MORNING STAR, WHIPPET HILL, STUART HIGHWAY, PUMPING STATION, JUNCTION, VIVID, MARKER, HAYWARD CREEK, LASSO, STAR WARS, BATTERY BLOCK, BILLS, RUSSELL, HANKINSON, PATAGONIA

GROUP PROSPECT NAME:

TENEMENT NUMBERS(s): EL 10016, EL 10017, EL 10077, EL 10079, EL 10101, EL 10129, EL 10166, EL 10311, EL 22165, EL 22224, EL 22583, EL 22589, EL 22590, EL 23073, EL 23183, EL 23745, EL 23746, EL 7810, EL 8773, EL 9909, EL 9939, SEL 26594, SEL 26595, SEL 26596, EL 27131

ANNIVERSARY DATE: 15 AUGUST

OWNER/JV PARTNERS: EMERSON RESOURCES LTD, GIANTS REEF EXPLORATION PTY LTD, SANTEXCO PTY LTD, TC8 PTY LTD

AUTHOR(s): A. WALTERS

COMMODITIES: GOLD, COPPER

MAPS 1:250 000: TENNANT CREEK SE53-14

MAPS 1:100 000: FLYNN 5759, SHORT RANGE 5659

MAPS 1:25 000

TECTONIC UNIT(s): TENNANT CREEK INLIER

STRATIGRAPHIC NAME(s) WARRAMUNGA FORMATION, CAMBRIAN WISO BASIN

AMF GENERAL TERMS:

AMF TARGET MINERALS: GOLD, COPPER, LEAD, ZINC

AMF GEOPHYSICAL: MAGNETIC INTERPRETATION, GRAVITY SURVEY

AMF GEOCHEMICAL:

AMF DRILL SAMPLING:

HISTORIC MINES:

DEPOSITS:

PROSPECTS:
KEYWORDS:

GECKO ROAD, STONEY DAM, WHIPPET EAST, SETTLEMENT, BINARY, ALEXANDER, WHIPPET NORTH, GIBSON CREEK, COPERNICUS, MONZONITE, MORNING STAR, WHIPPET HILL, STUART HIGHWAY, PUMPING STATION, JUNCTION, VIVID, MARKER, HAYWARD CREEK, LASSO, STAR WARS, BATTERY BLOCK, BILLS, RUSSELL, HANKINSON, TELEGRAPH