COMBINED ANNUAL REPORT FOR THE EASTERN PROJECT AREA
GR058

16 NOVEMBER 2010 – 15 NOVEMBER 2011

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

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JANUARY 2012

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MAP SHEETS:
□ TENNANT CREEK SE53-14
□ TENNANT CREEK 1:250 000
□ TENNANT CREEK 5758
□ GOSSE RIVER 5858
□ GOSSE RIVER 1:100 000
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1 SUMMARY

Exploration Licences (ELs) in the EPA, were acquired by Giants Reef Exploration Pty Ltd (Giants Reef) and Santexco Pty Ltd (Santexco) to search for Tennant Creek style iron oxide copper-gold deposits (IOCG). Giants Reef and Santexco are wholly owned subsidiaries of Emmerson Resources Ltd (Emmerson).

This combined report records the exploration work completed on these ELs during the EPA Combined Reporting period from 16 November 2010 to the 15 November 2011.

ELs and SELs in the EPA were explored by Emmerson Resources Ltd (Parent company of Giants Reef and Santexco) for Tennant Creek style IOCG deposits.

Exploration during the reporting period in the EPA included further evaluation and analysis of;

Golden Forty

Golden Kangaroo (East & West)

East Peko

Drilling was conducted at both Golden Forty and Golden Kangaroo West. A HeliTEM survey was conducted over EL’s 27537 and 27538, focused on the Golden Forty and East Peko Areas. Emmerson engaged a consultancy firm, Optiro Pty Ltd to conduct a detailed re-evaluation of In-Situ resources, which included the Golden Forty Mine and Golden Kangaroo East Deposit.

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing and centres around the Gecko and Orlando areas in Emmerson’s Northern Project Area. As results have been very positive to date with the identification of significant economic mineralisation as a direct result of exploration of HeliTEM anomalies and solid geological and geophysical work, Emmerson will devote significant resources in 2012 to detailed analysis, interpretation and given positive results the drill testing of any identified targets from the HeliTEM survey flown over the Golden Forty and East Peko Ares, and identification of further areas for HeliTEM surveys in the future.
2 INTRODUCTION

The ELs in the EPA, were acquired by Giants Reef and Santexco to search for Tennant Creek style iron oxide copper-gold deposits (IOCG). Giants Reef and Santexco are wholly owned subsidiaries of Emmerson.

This combined report records the exploration work completed on these ELs during the EPA Combined Reporting period from 16 November 2010 to the 15 November 2011.

On the 6 August 2005 the Manager of Customer Services – Minerals & Energy Titles (now DRDPIFR) approved the Company’s request to combine the its ELs 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.

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. The Company will also include any expenditures on mineral leases and claims within each EL, but separately to the qualifying EL expenditures.

3 LOCATION

ELs covered by the EPA covers an area of approximately 648.93km² east of the Tennant Creek Township.

The principal access to the ELs in the EPA from Tennant Creek is east via the Peko Rd and Gosse River Road and then by various sealed haul roads (i.e. Juno and Nobles Nob) and unsealed 4WD and fenceline 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 Licences within the EPA and with respect to the town of Tennant Creek and other combined project areas.
3.1 EL8879 MT CLELAND

Exploration Licence 8879 MT CLELAND, is located approximately 15km north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the Lone Star Mine. Access to the licence from the Lone Star Mine Road is north east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 2: Location of EL 8879.
3.2 EL9403 JESS

Exploration Licence 9403 JESS, is located approximately 4km south south-east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is south via the Stuart Highway, south east via the road to the Cats Whiskers Mine, which is located immediately to the south of EL 9403’s southern boundary. Access to the licence from the Cats Whiskers Mine is north via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 3: Location of EL 9403.
3.3 EL9930 NEW MOON

Exploration Licence 9930 NEW MOON, is located approximately 18km north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road, then along the road to the Lone Star Mine. Access to the licence from the Lone Star Mine Road is east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 4: Location of EL 9930.
3.4 EL9958 RUNNING BEAR

Exploration Licence 9985 RUNNING BEAR, is located approximately 11km east northeast of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east along Peko Road and via the road to the Lone Star Mine workings. From here EL 9985 is accessed by a series of unsealed tracks, which during and immediately after rain generally become inaccessible.

Figure 5: Location of EL 9958.
3.5 EL10113 IVORY

Exploration Licence 10113 IVORY, is located approximately 7km north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the Lone Star Mine, which lies on the licences' southern boundary. Access to the licence from the Lone Star Mine Road is via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 6: Location of EL 10113.
3.6 EL10114 MCDougALL RANGES

Exploration Licence 10114 MCDougALL RANGES, is located approximately 6km east northeast of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east along Peko Road and via the road to the Lone Star Mine workings, which runs through EL 10114.

Figure 7: Location of EL 10114.
3.7 EL10124 SPEEDWAY

Exploration Licence 10124 SPEEDWAY is dissected by the Stuart Highway, which divides the licence into eastern and western regions. The licence is more precisely located approximately 2km north and also north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway and then west or east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 8: Location of EL 10124.
3.8 EL10203 WHITE HILL BORE

EL 10203 WHITE HILL BORE is located approximately 17km northeast of Tennant Creek Township, on the Tennant Creek 1:100 000 scale map sheet (5759).

Access from Tennant Creek is north via Stuart Highway to a point about 700m north of the old Overland Telegraph Station, then easterly via series of un-sealed minor tracks to WHITE HILL BORE. During and immediately after rain the Licence area is generally inaccessible.

Figure 9: Location of EL 10203.
3.9 EL10312 HOPEFUL

Exploration Licence 10312 HOPEFUL, is located approximately 15km north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the Lone Star Mine. Access to the licence from the Lone Star Mine Road is east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 10: Location of EL 10312.
3.10 EL10313 KODIAK

Exploration Licence 10313 KODIAK, is located approximately 15km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east along Peko Road and via the road to the KiaOra Mine workings. From here EL 10313 is accessed by a series of north bound unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.
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3.11 EL10370 BARKLY

Exploration License 10370 covers an area of 200 km², approximately 45 km east north east of the Tennant Creek Township, south of the Barkly Highway and falls within the Barkly (5859), Gosse River (5858), Tennant Creek (5758) and Flynn (5759) 1:100 000 scale map sheets. EL 10370 is within NT Portions 494 & 1075, Perpetual Pastoral Lease 1142, Tennant Creek Station and 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.

The northern parts of EL 10370 can be reached from Tennant Creek township by driving along the Barkly Highway, and thence via secondary unsealed tracks to the south. Access into the central parts of the Licence is gained via the Gigantic mine and along secondary tracks from the Tennant Creek township or from the old Overland Telegraph Station. Access to the southern region of the Licence area from the Tennant Creek Township is via the sealed road to the Peko and Nobles Nob mines, and thence via the un-sealed Gosse River Road. A network of unsealed tracks provides reasonable vehicular access to the remainder of the tenement.

During and immediately after rain access to any area of the licence is generally difficult if not inaccessible.
3.12 EL10406 MONTANA

Exploration Licence 10406 MONTANA, is located approximately 6km south east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is south via the Stuart Highway, south east via the road to the Cats Whiskers Mine, which is located in the northern region of EL 10406. Access to other areas of the licence from the Cats Whiskers Mine is via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 13: Location of EL 10406.
3.13 SEL 25912 VOLK

Substitute Exploration Licence 25912 VOLK, is located between approximately 18km and 30km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the KiaOra Mine. Access to the licence from the KiaOra Mine Road is east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 14: Location of SEL 25912.
3.14 SEL 27011 SNAPPY GUM

Substitute Exploration Licence 27011 SNAPPY GUM, is located between approximately 18km and 26km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the KiaOra Mine. Access to the licence from the KiaOra Mine Road is north east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 15: Location of SEL 27011.
3.15 EL 26787 RISING RIDGE

Exploration Licence 26787 RISING RIDGE, is located approximately 13km south east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Nobles Nob Mine road, then further south via the Gosse River Road to where the roads changes direction to the east. From here the licence area can be accessed via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 16: Location of EL 26787.
3.16 EL 27135 DENDRITIC

Exploration Licence 27135 DENDRITIC, is located between approximately 9km and 30km north east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is north via the Stuart Highway for approximately 12km, then further access to the licence area is east via a series of unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.

Figure 17: Location of EL 27135.
3.17 EL 27408 GRIZZLY

Exploration Licence 27408 GRIZZLY, is located approximately 14km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east along Peko Road and via the road to the KiaOra Mine workings. From here EL 27408 is accessed by a series of north bound unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.

Figure 18: Location of EL 27408.
3.18 EL 27537 CHAPPELL

Exploration Licence 27537 CHAPPELL, is located between approximately 9km and 19km south east and east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area can be gained by following the Nobles Nob Mine road and Gosse River road which travels along the southern portion of the licence or via the Stuart Highway, east along Peko Road and via the road to the KiaOra Mine workings which transects the central to northern part of the licence area. From these routes further access to the licence area is via a series of unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.

Figure 19: Location of EL 27537.
3.19 EL 27538 MERCURY

Exploration Licence 275378 MERCURY, is located between approximately 3km and 15km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area can be gained by following the Peko Road which bisects the eastern portion of the licence area, and from the historical Peko Mine travelling further east via Kia Ora road which bisects the south western portion of the licence, access to other areas of the licence is via a series of unsealed tracks and fence lines, which during and immediately after rain generally become inaccessible.

Figure 20: Location of EL 27538.
3.20 EL 28618 COMSTOCK

Exploration Licence 28618 COMSTOCK, is located between approximately 18km and 30km east of the Tennant Creek Township on the Tennant Creek 1:100 000 scale map sheet (5758).

Access to the Licence area is via the Stuart Highway, east via Peko Road then along the road to the KiaOra Mine. Access to the licence from the KiaOra Mine Road is east via a series of unsealed tracks and fence line tracks, which during and immediately after rain generally become inaccessible.

Figure 21: Location of EL 28618.
## 4.0 Tenure

Tenure details for the 18 Exploration Licences and 2 Substitute Exploration Licences within the EPA are as follows:

Table 1: EPA 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 Expiry</th>
<th>Period of Grant/Renewal</th>
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<tbody>
<tr>
<td>EL8879 MT CLELAND</td>
<td>GIANTS REEF EXPLORATION PTY LTD</td>
<td>8</td>
<td>25.8</td>
<td>18 October 2011</td>
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<td>EL9403 JESS</td>
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<td>4.01</td>
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<td>EL9930 NEW MOON</td>
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<td>18 October 2011</td>
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<td>EL9958 RUNNING BEAR</td>
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<td>EL10113 IVORY</td>
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Titles in the EPA lie within both NT Portions 00494 and 01075, Tennant Creek, Perpetual Pastoral Lease 1142 and on Aboriginal Freehold land administered by the Warumungu Land Trust.

An Agreement referred to as the EL’s 26787, 27408, 27537 & 27538 Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and Emmerson in June 2010, this agreement established land access for mineral exploration upon Warumungu Land Trust areas within the EPA. Nine of the 17 ELs and both SEL’s in the EPA fall on Perpetual Pastoral Lease and are subject to the 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 Exploration Pty Ltd. The remaining tenure is covered by the Wildhorse II agreement signed between the CLC, Traditional Owners and Giants Reef in February 2003.

4.1 EL 8879 MT CLELAND

Exploration Licence 8879 Mt Cleland, consisted of eight graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 19 October 2001 for a period of six years, with 2 year renewal terms granted in 2007 & 2009.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The Exploration License expired on 18 October 2011 and has been replaced by EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired LE 8879, 10113, 10203, 10312, 9930 & 27135.

4.2 EL 9403 JESS

Exploration Licence 9403 Jess, consists of two graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd)
on the 1 May 2003 for a period of six years, with a renewal term of two years granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the Wildhorse II Agreement for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and NTC on the 25 February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 9403.

4.3 EL9930 NEW MOON

Exploration Licence 9930 New Moon, consisted of one graticular block and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Pty Ltd) on the 19 October 2001 for a period of six years, with 2 year renewal terms granted in 2007 and 2009.

The entire licence falls on within within NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The Exploration License expired on 18 October 2011 and has been replaced by EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired EL’s 8879, 10113, 10203, 10312, 9930 & 27135.

4.4 EL9958 RUNNING BEAR

Exploration Licence 9958 Running Bear, consists of three graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 1 May 2003 for a period of six years, with a two year renewal term granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An Agreement referred to as the Wildhorse II Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners, Giants Reef and Santexco Pty Ltd on the 25 February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 9958.

4.5 EL10113 IVORY

Exploration Licence 10113 Ivory, consisted of ten graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 19 October 2001 for a period of six years, with two year renewal terms granted in 2007 and 2009.
The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The Exploration License expired on 18 October 2011 and has been replaced by EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired EL’s 8879, 10113, 10203, 10312, 9930 & 27135.

4.6 EL10114 McDougall Ranges

Exploration Licence 10114 McDougall Ranges, consists of nine graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 1 May 2003 for a period of six years, with a two year renewal term granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An Agreement referred to as the Wildhorse II Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners, Giants Reef and Santexco Pty Ltd on the 25th February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 10114.

4.7 EL10124 Speedway

Exploration Licence 10124 Speedway, consists of six graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 1 May 2003 for a period of six years, with a two year renewal term granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An Agreement referred to as the Wildhorse II Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners, Giants Reef and Santexco Pty Ltd on the 25th February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 10124.

4.8 EL10203 White Hill Bore

EL 10203 WHITE HILL BORE was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on 17 June 2001 for a period of 6 years, with two year renewal terms granted in 2007 and 2009.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.
The Exploration License expired on 17 June 2011 and has been replaced by EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired EL’s 8879, 10113, 10203, 10312, 9930 & 27135.

4.9 EL10312 HOPEFUL

Exploration Licence 10312 Hopeful, consisted of two graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 9 October 2003 for a period of six years, with a renewal of two years granted in 2009.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The Exploration License expired on 8 October 2011 and has been replaced by EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired EL’s 8879, 10113, 10203, 10312, 9930 & 27135.

4.10 EL10313 KODIAK

Exploration Licence 10313 Kodiak, consists of two graticular blocks and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 1 May 2003 for a period of six years, with a two year renewal granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the Wildhorse II Agreement for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and NTC on the 25 February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 10313.

4.11 EL 10370 BARKLY

Exploration Licence 10370 Barkly was initially granted to Giants Reef Exploration Pty Ltd (Giants Reef) on the 20th March 2001, for period of (6) years over an area of 262 one-minute blocks (809 km2). At the end of the second year of tenure EL 10370 was reduced from 262 to 131 graticular blocks (396.70km2). A waiver of reduction was applied for at the end of the third year of tenure to retain 131 graticular blocks. A further voluntary reduction down to 66 graticular blocks was submitted and approved in February 2009.

The Initial 6 year term expired on 19 March 2007, a renewal Application was submitted and granted for a further two year period. The two year renewal period expired on 19 March 2009 and a renewal application was submitted AND GRANTED for a final two year term EXPIRING IN MARCH 2011.
EL 10370 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 CLC and Giants Reef.

The licence expired on 19 March 2011. Emmerson has retained two blocks from the title and are part of EL 28618 granted on 15 August 2011 and falls within NT Portion 494, Perpetual Pastoral Lease 1142, Tennant Creek Station.

4.12 EL10406 MONTANA

Exploration Licence 10406 Montana, consists of one graticular block and was granted to Giants Reef Exploration Pty Ltd (a wholly owned subsidiary of Emmerson Resources Ltd) on the 1 May 2003 for a period of six years, with a two year renewal granted in 2009.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the Wildhorse II Agreement for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and NTC on the 25 February 2003. This agreement established land access for mineral exploration upon Warumungu Land Trust areas, including EL 10406.

4.13 SEL 25912 VOLK

SEL 25912 Volk, consists of Thirty Two graticular blocks and was granted to Giants Reef on the 10 September 2008 for a period of four years.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The title expired on 15 August 2011 with the granting of EL 28618. EL 28618 amalgamates the area covered by the now expired EL 10370 (part only) & SEL 25912.

4.14 SEL 27011 SNAPPY GUM

SEL 27011 Snappy Gum, consists of Eight graticular blocks and was granted to Giants Reef on the 06 June 2009 for a period of four years.

The entire licence falls on Perpetual Pastoral Lease 1142, Tennant Creek Station and 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.

SEL 27011 was formed to consolidate the expired EL 8991, EL 22285 and EL 10324 into one licence for exploration.
4.15 EL 26787 RISING RIDGE

EL 26787 Rising Ridge, consists of Five graticular blocks and was granted to Giants Reef on the 22 November 2010 for a period of six years.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the EL's 26787, 27408, 27537 & 27538 Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and Emmerson in June 2010, this agreement established land access for mineral exploration upon Warumungu Land Trust areas within the EPA, including EL 26787.

4.16 EL 27135 DENDRITIC

EL 27135 Dendritic, consisted of Fifty One graticular blocks and was granted to Giants Reef on the 25 May 2009 for a period of six years.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and 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.

The Exploration License expired on 16 November with the granting of EL 28761 which was granted on 16 November 2011. EL 28761 amalgamates the area covered by the now expired EL's 8879, 10113, 10203, 10312, 9930 & 27135.

4.17 EL 27408 GRIZZLY

EL 27408 Grizzly, consists of Two graticular blocks and was granted to Giants Reef on the 13 October 2010 for a period of three years.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the EL’s 26787, 27408, 27537 & 27538 Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and Emmerson in June 2010, this agreement established land access for mineral exploration upon Warumungu Land Trust areas within the EPA, including EL 27408.

4.18 EL 27537 CHAPPELL

EL 27537 Chappell, consists of Nineteen graticular blocks and was granted to Giants Reef on the 22 November 2010 for a period of six years.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the EL’s 26787, 27408, 27537 & 27538 Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and
Emmerson in June 2010, this agreement established land access for mineral exploration upon Warumungu Land Trust areas within the EPA, including EL 27537.

EL 27537 was formed to consolidate the expired EL’s 8279, 8786, 9293 and SEL 8665 into one licence for exploration.

4.19 EL 27538 MERCURY

EL 27538 Mercury, consists of Twelve graticular blocks and was granted to Giants Reef on the 13 October 2010 for a period of six years.

The entire licence falls on Aboriginal Freehold land held by the Warumungu Land Trust. An agreement referred to as the EL’s 26787, 27408, 27537 & 27538 Deed for Exploration was signed by the Central Land Council (CLC), Traditional Landowners and Emmerson in June 2010, this agreement established land access for mineral exploration upon Warumungu Land Trust areas within the EPA, including EL 27538.

EL 27538 was formed to consolidate the expired EL’s 8280, 8279 and SEL 8665 into one licence for exploration.

4.20 EL 28618 COMSTOCK

EL 28618 Comstock, consists of Thirty Three graticular blocks and was granted to Giants Reef on the 15 July 2011 for a period of six years.

The entire licence falls on within with in NT Portion 494, Perpetual Pastoral Lease 1142 (Tennant Creek Station) and will be 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.

EL 28618 was formed to consolidate the expired EL 10370 (part only) and SEL 25912 into one licence for exploration.
5.0 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 1:100,000 sheet, 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 Eastern Project Area

The EPA covers a region of the Tennant Creek Province and includes deformed lower-greenschist facies flyshte 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 EPA 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 EPA is limited to ridges and these comprise scattered outcrops of Palaeoproterozoic Warramunga Formation and Flynn Sub-group/ Tomkinson Creek Sub-group (Ooradidgee Group).
The EPA includes a number of significant gold-copper-bismuth deposits, including Nobles Nob, Juno, Peko, Eldorado and Argo.

5.1 EL8879 MT CLELAND

The northern region of EL 8879 includes a east-west metamorphic contact between the Tennant Creek Granite and sedimentary units. There are a number of intermittent outcrops of granite, metamorphosed sediments and ironstone proximal to the contact area. Outcrops, which coincide with ridges and isolated hills, dominate the southern region of 8879, these ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic 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 Quartz Hill Fault system and the Hopeful Star Extended shear zone dominate the structure of the licence. The Licence includes numerous historical mine workings such as; Extended East (10.7oz @ 4.7g/t), Black Cat (1,125.4oz @ 15.6g/t), Mauretania (216oz @ 32g/t), Hopeful Star (758.8oz @ 8.7g/t) and Hopeful Star East (170oz @ 5.1g/t).

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

5.2 EL9403 JESS

The geology of EL 9403 is dominated by Cainozoic dissected colluvium fan deposits and colluvium scree with less extensive alluvial deposits in active channels and on flood plains in the northern region of the licence. Ridges and isolated hills dominate the southern region of the licence and comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, which most likely underlies the dominate Cainozoic sediments. Less extensive sheet and dune sand and sandy soil can also be found in the southern region.

The licence also contains the Eldorado Anomaly 3 and Ellen M prospects which are located in the south west corner of the licence and are covered by a series of MLC’s, namely MLC’s 15, 16, 51, 502, 503, 518, 523, 528, 529 & 535 and therefore will not be covered in this report.

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

5.3 EL9930 NEW MOON
The geology of EL 9930 is dominated by outcrops, which coincide with ridges and isolated hills that dominate the central and northern regions of EL 9930. These ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic 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. The Quartz Hill Fault system dominates the structure of the licence, and is the major control on mineralisation and ironstone emplacement.

The licence contains the historical New Moon mine workings (12.9oz Au @ 5g/t).

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

5.4 EL9958 RUNNING BEAR

The geology in EL 9958 consists of minor outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, limited to central north and 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 contains historical mine workings such as; Trump (4oz Au @ 22g/t) and Great Bear (192.1oz Au @ 18g/t).

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

5.5 EL10113 IVORY

Outcrops, which coincide with ridges and isolated hills, are dominate throughout EL 10113, these ridges and isolated hills consist of weathered siltstone and greywacke of the Palaeoproterozoic 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 licence, and is the major control on mineralisation and ironstone emplacement.

The licence contains numerous historical mine workings such as; True Blue (15oz Au @ 16.1g/t), Mint (25.2oz Au @ 8.9g/t), Aga Khan (96.5oz Au @ 11g/t), Memsahib (173.2oz Au @ 26.3g/t), Yellow Flame (22.5oz Au @ 55g/t), Mammoth (126.2oz Au @ 8.8g/t), Three Keys (306.9oz Au @ 20.5g/t) and Little wonder (27.4oz Au @ 7.3g/t). The Lone
Star Mine workings (5665oz Au @ 17.6g/t) are located just south of EL 10113, and are covered by a series of MLC’s 362 – 365, 371 – 373, 530, 606, 610 & 616, these MLC’s also cover an area in the central south of the licence, and therefore will not be covered in this report. The Golden Key Mine workings (15.4oz Au @ 44.4g/t) are located in EL 10113 and are covered by a series of MLC’s 38, 253 – 261, 376 -387 & 432, and will therefore not be covered in this report.

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

5.6 EL10114 McDougall Ranges

The geology in EL 10114 consists of major outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation forming a series of ridges trending north west, which dominates the western region and north east licence boundary. 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 eastern region 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.

The licence contains the Lone Star Mine workings which are located in the north east region of EL 10114, and are covered by a series of MLC’s, MLC606 – 615, 368 -370, 374 & 375, and therefore will not be covered in this report.

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

5.7 EL10124 Speedway

EL 10124 straddles the Stuart Highway with the greater area being east of the Stuart highway. The geology to the east of the Stuart Highway (eastern region) in EL 10124 consists of major outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation forming a series of ridges that dominate the geology of the northern half of the eastern region of the licence. The southern half of the eastern region is dominated by Cainozoic colluvium, scree and alluvial deposits in active channels and on flood plains with less extensive minor outcropping weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation. On the western side of the Stuart Highway (western region), the geology is dominated by Cainozoic colluvium, scree and alluvial deposits in active channels and on flood plains with less extensive minor outcropping weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation with minor felsic porphyry confined to the north east area of the western region of EL 10124.
The licence contains many historic mine workings such as; Shamrock (9.6oz @ 4.8g/t), Burnt Shirt (2025.5oz @ 18.8g/t), Wedge (345.7oz @ 9.3g/t), Ace High (113.4oz @ 64.4g/t), Leichhardt One (891.8oz @ 24.1g/t), Kathleen (1154.2oz @ 20.5g/t) and Ortelle Star (9.1oz @ 8.4g/t). The Riesling Prospect is located within the eastern region of EL 10124 and is covered by MLC 182-184 and therefore will not be covered in this report. MCC 211 encroaches on the northern EL boundary of the western region and will also not be covered in this report.

5.8 EL10203 WHITE HILL BORE

The Licence is located in the eastern region of the Tennant Creek Province. EL 10203 is largely covered by 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. Outcrop is restricted to a small area in the north of the Licence and includes felsic volcanics and arenites of the Churchill’s Head Group.

Outcrop of the Tennant Creek Granite, with quartz reefs and veins, are found immediately north of the Licence and tourmaline-rich pegmatite’s outcrop around the White Hill Bore. Field evidence and interpretation of aeromagnetic data suggests that White Hill Bore is located on or very close to a contact-metamorphosed zone along the southern margin of the Tennant Creek Granite. The granite may be in contact with the Warramunga Formation turbidite sequence or with Flynn Sub-group sediments, or both.

There are no recorded mines or prospects within EL 10203. The nearest historic workings with moderate production (>100 oz Au) are about 6km to 8km to the south, and include Lone Star (5,665 oz Au), Memshahib (173 oz Au), Plain Jane (668 oz Au), Black Cat (1,125 oz Au), Mammoth (126 oz Au), Three Keys (307 oz Au), Mauritania (216 oz Au), Hopeful Star (759 oz Au) and Hopeful Star East (170 oz Au).

5.9 EL10312 HOPEFUL

Outcrop within the tenement is restricted to the north and coincides with ridges and isolated hills. These comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation.

The magnetic response over the Licence is relatively subdued and most likely reflects the low-magnetic sandstone dominant units of the Warramunga Formation, as interpreted by the N.T. Geological Survey (2002).

More than 90% of the region is covered by Quaternary colluvium scree, alluvial red soil plains and less extensive alluvial deposits in active channels and on flood plains. The recent cover is interpreted to be underlain by sandstone dominant Warramunga Formation Units.
The only known mineralisation within the Licence area is the Hopeful Star East. This small mine produced approximately 170 oz Au from 1,048 t @ 5.1 g/t Au and lies at the eastern extremity of a trend of prospects which include Hopeful Star (759 oz Au), Mauritania (127 oz Au), Little Wonder (27.4oz Au @ 7.3g/t), Mammoth (126.2oz Au @ 8.8g/t). Immediately to the west of the Licence are a group of Mineral Leases (Mulga Group) which include such prospects as Three Keys (306.9oz Au @ 20.5g/t), Memsahib (173.2oz Au @ 26.3g/t), Mint (25.2oz Au @ 8.9g/t), Aga Khan (96.5oz Au @ 11g/t) and Yellow Flame (22.5oz Au @ 55g/t). The trend of these prospects is interpreted as extending through the south western region of EL 10312.

EL 10312 lies between the significant northwest-southeast trending Quartz Hill Fault system in the south and the Hopeful Star Extended shear zone in the north. The Quartz Hill Fault system hosts such deposits as the Tennant Creek East Golden Mile workings, Cleo’s Gift, Mt Argo, Gecko, Orlando and many others.

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

5.10 EL10313 KODIAK

The geology of EL 10313 has no outcropping rocks and is dominated by Cainozoic alluvial deposits in active channels and on flood plains, red earth soils that may contain ferruginous pisoliths with less extensive colluvium and scree. Dissected colluvial fan deposits are present as very minor cover in the eastern area of the licence.

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

5.11 EL10370 BARKLY

EL 10370 is located in the Tennant Creek Inlier, an area of Proterozoic rocks consisting of three distinct geological provinces; the Davenport Province to the southeast, the central Tennant Creek Block and the Tompkinson Creek Province to the northwest. The Inlier is comprised of a gneissic basement overlain by Proterozoic sediments of the Warramunga Formation, Hatches Creek Group and the Tompkinson Creek Beds. The sequence of Proterozoic sediments was intruded by younger Proterozoic granitoids around 1858 Ma to 1845 Ma during the Barramundi Orogeny. The Proterozoic rocks were subsequently overlain by Cambrian sediments of the Georgina Basin.

The Tennant Creek goldfield is located within the central block where the oldest rocks are the metasedimentary rocks of the Warramunga Formation, which are the host to the ironstone – gold – copper – bismuth mineralisation of the Tennant Creek goldfield.
The Warramunga Formation is comprised of a sequence of argillaceous sedimentary rocks that includes greywacke, siltstone, shale and units of haematitic – magnetite shale. Cross – cutting and conformable quartz – feldspar porphyries occur within the sedimentary sequence.

Following deformation and uplift of the basement, the volcanics and volcaniclastic of the Flynn Sub – Group were erupted (1845 Ma to 1827 Ma), with intrusion of porphyries and minor granitoids into the Warramunga Formation. The Warramunga Formation has been subjected to three phases of deformation, the first of which formed tight to isoclinal folds with an east west axis. The two later phases formed west – northwest trending faults and shear zones, and finally northwest trending faults. The project cover an area of poor outcrop comprised of Cenozoic and Quaternary Aeolian and alluvial sand cover (Chisholm).

The Barkly JV covers the southeast extension of the Tennant Creek mineral field which has a production history of 5M ounces of gold and 16M tonnes of copper which was won from high grade ironstone related deposits. The joint venture tenements cover the old Perseverance workings where previous drilling showed a best result of 3m at 43.2g/t Au from 72m depth. Those workings are covered by a Central Land Council exclusion zone whereas the shallow Bluebird workings where historical records indicate 172t of ore at 9.3g/t Au were produced are outside the exclusion zone.

The ironstones form part of the Golden Mile line of historical workings that strike over a length of 4.5km outside the prospect area. Magnetic surveys indicate that this trend extends into the project area through the Perseverance-Bluebird workings. Geophysical surveys have been used to indicate possible ironstone occurrences with potential mineralisation. Magnetics and gravity have been used to define targets.

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

5.13 EL10406 MONTANA

The geology of EL 10406 is dominated by ridges and isolated hills in the northern region of the licence. These ridges and isolated hills comprise scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, and most likely underlies Cenozoic sediments in the southern region of the licence. The Cenozoic sediments are predominately made up of sheet and dune sand and sandy soil, with less extensive dissected colluvium fan deposits, colluvium scree and a relict fluvial system covered by sands.

The licence contains the Cats Whiskers, Eldorado Anomalies 4 & 5 and Explorer 32 prospects which are located in the north of the licence and are covered by a series of MLC’s, namely MLC 16, 50, 51, 518, 528, 529 & 535 and therefore will not be covered in this report.
In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Tennant Creek 1:100 000 sheet 5758, which covers the area of the license.

5.14 SEL25912 VOLK

The geology of SEL 25912 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 SEL 25912, these isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, which most likely underlies the dominate Cainozoic sediments.

The licence includes a number historical mines such as; Renate (15.6oz @ 24g/t) and Golden Mile (96.2oz @ 20.7g/t).

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

5.15 SEL27011 SNAPPY GUM

The geology of SEL 27011 is dominated by Cainozoic colluvium scree, alluvial red soil plains and less extensive alluvial deposits in active channels and on flood plains. Less extensive outcrops coinciding with ridges and isolated hills, are present in the north east of SEL 27011. These ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation and most likely underlies the dominate Cainozoic sediments.

Airborne and ground magnetic data and field mapping suggest that metasediments of the Palaeoproterozoic and Warramunga Formation and minor volcaniclastics of the Ooradidgee Group underlie the Licence area. Both the Mary Lane and Quartz Hill faults traverse the Licence.

There are no recorded mines or prospects within SEL 27011. The nearest historic workings with moderate production (>100 oz Au) include Metallic Hill (150 oz Au), Billy Boy (inferred resource: 5,100 oz Au), which are 1km to the north east and Kiaora (1,019 oz Au), which is located 3kms to the south west. The Renate (17 oz Au) prospect is located approximately 1 km east of the Licence.

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

5.16 EL 26787 RISING RIDGE

EMMERSON RESOURCES LTD
The Licence is located in the south eastern region of the Tennant Creek Province. The geology of EL 26787 includes minor outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation and these are restricted to the central portion of the Licence. The steeply dipping bedding in the outcrops generally strikes west-northwest and displays sub-vertical cleavage. The remaining region of the licence is covered by Cainozoic colluvium in the form of sheet wash and fanning topographic ridges. Airborne and ground magnetic data and field mapping suggest that metasediments of the Palaeoproterozoic Warramunga Formation underlie the Licence area.

The Licence lies to the south of two significant deposits, Nobles Nob and Juno. The Nobles Nob mine produced 1,219,774 oz Au @ 17.0g/t and Juno produced 921,709 oz Au @ 57.0g/t, 97,074 oz Ag @ 7.0g/t, 1,429t Cu @ 0.4% and 2,293t Bi @ 0.6%. The Nobles Nob deposit comprises an elongate lens coinciding with S1 cleavage and hematitic shale units and mineralisation occurs as brecciated, banded sericitic hematite and quartz-hematite. The Juno deposit comprises an elongate lens in an anticline and hematitic shale units, exhibits Au-Bi-Cu zonation and mineralisation occurs as pods in a magnetite-chlorite zone and stringer zone.

5.17 EL 27135 DENDRITIC

The EL includes a number of intermittent outcrops of granite, metamorphosed sediments and ironstone proximal to a contact area. Outcrops, which coincide with ridges and isolated hills, dominate the central region of the EL, these ridges and isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic 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 Quartz Hill Fault system and the Hopeful Star Extended shear zone dominate the structure of the western and central portions of 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 Tennant Creek 1:100 000 sheet 5758, which covers the area of the license.

5.18 EL 27408 GRIZZLY

The geology of EL 27408 has no outcropping rocks and is dominated by Cainozoic alluvial deposits in active channels and on flood plains, red earth soils that may contain ferruginous pisoliths with less extensive colluvium and scree. Dissected colluvial fan deposits are present as very minor cover in the eastern area of the licence.

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

5.19 EL 27537 CHAPPELL
The Licence is located in the south eastern region of the Tennant Creek Province. Outcrop within the tenement is limited to scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, which is partially silicified in places. The Licence is mostly covered by Quaternary sediments and includes dissected colluvial fan deposits and red soil plains. The Quaternary deposits are assumed to cover Warramunga Formation, including the low magnetic sandstone units in the northern and high magnetic siltstone dominant units in the southern half of the Licence. Rock types include sandstone, carbonaceous siltstone, pyritic shale and haematite shale units, quartz dolerite dykes that trends NNW to north south with sub vertical dips. A number of small E-W fold hinges are displayed within the Warramunga sediments. Aeolian sands or alluvial material obscures large areas of bedrock.

Some felsic porphyry intrusives have been interpreted from aeromagnetic data as intruding the Warramunga units in the south of the Licence.

The licence covers the Peko Mine mineral leases. The Peko mine produced 263,885 oz Au @ 3.5g/t, 1,557 804 oz Ag @ 14.0g/t, 118 884t Cu @ 4% and 7,350 t @ 0.2% Bi. The deposit comprises a series of plunging pipes and lenses within a sheared anticlinal structure and mineralisation occurs within quartz-hematite lodes in the oxide zone and magnetite-sulphides zone at depth.

The south western portion of the licence lies between two significant deposits, Nobles Nob and Juno. The Nobles Nob mine produced 1,219 774 oz Au @ 17.0g/t and Juno produced 921,709 oz Au @ 57.0g/t, 97,074 oz Ag @ 7.0g/t, 1,429t Cu @ 0.4% and 2,293t Bi @ 0.6%. The Nobles Nob deposit comprises an elongate lens coinciding with S1 cleavage and hematitic shale units and mineralisation occurs as brecciated, banded sericitic hematite and quartz-hematite. The Juno deposit comprises an elongate lens in an anticline and hematitic shale units, exhibits Au-Bi-Cu zonation and mineralisation occurs as pods in a magnetite-chlorite zone and stringer zone.

The central southern portion of the licence comprises 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 this area.

The Licence also includes; the JOKER deposit, which produced 990 Au oz; the Golden Forty mine, which produced 62,153 oz Au @ 12.0g/t and comprises a plunging horseshoe-shaped pipe with hydrothermal alteration and metal zonation. Mineralisation occurs within a massive-chlorite pod and stringer zone; Great Eastern (842oz Au); Red Terror (603oz Au); Black Boy (45oz Au); Three Thirty (1730oz Au) and Tunnel (64oz Au).

5.20 EL 27538 MERCURY

The Licence is located in the south eastern region of the Tennant Creek Province. Outcrop within the tenements is limited to scattered outcrops of weathered siltstone, sandstone, conglomerate and greywacke of the Palaeoproterozoic Warramunga Formation.
The remainder of the licence is covered by Quaternary sediments and includes dissected colluvial fan deposits and red soil plains. The Quaternary deposits are assumed to cover Warramunga Formation, which comprise the high magnetic siltstone dominant units. The eastern portion of the licence has numerous quartz and quartz-haematite ironstones are present in the ridges. Lamprophyre has been mapped and was intersected in diamond drill holes at the Pinnacles Mine. Several east striking shears traverse the area. Mineralisation styles are varied and include auriferous quartz veins within a quartz porphyry host (Dolomite and Pup Mines), shear hosted hematite-talc-chlorite ironstone (Pinnacles, Ajax, Fassifern and Southern Star Mines) and massive magnetite-chlorite ironstone (Argo Mine and Explorer 38).

The licence covers the Argo Mine mineral leases. The Argo mine produced 72,311 oz Au @ 8.6g/t and the deposit comprises an elongate lens within a reverse faulted anticline and hematite shale unit. Mineralisation occurs within a magnetite-pyrite core and footwall of massive ironstone

5.21 EL 28618 COMSTOCK

The geology of EL 28618 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 EL 28618, these isolated hills consist of scattered outcrops of weathered siltstone and greywacke of the Palaeoproterozoic Warramunga Formation, which most likely underlies the dominate Cainozoic sediments.

The licence includes a number historical mines such as; New Hope (1,479oz @ 37.7g/t), Plumb, Comstock (1,151oz @ 13g/t), Desert Hope (48.4 oz @ 21.7g/t), Renate (15.6oz @ 24g/t) and Golden Mile (96.2oz @ 20.7g/t).

In 1995 the Northern Territory Geological Survey released geological maps and explanatory notes for the Tennant Creek 1:250,000 sheet, and the Tennant Creek 1:100 000 sheet 5758, which covers the area of the license.
6.0 PREVIOUS EXPLORATION

6.1 Targets and Concepts

Exploration within the EPA 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 silica 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 old mines and prospects within the EPA, held under Mineral Leases and Claims by Santexco Pty Ltd and Giants Reef Exploration Pty Ltd. Some of the more significant deposits included in these are Eldorado (134,042 oz Au @ 20.0g/t), Golden Forty (62,153 oz Au @ 12.0g/t), Lone Star (5,665 oz Au), Cat’s Whiskers (1824 oz Au), Kiaora (1,019 oz Au), New Hope (1,479 oz Au) and Comstock (1,151 oz Au). Some of the more significant deposits that fall within ELs in the EPA include Red Terror (1,690 oz Au), Burnt Shirt (2,026 oz Au) and Kathleen (1,154 oz Au).

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

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.

6.2 EL8879 MT CLELAND

EL 8879 was acquired to search for IOCG deposits hosted in Warramunga Formation units on the northern fringes of the Quartz Hill Fault trend and to evaluate the potential around the southern margin of the Tennant Creek Granite. The licence incorporates many historical workings and prospects and therefore they will be detailed separately.

Hopeful Star Prospect/Mine

The original Hopeful Star workings are located on the south side of a prominent conical-shaped mesa, known locally as ‘The Tooth’ which rises 25 metres above the surrounding plain. They comprise two 5m shafts, a small open pit and an adit. A glory hole has been gouged on the east side of the Tooth, about 70 metres of drives extended beneath the
Tooth. Up until 1952 these workings produced 170 ounces at an average grade of 6.07 g/t, Au.

In 1969 BRM drilled two core holes, one inclined from the north (DDH01) and one inclined from the south (DDH02) of the main shaft area i.e. scissoring beneath the Tooth. A number of shallow percussion holes were drilled over the area, one of which intersected 3m @ 29.4 g/t from 3m. A 12 metre shaft was sunk on this hole some 80 metres east of the Tooth, producing 211.3 ounces Au at an average of 44 g/t. The shaft subsequently collapsed and a rectangular pit about 4m deep was excavated forming, what is locally referred to as the ‘slot’.

During 1971, Geotecnics Australia Pty Limited carried out a geological mapping program and ground magnetic survey over the southern boundary of EL 8879, around the area of the Hopeful Star mine workings.

Tennant Creek Gold (TCGL) acquired leases in the southern part of EL 8879, in 1987 and drilled three RC holes, totalling 220m, with one hole HPD2 drilled north beneath the slot intersecting 2m @ 2g/t Au. Further exploration was conducted in 1988 under a joint venture with Metana Minerals. This work included: Gridding the area on a 40m x 20m spacing and then geologically mapped, all outcropping ironstone was rock chipped and sampled. A total of 183 rock chips were collected with the best result returned of 2m @ 6g/t from the west corner of the gridded area. Samples were also collected from the Glory hole on the east side of the Tooth, with best results returned as 4m @ 2.8g/t and 4m @ 6.2g/t. 430 soil samples were collected and assayed for Au only, the results outlined the present day drainage pattern with the most elevated values, up to 3300ppb Au, originating from the Tooth. Follow-up analysis of these anomalous values was needed, therefore a 94 hole RAB drilling program, totalling 282m and a 93 hole vacuum, totalling 198m program was completed. Significant results returned from this work included 0.53g/t east of the Tooth, 2.5g/t north west of the Tooth. A 5 hole, 139m open-hole percussion program was undertaken to test the hematitic breccia zone in sheared contact with ironstone on the southern side of the Tooth. Unfortunately the contact was not intersected but a summary of the anomalous zones intersected is as follows: HAT1 12m @ 0.19g/t Au, HAT2 9m @ 0.15g/t Au, HAT3 14m @ 0.28g/t Au, HAT4 5m @ 0.58g/t Au, 5m @ 0.22g/t Au, 7m @ 0.22g/t Au, HAT5 6m @ 0.20g/t Au. A 6 hole RC drilling program (HRC004-HRC009), totalling 241m was also undertaken. HRC008 drilled beneath the shaft south of the Tooth, to intersect the southern shear zone recorded 26m @ 1.04g/t Au from 13m. Within this zone was a high grade intersection of 6m@ 3.92g/t Au. HRC005, 006 and 007 were drilled to intersect the down-plunge extension of the Tooth ironstone. Ironstone was intersected in all three holes with results as follows: HRC005 4m @ 0.28g/t Au, 10m @ 0.35g/t Au (including 5m @ 0.55g/t Au), HRC006 5m @ 0.12g/t Au, 8m @ 0.43g/t Au, HRC007 2m @ 0.55g/t Au, 3m @ 0.47g/t Au (including 1m @ 1.12g/t Au). The results can be interpreted as the identification of a bedrock gold anomaly. A ground magnetometer survey was undertaken on a 20m x 5m spacing, and identified a weak magnetic anomaly beneath the Tooth.

Metana withdrew from the JV in 1989. In 1990, TCGL conducted a 50 hole vacuum drilling program, totalling 100m, with the aim of defining the limits of the north-north east
trending gold anomaly. Two 20m vacuum holes 5m apart were drilled on the east side of the collapsed shaft (trending north west) at the bottom of the slot. VDH002 recorded 12m @ 3.8g/t Au from 1m, with the best assay of 1m @ 10.26g/t Au.

In 1991 Roebuck drilled a further 21 RAB holes, totalling 63m, to check previous results. This was followed up in 1992 by a 14 hole, 570m, inclined percussion drilling program. HSG-P01 – P11 were drilled with the aim of testing the previously delineated bedrock gold anomaly east of the Tooth. No anomalous results were recorded thus indicating the transported nature of the anomaly having originated from the regolith of the Tooth, where free gold is known to occur i.e. superficial gold has penetrated fractures within the upper few metres of the bedrock thus generating spurious anomalies not related to subsurface mineralisation. HSG-P21, 22 and 23 were drilled across the main shaft-slot-Hopeful Star Extended shear zone trend. Anomalous values in Au, Bi, Cu and Pb were recorded from the last four metres of P22 and from 24m to the end of P21. A follow-up RAB program was undertaken delineating the Au, Bi, Cu and Pb anomaly. It is characterised by anomalous Au to 29ppb, Bi 44ppm, Cu 114ppm and Pb to 82ppm These results showed that the anomalous zone was some 25m wide and extended for over 150m within both EL 8879 and EL 10312. The mineralisation appears to be parallel the Hopeful Star Extended shear zone.

Mt Margaret Prospect

Orientation sampling was carried out in the Tennant Creek mineral field in the period 16 – 18 December 1987. The objective was to determine the parameters for geochemical search technology which might be used in exploration for gold in the area.

Samples collected from a single traverse across the Mt Margaret area is characterised by two strong coincident anomalies for all three elements in both soils and lags.

CRA Exploration Pty. Ltd. (CRAE) explored for gold at Mt Margaret under leases MCC171 & 172. There is no record of exploration in the area previous to CRAE but there is one shaft present, which is over 30m deep, assays from samples collected from short drives on the 20m level reported up to 3200ppm Cu and 0.50ppm Au (samples 881425, 881426). Work completed by CRAE included: Surface rock chip sampling of old workings and prospective rock types – samples were collected from outcropping hematitic ironstone breccia, with returned anomalous results of 0.22ppm Au, 235ppm Bi and 200ppm Cu (sample 964469). Magnetic susceptibilities of surface exposures of the ironstone mullock were in the range .001 - .03 SI; A detailed grid survey and photometric mapping at 1:2000, were carried out by surveyors. Grid lines were marked at 50m intervals and ran north – south, from an east west baseline; A ground magnetic survey was carried out at 50m and 100m line intervals on a true north – south orientation, sensor height clearance was 2m. Three magnetic features suggestive of ironstone are apparent on contoured and profiled data. Two features correspond to mapped ironstones and talc-dolomite alteration. No deep seated magnetic sources were indicated. A strong magnetic source of moderate susceptibility is indicated by the data, modelling suggested that the source had a lower magnetic susceptibility than typical ironstone, gravity data also indicated a body of greater than average density, but not as high as typical ironstone; A detailed gravity survey was carried out on north – south lines
100m and 50m apart. Three features of note were present in the data. A gravity low corresponds with low density talc-dolomite and fracture zones mapped at surface. A subtle gravity high corresponds to the termination of a thin mapped ironstone against the NNE – SSW trending fault. An excess mass feature is coincident with a moderate amplitude magnetic anomaly. One other small gravity high does not coincide with a magnetic feature nor surface mapped ironstones; Drilling of defined geophysical and geological targets was carried out in October, 1985. PD85MM1 was drilled vertically to test the moderate excess mass and magnetic anomaly, intersected lithologies were interpreted to include an ironstone sediment breccia, assays returned anomalous values of 2m @ 0.06ppm Au from 30m and elevated Cu ranging from 350ppm to 1350ppm. PD85MM2 was drilled to test the subsurface extent of mapped talc-dolomite ironstone coincident with gravity low and a magnetic high. The hole was inclined at 60˚ at 020˚, hematite shale with minor specular hematite and quartz was present from 32m to termination at 60m. Assays returned results of elevated Cu 550ppm – 3900ppm, 0.08ppm – 1.2ppm Au and 2m @ 59ppm Bi from 24m. PD85MM3 was drilled to test for the subsurface extension of mapped ironstone. The hole was inclined to 60˚ at 215˚, no ironstone was intersected and only minor black hematite on fracture surfaces within unaltered siltstone indicated proximity to true ironstone. As no economic resource was indicated and additional targets could be generated by models at the time additional work was not required. Structural analysis of the ironstone interpreted the major faulting in the area to be along north west – south east trends and appears to either have broken up the ironstone in smaller en echelon bodies or controlled its emplacement. Further interpretation identifies a later set of faults on north north east – south south west trends often occupied by thin 'buck quartz +/- specular hematite reefs, clearly cutting earlier structure and truncates the ironstone to the west.

In 1988 Asarco Australia Limited conducted lag sampling over the Mt Margaret area, 426 samples were collected on a 200m x 25m spacing, follow-up soil sampling was also conducted, 500 samples were collected on a 100m x 25m spacing. Results from both confirmed two anomalous zones. A total of 40 rock chip samples were collected mostly from around the alteration zone and shaft at the Mt Margaret mine, highest values returned were at 1.35g/t Au. Asarco also drilled four RC holes, totalling 276m, in March 1988. The holes aimed to test the alteration zone. Over a strike length of 70m three holes intersected ironstone and/or alteration assemblages over drill widths of up to 15m. A detailed aeromagnetic and radiometric survey was flown by Aerodata Holdings Limited. The survey was flown on a line spacing of 200m, flight height of 60m.

Asarco continued exploration work in 1989 and included: gridding of 1.5 line km for the collection of 63 lag samples at 25m spacing. A further 2km of gridding was conducted in the main shaft area to provide control for a ground magnetic survey. The survey totalled 7.4km, and comprised 25m stations on 200m line spacings. The survey aimed to locate the interpreted anomalies from the 1988 aeromagnetic survey. An anomalous magnetic high was defined in an area were soil and lag geochemistry registered only background levels. An identified radiometric anomaly exhibited a weak magnetic signature and had no geochemical anomalies. A magnetic high was identified 75m north of the mine, in an area of anomalous Au geochemistry. Further ground magnetic surveys failed to locate
this anomaly. Two RC holes were drilled to test a lag anomaly coinciding with workings developed on massive hematite. Assays returned no anomalous results.

Black Cat Prospect

Gold was mined on a small scale from Black Cat prior to 1936 and then more consistently in the period 1937-42 for a total recorded production of 1023 ounces, with grades varying from 8 – 18 g/t. Previous exploration prior to 1988 is sited in an Adelaide Petroleum NL report dated February 1988, as being reported in Forrest R.J., 1987, Report on Lease Mapping and Sampling, Tennant Creek NT for National Gold, this report was unavailable for review. The previous exploration work cited, includes: ground magnetic surveys and geological mapping. Further mapping and electromagnetic survey and drilling of 11 wagon drill holes (SABC1 – 11) was completed by Australian Development NL in 1959. Results of this drilling were not considered encouraging, however, intercepts in six of the holes ranged from 3.65m @ 2.5g/t Au to 1.23m @ 5.4g/t Au. Drill holes 7 and 9 drilled intervals of green chloritic sediments with some ferruginous zones which may be indicative of the occurrence of deeper sourced chlorite-ironstone bodies. In 1987 National Gold NL completed a limited sampling program of the main workings and dumps of the Black Cat. Results of this work indicated potential for gold lodes to continue below existing workings in a shear zone.

CSIRO Work

In 1988, the CSIRO conducted a series of hydrogeochemistry (water sampling and trace element analysis) exercises in the Tennant Creek mineral field. The work was largely aimed at accumulating base data for the groundwaters of the district. It involved collecting samples of groundwater from stock bores, exploration drill holes, and underground water seeping into the mines that were active at the time, with the objective of using the analytical information to help pin-point target areas for further mineral exploration. The collected samples were analysed to a very high degree of precision at the CSIRO’s North Ryde (NSW) laboratories and, after allowances were made for a number of variable factors, it was possible to compare the final results with each other. In this work, levels of gold are measured in nano-grams of gold per litre (ng Au/L). A nano-gram is one billionth of a gram. Out of 33 samples collected and analysed in 1988, only a few were found to contain gold detectable by the analytical methods of that time. The White Hill Bore water sample was one of these and, at 30ng Au/L, compared well with water samples from Warrego (40ng Au/L) and Peko (100ng Au/L). Nothing was done to follow up this result in the field, despite recommendations to do so. A repeat sample was taken from the bore in July 2000. Analysis of this sample, using techniques much improved since 1988, gave a result of 129ng Au/L. This strongly corroborated the result of the sample taken 12 years before. A water sample was also taken from Middle Bore, 3km southeast of White Hill Bore, and within EL 8879. This sample assayed 16ng Au/L, much less than the White Hill Bore sample, but still rated anomalous.

In Giants Reef first tenure year, consultant geophysicist Frank Lindeman, of Lindeman Geophysics Pty Ltd, was engaged to examine the 1998 AGSO aeromagnetic data over
the White Hill Bore area, which covers the northern region of EL 8879. Due to the lack of detailed resolution in this data, no encouraging bodies were delineated and therefore no specific drill targets were produced. The various magnetic features that were noted appeared to relate to lithological units along the granite-sediment contact zone. A more detailed ground magnetic survey was recommended in order to better define potential ironstone bodies/magnetic anomalies.

During the second tenure year Giants reef proposed a work program to drill a pattern of six shallow vertical holes around White Hill Bore to obtain assay samples and geological information that could lead to locating gold mineralisation. It has been ascertained that White Hill Bore is located more or less exactly on meridian 134º 19'E as per the AGD94 datum. This meridian forms the boundary between EL 8879 and Giants Reef’s EL 10203 to the west. Three of the six proposed holes will therefore be in EL 8879 (see Figure 1), and three holes in EL 10203. The proposed exploration program was postponed during the term, due to the Company’s higher priority commitments on the further development and mining of the Chariot and Malbec Deposits.

During subsequent years all the historical drill and geochemical data over the EL was collated and converted from datamine format, and combined with the Company’s database and GIS.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 8879. 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. 109 station readings were taken in EL 8879.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 8879, with the exception of the southern half of the licence. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the Hopeful Star Prospect as a potential target. Work to model and further analyse Hopeful Star and other anomalous areas within the Licence have yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy
Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.3 EL9403 JESS

During the period 1935 – 1937 geophysical surveys were carried out by the Aerial Geological and Geophysical Survey of Northern Australia (AGGSNA) with the aim of identifying magnetic bodies. Results from these surveys were unavailable, although AGGSNA conducted drilling in the Eldorado area including Anomaly 3, which is located in the south west corner of EL 9403, during 1936. The results from AGGSNA No. 2 hole drilled on anomaly 3, encountered a 13m talc-carbonate-magnetite formation containing disseminated sulphides from 135m, Cu assays from this interval ranged from 0.38% - 0.88%.

Exploration work was conducted over the Eldorado area in 1961 by N.J.McMillan and A.H.Debnam. The work they conducted focussed on geochemical prospecting for copper in the Tennant Creek Gold Field and included soil sampling over magnetic anomalies with 65m line spacing and sample intervals of 30m, the samples were only assayed for Cu. 80 soil samples and 220 bedrock samples were collected, with assay results averaging approximately 4ppm. The National Lead Company drilled two holes in this area, but neither encountered any magnetic material and the core was assayed with only background Cu results returned. Two diamond holes were drilled over the Eldorado area with one being in EL 10406, the results from this hole only returned background level Cu values. It was concluded from these results that the potential for economic discoveries was low, and therefore further exploration wasn’t recommended.

Exploration work was conducted during 1973 by GeoPeko Limited, the project work was aimed at evaluating the causative body sizes and to estimate the completeness of exploration. Work conducted included the compilation and assessment of all historical data. Anomaly 3 was reviewed and conclusions were drawn that the two narrow intersections offered encouragement for further work, DDH3 appeared to have missed to the underside of the main anomaly, but intersected a southern satellite body.

Aquitaine Australia Minerals Pty. Ltd. Conducted a further review of the Eldorado area in 1973-74. The review outlined that the known bodies needed to be further defined by geophysical and geological methods.

In 2003/4 Giants Reef assessed Normandy’s 1998 detailed aeromagnetic data and generated a number of low order magnetic anomalies within EL 10406. Giants Reef view
the Licences as prospective for ironstone-related gold-copper deposits due to presence of favourable structures, subtle magnetic features, and because of their position between the high-grade Juno and Eldorado mines. 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 9403 and EL 10406. The Licence areas were individually assessed based on their prospectivity, targets and overall geological and geophysical potential.

During the second year of tenure Giants Reef conducted further exploration which included; MMP’s covering work planned in Eldorado Project Area (Eldorado Comstock Mineralised Corridor) were submitted to DBIRD in July and approved in August; Geophysical consultant Resource Potentials Pty Ltd were contracted in July to undertake geophysical data processing and interpretation work. In addition to prospect work, Resource Potentials requested to review the 1998 Kevron Nob-Line airborne magnetic data, and assist with compiling a systematic database of all the available geophysical data in the TC mineral field; A gravity survey covering some 1.7 km2 of the Eldorado Project Area including the Anomaly 3, 4 and 5 magnetic anomalies and portions of EL 9403 was planned in July. The survey also included several outcropping ironstones including those at the Mount, Ellen M and Cat’s Whiskers prospects. Daishsat Geodetic Surveyors completed approximately 22 line kilometres of gravity using 40 m station centres and 80 m line spacing; Geophysical modelling and interpretation of the newly acquired gravity data together with previous magnetic survey data was undertaken by Lindeman Geophysics Pty Ltd. The gravity, magnetic and geochemical data was also provided to Resource Potentials for modelling and interpretation. The new gravity data revealed more subsurface information than the magnetic data and resulted in the delineation of some 11 gravity high anomalies, which were interpreted as potential ironstones and/or structures. A density of 1.8g/cc rather than 2.2g/cc was applied to the bouguer correction in an effort to remove the effects of terrain and make the data more interpretable. Bouguer corrections use a uniform density over an area and the reality is that hills and gullies that produce topographic anomalies in the gravity data can be caused by rocks and regolith materials that have variable density across the survey area. Therefore, the Bouguer correction will not completely remove all terrain effect. Variable density Bouguer corrections can be undertaken, but this is a subjective process that may produce as many artefacts as it is trying to remove.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 9403. 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. 13 station readings were taken in EL 9403.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the Eldorado Area as a potential target.

Emmerson engaged a 4 year PhD project entitled, “4D structural, magmatic and hydrothermal evolution of the gold-copper-bismuth systems in the Tennant Creek Mineral Field, N.T.” with Centre for Exploration targeting (CET, of the University of Western Australia) student Matthew Hill. Assessment of various deposits within the Tennant Creek Mineral Filed including more specifically within the EPA the Eldorado Mine Area and included small areas within EL 9403.

Emmerson has scheduled to conduct an EM survey over the Eldorado Area and will include areas of EL 9403 during January 2011.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of, the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.4 EL9930 NEW MOON

Exploration License 9930 was initially applied for to cover the area over the known mine workings of New Moon, and to further investigate, review and model an isolated magnetic anomaly.

Previous exploration work conducted on EL 9930 is dominated by the New Moon mine workings. The New Moon mine was worked to a depth of 18m but no records of production could be found. The main shaft of the mine is situated on the southern side of the conical hill in the centre of the prospect.

GeoPeko conducted exploration work over the New Moon area, which included: Drilling of five airtrac holes ATH 1 – 5 and one diamond hole DDH1 into the central hill. ATH 1 – 4 intersected almost solely hematite-quartz ironstone. AHT 5 intersected hematitic sediments. Au was slightly anomalous in all holes, up to 0.26 g/t in AHT 1, while Bi was up to 1.36% in AHT 2. DDH1 was terminated at a depth of 76.2m after intersecting 9.25m of ironstone, assays returned results of 1.6m @ 15.3g/t Au, 330ppm Cu, 15440ppm Bi from 24.2m; Lead Isotope analysis was undertaken on samples from the diamond and airtrac holes. Results are listed in table 3:

Table 3: GeoPeko Lead Isotope Analyses at New Moon/Explorer 196
Five rock chip samples were collected from around the mine area; results returned are listed in the table 4:

Table 4: New Moon Rock Chip Assays (ppm)

<table>
<thead>
<tr>
<th>Number</th>
<th>Au</th>
<th>Cu</th>
<th>Bi</th>
</tr>
</thead>
<tbody>
<tr>
<td>F30651</td>
<td>0.03</td>
<td>98</td>
<td>7</td>
</tr>
<tr>
<td>F30652</td>
<td>0.05</td>
<td>452</td>
<td>81</td>
</tr>
<tr>
<td>F30653</td>
<td>0.01</td>
<td>137</td>
<td>13</td>
</tr>
<tr>
<td>F30654</td>
<td>0.22</td>
<td>291</td>
<td>64</td>
</tr>
<tr>
<td>F30655</td>
<td>0.07</td>
<td>228</td>
<td>10</td>
</tr>
</tbody>
</table>

Under a Joint Venture between North Flinders Mines Ltd (NFM) and PosGold further exploration of the New Moon area was conducted during the second half of 1992. This exploration work included: Ground Magnetic Survey – With the regional aero-magnetics showing the New Moon anomaly as a small but distinct magnetic high in a sea of magnetic low material, closer and more detailed surveys needed to be conducted. Nine north south lines of ground magnetics were conducted by NFM over the tenement for a total survey of 4.5km. Lines were 50m apart and readings were taken every 10m. The diurnally corrected data was used to create a contour plan. The plan is dominated by the explorer 196 magnetic anomaly, which has a strong dipole in the south. The dipole is very even and has an approximate width of 30m, is steep sided (indicating a shallow source). Geophysical consultant Hugh Rutter expressed the opinion that it was unlikely to continue at depth, or to be laterally extensive; Vacuum drilling consisted of 432 vacuum holes, totalling 2378m, hole spacing was determined by the prospectivity of the geology encountered. A Geological map was produced from the bottom of hole geology logged. This drilling program revealed that the bedrock in the tenement was dominated
by Warramunga Formation Siltstones and fine to medium grained greywackes. The rocks were moderately hematitic and sporadically quartz veined. Two main areas of ironstone were delineated, the main ironstone body making up the central hill and a minor ironstone occurrence in the north west of the prospect. Results from the drilling returned an anomaly coinciding with the main ironstone. A peak Au value of 29ppb occurred in dark pink indurated slightly cherty siltstone with 10% white vein quartz and 2% black manganese staining. A peak Cu value of 1464ppm occurred in oxidised hematitic ironstone and yellow clay. A peak Bi value of 68ppm occurred in black hematite ironstone, partly oxidised to gossan yellow. The main zone of anomalous geochemistry is extended east by Cu values (and to a lesser extent by Au and Bi) together with minor ironstone occurrences; A seven hole RAB, totalling 392m and RC, totalling 132m, drilling program was conducted in four sections. Section one was aimed to test the south eastern extension of the main ironstone body. Section two passed through the mine hill at New Moon. Section three was aimed at testing the northern extension. Section four was aimed to test for a second ironstone zone in the northwest of the prospect. Significant results are summarised in table 5:

Table 5: Significant RAB and RC intersections.

<table>
<thead>
<tr>
<th>Hole No.</th>
<th>From</th>
<th>To</th>
<th>Au (ppm)</th>
<th>Cu (ppm)</th>
<th>Bi (ppm)</th>
<th>Geology</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMB001</td>
<td>15</td>
<td>18</td>
<td>0.44</td>
<td>2976</td>
<td>5</td>
<td>Siltstone with up to 80% Mn</td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>21</td>
<td>0.27</td>
<td>2150</td>
<td>19</td>
<td>Siltstone with up to 80% Mn</td>
</tr>
<tr>
<td>NMB002</td>
<td>36</td>
<td>39</td>
<td>0.10</td>
<td>835</td>
<td>15</td>
<td>Silt + 60% He vns</td>
</tr>
<tr>
<td></td>
<td>38</td>
<td>41</td>
<td>0.74</td>
<td>261</td>
<td>212</td>
<td>Mt ironstone</td>
</tr>
<tr>
<td>NMR001</td>
<td>41</td>
<td>44</td>
<td>0.35</td>
<td>219</td>
<td>16</td>
<td>Mt ironstone</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td>47</td>
<td>0.25</td>
<td>152</td>
<td>20</td>
<td>Mt ironstone</td>
</tr>
<tr>
<td></td>
<td>50</td>
<td>53</td>
<td>1.02</td>
<td>300</td>
<td>109</td>
<td>Bdry b/n Mt Festone (upper) and He-q Festone</td>
</tr>
</tbody>
</table>
In 1996 Normandy conducted an evaluation of all previous exploration data over MC C1350 (MCC held within EL 9930). The Explorer 196 magnetic anomaly over the New Moon mine within MC C1350 was chosen for a Mobile Metal Ion (MMI) geochemical survey. The objective of the MMI survey was to assess the soils over Explorer 196 magnetic anomaly to determine whether there was anomalous Au, Cu, Bi and other indicator ions that may suggest the magnetic anomaly is Au/Cu/Bi mineralised. The samples were taken on 50m spaced lines at 100m intervals. A total of 38 samples were collected over MC C1350 a surrounding tenure. The results of the program were reported by Normandy as inconclusive. There was no reported follow up exploration to the results from the MMI survey. An environmental audit covering all historical disturbances in the Tennant Creek mineral field was undertaken by NTC in 1998. The audit located and detailed all occurrences of substantial disturbance including mine workings, tracks, dumps, drill holes, excavations, buildings and rubbish. The survey documented the historic New Moon workings within the Mineral Claim.

In May 1999 NFM were appointed as operators of the Central Joint Venture tenements, including MC 1350. NFM conducted no on-ground work over the Claim.

During the 1999/2000 year of tenure, Northern Gold N.L., as manager of the Mineral Claim completed evaluation studies and data compilation of the Tennant Creek region, including MC C1350.


In September 2002 an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities included a detailed assessment of all the tenements purchased from NTC, including the Central Joint Venture tenements.

Giants Reef recognised that significant exploration potential at Explorer 196 remains, however will require a great deal of work. Giants Reef noted that the prospect ranked high on the NTC list, however is located a long way east of Tennant Creek. As part of the a rationalisation program the Claim was recommended for surrender to allow exploration over Explorer 196 to be conducted under Giants Reefs granted Exploration Licence 9930.

In the following tenure years Giants Reef’s report to DBIRD, “Mineral Claim C1350, New Moon Final Report for the period 19 September 1995 to 31 December 2003” (J Cahill, February 2004) details all the historical exploration conducted over the Mineral Claim. As a consequence all the ground previously explored under MC C1350 is now being explored under EL9930. The New Moon mine is located over a magnetic anomaly referred to as Explorer 196, and no other magnetic or gravity anomalies have been identified in EL 9930 by Giants Reef. During the third tenure year all the historical drill and geochemical data over the EL was collated and converted from datamine format, and combined with the Company’s database. This data has been reviewed for target areas with shallow oxide Au potential. Review of the vacuum and geochemical data have identified a number of small geochemical Au anomalies with a NW-SE strike over Explorer 196.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the New Moon Prospect as a potential target. Work to model and further analyse New Moon has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

### 6.5 EL9958 RUNNING BEAR

During 1976 Australian Development Limited (ADL) drill tested areas in the eastern region of the Licence, with the aim of testing a portion of an east west trending magnetic anomaly for base metals. ADL’s drilling intersected highly chloritised, magnetite veined rocks, which they interpreted as andesites and andesitic tuffs. ADL assays showed no base metal anomalies but identified a Bi anomaly peaking at 70ppm, and they conducted no Au analysis. In an exploration review conducted by Allchurch in January 1991, he indicated that the intersected highly chloritised, magnetite veined rocks, may in fact be intensely altered greywackes or porphyries. Allchurch also noted that the prospect was
located between two interpreted faults trending north east, with the western most fault corresponding to a kink feature in the regional magnetic trend.

In 1991 Roebuck acted on Allchurches interpretations and conducted exploration work over the Eastern Prospect area. Work included a magnetic and structural interpretation. The interpretation was transcribed from published regional aeromagnetic data and therefore interpretation locations are imprecise. Vacuum drilling was conducted, and drilling west of the Eastern prospect was completed on a true north south grid using the cleared claim boundaries as base lines, with one short line completed on the old ADL 270° magnetic, cleared line and access track. 62 holes, totalling 771.5m were completed, returned results showed peak values as 3ppb Au, 25ppm Cu (with one spike of 195ppm) and 3ppm Bi.

In 1992 Roebuck continued exploration work covering the southern area of EL 9958, and the work included the collection of 249 samples. The assays returned outlined one anomaly, >40ppb Au, within the current boundaries of EL9958. The location of this anomaly is in the south western corner of the licence and is possibly a northeast extension of the Piccininny and Three Peaks Prospects located on the boundary of EL9958 and SEL 8665.

The Trump mine is located in the northwest of EL 9958. The mine workings comprise a shaft, tunnel, cross-cut and winze, carried out by Mr. M. Barker from early 1946 – 1950. One load of 15.6 tonnes was crushed and returned an assay of 31.1g/t Au. A review of the Trump Mine workings by Geopeko, at the request of Mr. H. DeVerrine, was conducted in 1988, then held under MLC 17, and originally under ML106E, jointly by Adelaide Petroleum and Mr. H. DeVerrine. Geopeko as part of their review, collected 21 samples from both underground workings and surface outcrop for analysis. All results were disappointing with assays generally only slightly elevated above the background levels. The geophysics of the area was assessed, and a subtle flexure in the residual magnetic intensity contours was identified in the vicinity of the ironstones. A reconnaissance magnetometer traverse comprising two lines was carried out over the main ironstone, the line spacing was 50m apart and was 200m in length. The first line indicated no anomaly, while the second over the ironstone encountered a marked increase in readings. Geophysical modelling of this second line indicated a limited potential for the prospect.

The Great Bear Mine is located in the central north of EL 9958, and the main workings have targeted an ironstone at the northern end of a low ridge striking north west. The workings consist of an adit, which penetrates under the ridge to the hematite/sediment contact. There are also some large cuts into the ridge on the northern side from which several hundred cubic metres of hematite and sediments have been removed.

During the period March 1988 to March 1989 exploration on EL 9958 was conducted by Metana Minerals N.L. in a joint venture with Allender/Leburn under EL 5730 ‘Great Bear South’, this EL covers the southern area of the current EL 9958. Work conducted by the partners included: Photogeological interpretation which revealed the southern region of EL 9958 to have no outcrop or obvious photo lineaments. An aeromagnetic interpretation was made from data purchased by Metana from Austirex International
Limited. Austirex conducted an aeromagnetic survey between June and July 1984, the flight line spacing was 200m with tie line spacings at 4000m and sample intervals of 30m. The results from this interpretation indicates a number of east north-east trending beds, with a north east trending structural break and associated splays east of the current EL 9958. Soil sampling was also carried out under MCC’s536 – 587 as part of a separate joint venture between Metana Minerals N.L. and Roebuck resources ltd. The samples were collected at 80m spacings around the MCC boundaries. 120 samples were collected and returned results indicated no anomalous values.

During 1988 Asarco Gold Pty. Ltd., a wholly owned subsidiary of Asarco Australia Ltd., explored in the northern region of the EL 9958, under MCC’s 223 - 225. Exploration work included lag sampling over the Great Bear mine and White Ridge regions, located in the central north of EL 9958. 75 samples were collected on a 200m x 25m grid. The results revealed a Bi anomaly over the Great Bear ridge which decreased rapidly to the south and a slightly slower change to the north. The highest Bi and Cu values were recorded at the top of the ridge on the shear zone, and the Cu values were also high and showed strong positive correlation with the Bi anomaly. Au values were uniformly low. Rock chip sampling was also conducted, with 21 rock chip samples collected along the Great Bear ridge with the best results returned from hematitic sediment adjacent to the mine, Au values were 2.63ppm.

Asarco continued exploration in EL 9958, under MCC’s 223 – 225, during 1989. Exploration work included: infill gridding of 1.2 line km during March. Soil sampling was also conducted with 72 samples being collected at 25m x 25m spacing to give infill coverage of the geochemical anomaly identified in 1988. The results showed a wide dispersion for Au, Bi and Cu down slope from central zones corresponding to ironstone outcrop. A ground magnetic survey was conducted at 25m line spacing with 10m station spacing over the anomalous area. The results were found to be complicated and tended to be strongly influenced by two large single point lows of unknown reliability. There appeared to be at least two magnetic horizons that may be the north and south limbs of a fold structure, supported by the soil sampling. Three RC holes (TRC 34, 35 & 38), totalling 390m were drilled during October and November to test coincident lag anomalism, outcropping ironstone and historic workings. All holes were void of ironstone intersection or any alteration. Assay results for the holes were low, and from the results it was concluded that there was little potential for significant mineralisation below the geochemical targets outlined during 1988.

During the period 1995 – 1996, the three Asarco RC drill holes were rehabilitated and the sites cleaned up. A detailed aeromagnetic survey was flown by World Geoscience MCC223 is located just inside the survey area, and the Great Bear ironstone shows a coincident magnetic anomaly. Wiluna Mines Limited undertook a ‘ Review of Past Exploration, Work programmes and Budgets for the Wiluna Joint Venture Tenements ‘. This in-house document noted that the three Asarco RC drill holes may have been targeted incorrectly to intersect the ironstone.
An application for renewal of MCC233 was lodged on 13th June 1997 and was granted for a period ending 15th September 2002, when Giants Reef decided to surrender the Claim rather than apply for another renewal.

During the first two years of tenure Giants Reef conducted an assessment of the geology, structure, geophysics and previous exploration work over the tenement. Whilst the tenement does not contain any significantly large deposits it includes a number of prospects which form strike extensions to more notable prospects, namely the Lone Star Mine workings. Prospects within the tenements examined during the year included Great Bear (192.1 oz), Trump (4.0 oz) and the Mineral Wealth, Central and Eastern Prospects. The extensions of the Piccaninny and Three Keys Prospects were also examined.

A review the airborne magnetics over the Licence suggests a strong structural correlation with clusters of ironstones and the three main gold camps (Caroline, Burnt Shirt and Lonestar) with areas comprising conjugate sets of major west northwest trending faults (thrust faults?) and north east trending faults. Further interpretation has highlighted target areas having favourable structural-geological-magnetic signatures, which warrant further investigation. These areas do not appear to have been adequately tested by either geochemistry or drilling by previous explorers.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 9958. 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. 37 station readings were taken in EL 9958.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 9958. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.
During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of two ERM targets, ERM159 and ERM 134. Work to model and further analyse these two ERM targets has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.6 EL10113 IVORY

Exploration License 10113 was initially applied to cover a prospective area of land host to many mine workings (listed in table four) and the more immediate surrounds of the Golden Key mine (production 10.8t @ 44.4 g/t Au) and the Lone Star mine (production 9983t @ 17.6 g/t Au). Both these mines are surrounded by Mineral Claims and Leases, which cover approximately 20% of License area and will therefore not be covered by this report.

EL 10113 encompasses a large quantity of mine workings and prospects, which are listed in table 2, and will be reviewed individually.

Table 2: Mine workings and Prospects of EL 10113.

<table>
<thead>
<tr>
<th>Mines</th>
<th>Prospects</th>
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<tbody>
<tr>
<td>True Blue</td>
<td>Explorer 205</td>
</tr>
<tr>
<td>Copper Head</td>
<td>The Aris</td>
</tr>
<tr>
<td>Mint</td>
<td>TC40 / Budgie</td>
</tr>
<tr>
<td>Aga Khan</td>
<td>Austin</td>
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<tr>
<td>Memsahib</td>
<td>Warwick Castle</td>
</tr>
<tr>
<td>Iris</td>
<td>And including five unnamed prospects.</td>
</tr>
<tr>
<td>Yellow Flame</td>
<td></td>
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<tr>
<td>Mammoth</td>
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</table>
Prior to 1973 no exploration records exist in the library of Centralian Minerals Limited. ADL through Nobelex, in 1973 conducted an aeromagnetic survey over then existing EL 96, this led to the discovery of the Budgie magnetic anomaly. Nobelex then established a local grid system over the magnetic anomaly, and in 1974 they conducted a ground magnetic survey on 100m line spacings with a 25m or 50m sample interval. The anomaly was defined as a small intense anomaly, initial interpretation suggested a body of depth to top of 40m, width of 60m and dip of 81° S. Specular hematite outcrop is located 60m west of the Budgie magnetic centre.

A small Jacro drilling traverse was drilled across the anomaly. Six holes, totalling 33m were drilled. Results defined the top of a quartz-hematite body, intersected in three holes, with a well defined alteration zone of ferruginous-sericite sediments. Au assays peaked at 5 g/t in ironstone without Cu or Bi support. A hanging wall shear zone to the ironstone was also recorded. These results warranted further drilling, therefore four diamond holes were drilled, totalling 554.5m. All drill holes returned anomalous Au assays with the best being, BGDH-461 1m @ 6.4g/t Au from 20m, BGDH-463 1m @ 18g/t Au from 51m, BGDH-473 2m @ 2.0g/t Au from 66m and BGDH-474 4m @ 0.5g/t Au from 61m.

In 1989 a further six RC holes (BGRC-001 – 006) were drilled, totalling 926m. The holes were drilled to the south as reinterpretation suggested cleavage and the ironstone dipped to the north. The holes were drilled with the aim to test the eastern extent of the ironstone. Best result returned was BGRC-001 2m @ 2.6g/t Au from 19m, but was interpreted to be within quartz veining. BGRC-003 & 004 were probed with the downhole magnetometer, results determined that the intersected magnetite-hematite system is probably responsible for the Budgie magnetic anomaly. During 1989 a BLEG stream sediment geochemical survey was conducted over the area. A total of 19 samples were taken, with returned results peaking at 14ppb.

Kevron, at the request of Normandy Tennant Creek (NTC), flew an Airborne Magnetics Survey in October 1998. Survey specifications were a 40m sensor height, 50m line spacing on a north – south line orientation with 7m in line sample spacing and elevations were recorded every seventh sample for digital terrain modelling. The survey indicated a greater level of structural detail could be delineated than from earlier available surveys.

NTC conducted an environmental audit covering all historical disturbances in the Tennant Creek mineral field during 1998. The audit located and detailed all occurrences of substantial disturbance including mine workings, tracks, dumps, drill holes, excavations, buildings and rubbish.
A detailed review by NTC was conducted over the Tennant Creek leases including ML C210. Historical exploration information was compiled and all geophysical, geochemical and geological information was assessed. Potential tonnage for an ironstone body(s) at the Budgie prospect based on exploration results was calculated at 560,000 to 688,000 tonnes. Further geophysical modelling of the two ironstone bodies suggested that they have a maximum potential tonnage reduced to 350,000t of ironstone, which is based on the potential magnetic mass, and does not include that attributed to specularite.

True Blue Prospect

Historic workings on the True Blue prospect include, numerous small pits and costeans and four shafts. All pits and costeans, hematite and ferruginous sandstone outcrops had been sampled prior to 1963 (exact date not known), with results indicating that ore is limited to the bed of brecciated ferruginous sandstone, but only where intersected by north – south fracturing. Best assay result returned was 10dwts/t.

During the period 1963 – 1965 exploration work conducted included: a magnetic survey, specifications unavailable, results of this survey revealed intense, localised variations in vertical magnetic intensity over outcropping and float ironstone, but did not indicate any significant extension of the ironstone either in depth or to the east or west; Wagon drilling was designed to sample the ironstone and adjacent ferruginous sediments and to delineate the extent of a north – south shear zone. Five holes were drilled (SWDH 496 – 500), totalling approximately 210m. Assay results returned were trace only with a highest value 1.22m @ 3g/t Au from 10.36m in hole SWDH500.

In 1987 National Gold NL collected dump samples from three dumps, best results were 5.3g/t Au.

In 1998 three RC holes (SATB 1 – 3) were drilled by Sabminco NL, the holes were drilled declined to 60° to intersect hematitic shales/siltstones. All three holes intersected hematitic shales/siltstones with SATB 1 drilling 18m of specular hematite from 15m, results returned were not encouraging, with the best result being SATB 1 1m @ 0.08ppm Au from 11m.

Mint and Memsahib Prospects

Orientation sampling was carried out in the Tennant Creek mineral field in the period 16 – 18 December 1987. The objective was to determine the parameters for geochemical search technology which might be used in exploration for gold in the area. Samples collected from the Mint prospect (Mint), reflect a strong discrete anomaly. The areal extent of the anomalous dispersion is generally greater for soils although anomaly contrast appears stronger for lags for Au and Bi. The best anomaly shown is by Cu in soils, where the total dimensions are in the order of 100m x 200m with very well defined central peak.

In 1988 Asarco Australia Limited conducted exploration work, which included: a detailed geological interpretation of the Mint area, identifying a significant alteration zone; Geochemical lag sampling over the Mint block of tenements. Line spacing was 100m
with 25m sample spacing over the Mint alteration zone. Results confirmed the geological interpretation with a broad Au, Cu and Bi anomaly covering the west north-west trending shear zone, and continuing through to the Aga Khan workings further south; Detailed rock chip sampling was conducted, 90 samples were collected with assay results returning six samples >1.0ppm, the highest value being 3.22ppm Au. Numerous other samples returned better than 0.25ppm Au, with high Bi up to 3050ppm and Cu up to 6550ppm. The best results were generally from brecciated ironstone or hematitic sediments. Asarco also conducted drilling in April of 1988. Nine RC holes were drilled, totalling 532m, to test the strike extent of the Au, Cu and Bi anomalies defined by the soil and lag sampling. Two vertical, and the rest inclined at 60˚ to the north, holes were drilled over a strike of 80m. Seven of the holes intersected ironstone and/or alteration assemblages, the two that failed to intersect ironstone are believed to have been drilled below the plunging body. Best results returned were from TCRC19 1m @ 1.0g/t Au from 39m, this was from the furthest down plunge of all holes indicating the possibility of economic mineralization at greater depth. A detailed aeromagnetic and radiometric survey was flown by Aerodata Holdings Limited. The survey was flown on a line spacing of 200m, flight height of 60m.

Asarco continued exploration work in 1989, which included, 11.4 line km of infill gridding, together with 1:1000 geological mapping of the previously unmapped Mint northwest area. 32 rock chip samples were collected while mapping, with best results received 0.01ppm Au and 51ppm Cu. A ground magnetic survey was completed, totalling 12 line km. The magnetic profile from the main anomaly identified is consistent with a northerly dipping body (assuming normal magnetization), therefore not drill tested by the previously drilled holes. Further zones of complex magnetic anomalies exist with one a possible east south-east extension of the major ironstone, the southern part has an east west strike and appears to be reversely magnetized. A more significant magnetic anomaly is centred in an area of no ironstone outcrop. This anomaly is complex but appears to trend east west, whereas the mapped structure in the area trends north-west south-east. Drilling of seven RC holes (TCRC27-30,36,37 & 42), totalling 626m, was conducted in October 1989. Drill holes TCRC27, 28, 36 and 37 tested the Mint alteration zone and its eastern extent, no anomalous results were returned. Drill holes TCRC29 and 30 tested the historically exploited Memsahib mine and its eastern extent. Results from TCRC29 support the observation that the Memsahib ironstone body and associated mineralisation have limited strike length. Intersections in TCRC30 support the observations that the ovoid bodies mineralisation developed in sheared kaolinised mudstone which bounded the ironstone body. Assays from TCRC42 showed 2m @ >1g/t Au mineralisation within sheared siltstones at the southern contact of the target ironstone.

Asarco continued exploration work in 1990 which included: seven RC holes were drilled, four (TCRC43, 43A, 43B & 44) were drilled to follow up the intercept of 2m @ 1.56 Au. Best results returned a maximum intercept TCRC43B of 2m @ 0.17g/t Au and 330ppm Bi from 48m and Cu 240ppm over 2m from 60m. Three holes (TCRC45 – 47) were drilled at the Memsahib workings, best results returned were, TCRC45 2m @ 24.8g/t Au from 79m, TCRC46 2m @ 1.10g/t Au from 34m with 16m of 0.28% Cu from 38m.

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Asarco continued exploration work in 1991, which included work predominately at the Memsahib area. A detailed ground magnetic survey was conducted with the aim of locating other magnetic anomalies along the east south-easterly shear zone. The survey was conducted on a 25m line spacing with station spacing of 5m. The survey identified one distinct anomaly and several subtle anomalies. Two RC holes were drilled (TCRC60 & 61); best results returned were TCRC60 2m @ 0.161 g/t Au, 465ppm Cu and 118ppm Bi. TCRC61 2m @ 0.011g/t Au, 252ppm Cu, <1ppm Bi.

During 1994 rock chip sampling was undertaken, samples of the mullock dump at Memsahib were taken to ascertain if the dump contained a grade of mineralisation which might be recoverable. Samples MS1 – MS5 were collected but returned no favourable results.

During 1995 restoration of the Asarco grid was completed, three rock chip samples (113438 – 113440) were taken from outcrops around the Memsahib mine and two others (113441 & 113442) from crumbling ironstone wall-rock in a pit in the same area. Two diamond holes were drilled (MSD1 & MSD2), these holes were drilled to locate ore adjacent to, and below, the Memsahib mine workings, Au was found in both holes although not at ore grade.

During 1996 a detailed Airborne Geophysical Survey was engaged by World Science corporation, with specifications of north-south lines at 50m spacings, and flying height of 50m above mean terrain. The data showed a strong magnetic anomaly linking the memsahib, Hilltop and Mint prospects.

Further rock chip sampling was undertaken in 1997, three sets of old workings were investigated and rock chip samples taken. Assay results for two sets of old workings were low. The third prospect, where Asarco had returned sample results of up to 3.2g/t Au, returned assays with only some >1g/t, and they were 1.94 and 1.84g/t Au, with low Cu and Bi. Surveying was also conducted in 1997, position fixes were made on several widely separated grid pegs and claim corner posts.

In July 1998 a 1gm Au nugget was found by Kurinelli prospector Jimmy Hooker.

Aga Khan Prospect

In the 1960’s under the original name ‘Iris’ the lease was held under option by Australian Development NL. It is believed that some shallow holes were drilled prior to the relinquishment of the lease, but no records are available.

Exploration was conducted by National Gold NL has included: geological mapping, rock chip, dump sampling and an airborne magnetic survey. No prominent features were delineated by this survey, and only low Au values, the highest being 0.09 g/t Au, were returned.

During 1988 the area was mapped to 1:1000 scale to evaluate the prospect and also to determine the extent of any mineralisation and alteration. This mapping revealed an ironstone lode some 70m in length and trending north west lying within a sheared zone of
Warramunga Group sediments, minor chlorite was recorded in the surrounding sediments. Geochemical lag and rock chip samples were taken over the area. These were analysed for Au, Cu and Bi. Although the lag results showed the area to be anomalous the rock chip samples taken around the workings have not supported the former. A large area has been flown by Aerodata for magnetics and radiometrics, of which the Aga Khan area wakes up an integral part.

Mammoth Prospect

The Mammoth area was explored in 1988 by J.F.Allender and A.F.G.LeBrun under MCC 789, this included: griding of MCC 789 on a 20m x 40m grid. A ground magnetic survey was undertaken over this grid, results showed a small high amplitude anomaly coinciding with outcropping ironstones; a scintillometer survey was conducted over the grid and the results show no anomalies; a program of detailed channel sampling was conducted early in 1988. 138 samples were collected and subsequently assayed. Although the results were generally low, all but 10 of the samples returned Au values greater than the threshold. This is encouraging given the sampling was deliberately representative.

During the first tenure year Giants Reef conducted a number of reconnaissance trips to the Licence area. Targets of particular interest within the EL include the TC40/Budgie, The Aris, Warwick Castle and Austin magnetic anomalies. Other areas of interest include the Mammoth mine workings. Giants Reef undertook a preliminary assessment of magnetics in the eastern part of the Tennant Creek goldfield. The TC40/Budgie causative body was modelled and interpreted as a steeply-dipping ellipsoidal body with a depth to top of 40m and extending down plunge in a south-easterly direction to 1600m below surface. Previous modelling by Normandy interpreted the causative body as two small bodies side by side, with maximum depth extending to less than 300m. Consequently further modelling is required to resolve the geometry of the magnetic anomaly.

In the second tenure year a literature and data search of exploration undertaken by previous companies indicates that drilling at the TC40/Budgie target encountered minor but broadly dispersed low level gold mineralisation in an ironstone body and which appears at the surface as a small outcrop of specular hematite. It was considered that a re-interpretation of the drilling and the magnetic data may produce potential drill targets. During the second tenure year the tenement over the TC40/Budgie target (ML C210) was surrendered and consequently any future exploration of the TC40/Budgie anomaly would be explored in the underlying EL 10113. The underlying geology of the EL is interpreted as comprising Warramunga Formation units, predominately siltstone and greywacke. This formation is host to virtually all the magnetite-haematite IOCG mineralisation and ore bodies in the Tennant Creek goldfield.

In subsequent years of tenure all previous geochemical and drill data over the EL was collated and integrated into the Company’s GIS and MicroMine database for technical review. A number of prospects not covered by existing Mineral Leases and Claims were identified, including Aga Khan, Memshaib, TC40/Budgie, Mint and True Blue. These prospects were reviewed for shallow oxide Au potential. Vacuum Au anomalies were
investigated over the Licence area utilising the GIS database. These geochemical anomalies will be taken into account when reviewed for oxide Au potential.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10113. 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. 126 station readings were taken in EL 10113.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 10113, with the exception of the north east corner. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has highlighted the potential of the Mulgas Area, Valhalla, Explorer 205, TC40, Lone Star Area and the Iris Area as a potential targets. Work to model and further analyse the Mulgas Area, Valhalla, Explorer 205, TC40 and the Lone Star Area is yet to commence due to the priority of the Iris Area. Work to model and further analyse the Iris Area has commenced with Emmerson geologist Grant ‘Rocky’ Osborne conducted 5 reconnaissance trips to the Iris Area during the reporting period

Iris Area

The aim of the reconnaissance trips were to establish the relationship between a syncline-anticline pair near the Iris prospect to the nearby Quartz Hill Fault. Results from these visits are as follows;

- An upright open syncline is developed in arenite with cross bedding indicating upright facing and is connected immediately southward to an eroded tight anticline
that is cored by a small ironstone, with ironstone showing greatest thickness within the D1 cleavage

- The syncline axial plane is sub-vertical to steeply dipping towards 036°, while the south limb dips 30° towards 036° and the north limb dips 64° towards 213°. The plunge is sub-horizontal although Australian Development Limited (ADL) mapping nearby shows the plunge to be 10° towards ESE

- The syncline is cut by a conjugate set of shear joints dipping 56° towards 186° and 78° towards 028° respectively indicative of NE-SW extension

- Such extension close to orthogonal to the axial plane of the earlier folds has resulted in introduction of both hematite and quartz along the axial plane, as is typified by qtz-hematite flooding at the nearby Mint prospect, and along the Quartz Hill Fault

- It is assumed that this extension occurred in D2 together with the emplacement of the TC Supersuite granites and while quartz is characteristic of this event the presence of hematite may indicate that the ironstones were also emplaced during this event, not during D1 as currently published

Figure 22: Iris
Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

### 6.7 EL10114 McDougall Ranges

Historical exploration work in EL 10114 has been concentrated around the Lone Star Mine workings which is covered by a series of MLC’s (outlined in section 4.8) and is therefore not covered in this report. The Explorer 92 Prospect was identified in the south west region of EL 10114 but no exploration work has been conducted over this prospect.

During the years of tenure under Giants Reef, exploration work involved in the licence area was concentrated around the Lone Star Mine workings, therefore the remainder of the licence has taken a lower priority. A review of all historical exploration work, geophysical data and drilling data from the Lone Star area has provided the basis to conduct a detailed review in the proceeding tenure year, with the aim of generating shallow RAB targets within the prospect area.
Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10114. 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. 111 station readings were taken in EL 10114 and consisted of 51 Regional and 60 Detailed readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included the northern two blocks of EL 10114. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of numerous targets including Pepperjack 1 & 2, Mapleleaf, ERM107, Lone Star, Explorer 92 and Burnt Shirt, refer to figure 28. Work to model and further analyse these identified targets has yet to commence due to two reasons, the first being a number of the identified targets are with an Emmerson EL but overlain by a Holding Licence (HLDC) by another company, therefore ruling out any exploration within that part of the licence, refer to figure 29. The other reason being the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s
but often includes larger scale historical exploration programs covering vast areas of the licence.

### 6.8 EL10124 SPEEDWAY

Many historical mine workings and prospects exist in EL 10124 and are outlined in table 6:

Table 6: Historical Mine workings of EL 10124.

<table>
<thead>
<tr>
<th>MINE WORKINGS</th>
<th>Operation Years</th>
<th>GRADE (g/t)</th>
<th>PRODUCTION (oz)</th>
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<td>Irish Emblem</td>
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<tr>
<td>Shamrock</td>
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<td>Wedge/Golden Boy</td>
<td>1950-53</td>
<td>9.3</td>
<td>345.7</td>
</tr>
<tr>
<td>Leichardt One</td>
<td>1935-48</td>
<td>24.1</td>
<td>891.8</td>
</tr>
<tr>
<td>Ace High</td>
<td>1941-42</td>
<td>64.4</td>
<td>113.4</td>
</tr>
<tr>
<td>Leichardt Two</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leichardt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kathleen/Caveman</td>
<td>1937-41</td>
<td>20.5</td>
<td>1 154.2</td>
</tr>
<tr>
<td>Ortelle Star</td>
<td>1950</td>
<td>8.4</td>
<td>9.1</td>
</tr>
</tbody>
</table>

### PROSPECTS

| Cassawary           |                 |             |                 |
| Lynton              |                 |             |                 |

In 1937 the Burnt Shirt to Kathleen areas, was subject to a ground magnetics survey, with one anomaly being defined between Burnt Shirt and Ace High at a modelled depth of 60m. The Bureau of mineral Resources (BMR) tested the anomaly with one drill hole in 1964, the hole intersected barren quartz magnetite ironstone between 112m and 128m.

In 1967, the BMR drilled a diamond hole (DDH-001) to test an anomaly known as Burnt Shirt Anomaly 4. The hole failed to intersect any magnetic material. A second hole was...
drilled to investigate a small outcropping magnetic boss and intersected a thin band of ironstone at approximately 70m depth. The BRM resurveyed the area in 1967 and on the basis of new results drilled a further two holes. These two holes intercepted massive ironstone at depth but no significant assays were returned.

As a result of the 1957 aeromagnetic survey over the Tennant Creek area, the BMR defined a series of magnetic anomalies, two located east of the Ace High mine workings. The during 1971, BMR drilled one diamond hole (DDH14) into the eastern most magnetic high and intersected 11m of a quartz-magnetite lode between 267.7m – 279.2m, with the best assayed returned at 1.6m @ 0.6ppm Au, 0.16% Cu and 0.18% Bi. Subsequently both anomalies were gridded and geologically mapped at 1:3000 and a ground magnetic survey was conducted. The survey indicated the eastern most anomaly required further testing and, the source for the western most anomaly was located 260m below surface. GeoPeko drilled another diamond hole (DDH1) inclined at 75˚ in to the anomaly but failed to intersect the magnetic source or economic mineralisation.

Peko-Wallsend Operations Ltd (GeoPeko) explored the area covering the Burnt Shirt leases, under EL 2535 between the period 1980 – 1986. During that time the exploration that was conducted included; compilation of topographic, geological, geophysical information onto 1:50 000 scale plans; low level airborne magnetic and gravity surveys in 1984; ground magnetic surveys over four anomalies identified from the 1984 survey and compilation of a geological map.

During September 1985, Geophysical Prospecting Analysis Pty Ltd, conducted a short field survey program, with the aim of upgrading the magnetic data on certain prospects including the Burnt Shirt and Ace High Prospects within EL 10124. The survey involved a pair of long central traverses in a north south orientation. Results from the survey indicated that the anomaly at Burnt Shirt could be readily split into three. One is shallow, corresponding to depth extent of the surface ironstone. The other two are situated to the east and west of ironstone.

Nobelex NL and Australian Development Limited (Poseidon Gold Limited) during 1985, conducted exploration work in EL 10124, under a series of MCC’s 175 – 178. 12 Percussion holes (BSP1 – BSP12), totalling 587m were drilled. No significant assays were returned from these holes.

During 1986 Nobelex and Poseidon, conducted a ground magnetic survey over the Burnt Shirt Prospect area. Consultant geophysicists identified deep drill hole targets.

During 1987 the deep drill targets generated in 1986 were drill tested. 6 holes (BSCRC1 – BSCRC6), totalling 1457m, were drilled, and one further RC hole (BSD7), totalling 312m, and extended by diamond drilling to 347m was drilled in 1988. Assays returned from these holes recorded some encouraging mineralised sections and the diamond drill core intersected notable amounts of visible native Cu. Significant intersections are presented in table 7:

Table 7: Best results from drilling conducted in 1987.
Other work conducted on EL 10124 included the installation of a lockable gate at the Burnt Shirt historical mine workings, to upgrade safety, and to close all other access to mine workings in the area.

In 1988 five grab samples from the Leichardt Two mullock stock piles were collected returning an average grade of 5.4 g/t Au.

Poseidon conducted further exploration in the area, which included studies that focused on the nature of the structural control on ironstone and Au-Cu-Bi mineralisation throughout the region. During the period 1991 – 1993 Poseidon conducted a regional gravity survey, with the aim to aid in refinement of regional geological interpretation and detection of structures possibly associated with the emplacement of ironstones and associated mineralisation. During 1992 the services of Australian Photogeological Consultants Pty Ltd was contracted to undertake a detailed Photogeological map in the Tennant Creek district.

During August 1996, all Burnt Shirt and Ace High prospects were subject to a rock chip sampling program. A total of 249 samples were collected. Significant results included: 3.26 g/t Au, 50ppm Bi and 98ppm Cu immediately north of the Ace High prospect, peak geochemistry of 12.8g/t Au, 73ppm Cu, 110ppm Bi from Kathleen, 2.75g/t Au, 200ppm Cu, 280ppm Bi from hematite altered siltstone in workings, located east north-east of Kathleen and south of Ace High.

During the period 1996 – 1997 Normandy Tennant Creek (NTC) explored the area under MLC’s 211 – 216, 281 – 284, 431, 623 and MCC 175 – 178. The exploration work conducted included the drilling of 3 RAB holes at Kathleen and 2 RAB holes at Ace High. The 2 RAB holes at Ace High were targeted to test for mineralisation extending beneath a quartz-hematite ironstone. There was no sign of alteration in the drill holes and best results were KTRB-002 3m @ 0.015g/t Au, 16ppm Cu and trace (TR) Bi from 36m. Drilling at Kathleen was targeted beneath two shafts to test for supergene enrichment. Two holes were drilled under a shaft on the western slope of the Kathleen hill and one hole drilled under a shaft on southern crest of the hill. The best results returned were as

<table>
<thead>
<tr>
<th>Hole ID</th>
<th>From (m)</th>
<th>To (m)</th>
<th>(m)</th>
<th>Au (g/t)</th>
<th>Cu (ppm)</th>
<th>Bi (ppm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSRC2</td>
<td>116</td>
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<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
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<td>61</td>
<td>1 @</td>
<td>0.36</td>
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<td></td>
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<tr>
<td>BSRC5</td>
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<td>4.85%</td>
<td>1200</td>
</tr>
<tr>
<td>BSRC5</td>
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<td>0.12</td>
<td>2.8%</td>
<td>35</td>
</tr>
<tr>
<td>BSD7</td>
<td>315</td>
<td>316</td>
<td>1 @</td>
<td>0.22</td>
<td>9350</td>
<td>360</td>
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</tbody>
</table>
follows, KTRB-003 9m @ 0.025g/t Au, 63ppm Cu, 76 (inc. 3m @ 112ppm) Bi from 18m, 3m @ 0.279g/t Au, 67ppm Cu, TR Bi, KTRB-005 3m @ 8.5g/t Au, 10ppm Cu, 77ppm Bi from 6m, 3m @0.277g/t Au, 7ppm Cu, 5ppm Bi from 9m, 3m @ 0.03g/t Au, 55 Cu, 83ppm Bi from 45m.

Exploration during the period 1997 – 1999 was conducted by NTC and involved an Airborne Magnetics Survey – the survey was flown by Kevron in October 1998, with a 40m sensor height, 50m line spacing on a north south line orientation with 7m line sample spacing. Review of this data reveals greater structural detail than can be delineated from the earlier 1984 GeoPeko airborne magnetic survey. Other work involved an environmental audit covering all historical disturbances in the Tennant Creek mineral field.

The Burnt Shirt anomaly was further modelled in 1999 by NTC, and defined as an ironstone at a depth to top of 100m and a mass in the order of 1.3Mt. It was noted that the drilling to date hasn’t defined the strike extent.

In 2001 the Burnt Shirt area was visited by Giants Reef as part of a more regional reconnaissance trip, and several warning signs were erected around historical shafts and workings, as part of the companies Duty of Care.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10124. 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. 112 station readings were taken in EL 10124 and consisted of 33 Regional and 79 Detailed readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 8199, with the exception of the southernmost block. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the Ace High and Explorer 109 Prospects as a potential targets. Work to model and further analyse these two targets has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.9 EL10203 WHITE HILL BORE

In 1988, the CSIRO conducted a series of hydrogeochemistry (water sampling and trace element analysis) exercises in the Tennant Creek mineral field. The work was largely aimed at accumulating base data for the groundwater’s of the district. It involved collecting samples of groundwater from stock bores, exploration drill holes, and underground water seeping into the mines that were active at the time, with the objective of using the analytical information to help pin-point target areas for further mineral exploration. The collected samples were analysed to a very high degree of precision at the CSIRO’s North Ryde (NSW) laboratories and, after allowances were made for a number of variable factors, it was possible to compare the final results with each other. In this work, levels of gold are measured in nano-grams of gold per litre (ng Au/L). A nano-gram is one billionth of a gram. Out of 33 samples collected and analysed in 1988, only a few were found to contain gold detectable by the analytical methods of that time. The WHITE HILL BORE water sample was one of these and, at 30ng Au/L, compared well with water samples from Warrego (40ng Au/L) and Peko (100ng Au/L), however no follow-up work was undertaken, despite recommendations to do so. A repeat sample was taken from the bore in July 2000. Analysis of this sample, using techniques much improved since 1988, gave a result of 129ng Au/L. This strongly corroborated the result of the sample taken 12 years before. A water sample was also taken from Middle Bore, 3km southeast of WHITE HILL BORE, and within EL 8879. This sample assayed 16ng Au/L, much less than the WHITE HILL BORE sample, but still rated anomalous.

In Giants Reef first tenure year, the 1998 AGSO aeromagnetic data was assessed and modelled over the WHITE HILL BORE area, however due to the lack of detailed resolution in this data, no encouraging bodies were delineated and therefore no specific drill targets were produced. The various magnetic features that were noted appeared to relate to lithological units along the granite-sediment contact zone and a more detailed
ground magnetic survey was recommended in order to better define potential ironstone bodies/magnetic anomalies.

During the second tenure year Giants reef proposed a work program to drill a pattern of six shallow vertical holes around WHITE HILL BORE to obtain assay samples and geological information that could lead to locating gold mineralisation. The proposed exploration program was postponed during the term, due to the Company’s higher priority commitments on the development and mining of the Chariot and Malbec Deposits.

During the following tenure years all the historical drill and geochemical data over the EL was collated and integrated into the Company’s database and GIS.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10203. 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. 27 station readings were taken in EL 10203.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 10203. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of an anomalous ridge running through the northern most portion of the licence. Work to model and further analyse this anomalous ridge and other anomalous areas within the Licence have yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.
6.10 EL10312 HOPEFUL

The License was acquired to search for IOCG deposits and to evaluate the extent of mineralisation associated with the Quartz Hill Fault zone and Hopeful Star Extended shear zone.

Most of the exploration conducted over EL 10312 has been focussed in the northern region where the Hopeful Star and Hopeful Star East(Extended) mine workings occur. During 1971, Geotecnics Australia Pty Limited carried out a geological mapping program and ground magnetic survey over an area on the northern boundary of EL 10312 and around the Hopeful Star mine.

Tennant Creek Gold (TCGL) acquired the leases in 1987 and drilled three RC holes, totalling 220m, then conducted further exploration in 1988 under a joint venture with Metana Minerals. This work included geological mapping and the collection of 183 rock chips and 430 soil samples. The results outlined the present drainage pattern with the most elevated values originating from a ironstone mesa, which is near the Hopeful Star mine workings. Anomalous values from this work included 494ppb Au from soils. A 94 hole RAB drilling program, totalling 282m and a 93 hole vacuum, totalling 198m program was completed. Significant results returned from this work 18ppb Au at the Hopeful Star Extended area and 42ppb Au from drilling on the Gail grid, which is located on the Eastern boundary of the Licence. A 6 hole RC drilling program (HRC004-HRC009), totalling 241m was also undertaken. The results from the JV exploration program identified a bedrock gold anomaly. In 1990, TCGL conducted a 50 hole vacuum drilling program, totalling 100m, with the aim of defining the limits of the north-north east trending gold anomaly. Significant results from this work included 12m @ 3.8 g/t AU from 1m.

In 1991 Roebuck drilled a further 21 RAB holes, totalling 63m, to check previous results and this was followed up in 1992 by a 14 hole inclined percussion drilling program (HSG-P01 – P11), which totalled 570m. The aim of this program was to test the previously delineated bedrock gold anomaly east of the ironstone mesa. Drilling around the Hopeful Star Extended mine workings recorded anomalous values of up to 29ppb Au, 44ppm Bi, 114ppm Cu and 82ppm Pb and showed that the anomalous zone was some 25m wide and extended for over 150m within both EL 10312 and EL 8879. The mineralisation appears to be parallel the Hopeful Star Extended shear zone.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10312. 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. 25 station readings were taken in EL 10312.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 10312. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the Hopeful Star Prospect located just outside the tenements northern boundary as a potential target. Work to model and further analyse Hopeful Star and other anomalous areas within the Licence have yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of the introduction of the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.11 EL10313 KODIAK

No historical exploration work on EL 10313 has been conducted previous to granting of EL 10313 to Giants Reef on 1st May 2003, due to an entirety of cover by Cainozoic sediments.

During the years of tenure under Giants Reef, exploration work involved a detailed review of all available data. With no outcrop present in the licence geophysical surveys provide the best analysis tool of assessing the prospectivity of the licence. Assessment and interpretation was undertaken of regional magnetic data that covers the licence, these images outline a subtle magnetic anomalous ridges in the southern region of the licence. The subtle magnetic anomalous ridge lies on the southern flanks of a large area of
subdue magnetic intensity. These identified magnetic anomalous ridges provide a target for further exploration and interpretation. A more detailed geophysical survey is required to further define the anomalous ridge, with the aim of generating shallow RAB targets within the area.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10313. 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. 312 station readings were taken in EL 10313.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included all EL 10313, with the exception of the most southern region. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of an anomalous ridge running through the centre of the licence area. Work to model and further analyse this anomalous ridge has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

6.12 EL 10370 BARKLY

The License was acquired to search for IOCG deposits and to evaluate the extent of mineralisation associated with the Golden Mile Mineralised Trend, Warramunga Formation and the historical workings of the area.
Work carried out on EL 10370 during the first three years by Giants Reef focussed on the southern region of the tenement, which included the western extension to both the Peko Line and Nobles Nob lines of mineralisation, for Tennant Creek-type Ironstone hosted Au-Cu-Bi orebodies.

This work was centred on a series of prospects over a strike length of some 3.5 kms and which include the New Hope, Plumb, Comstock and Desert Hopes orebodies. Reprocessing of high quality gravity and magnetic data, a re-appraisal of previous drilling and a number of field trips into this area has re-defined targets and up-graded the potential of the area. In particular this work has provided greater confidence for further drill testing of the down-plunge potential of both the New Hope and Comstock mineralised structures and testing the New Hope gravity anomaly.

Work conducted under the JV up to the reporting period is best described by excerpts from Meteoric’s Quarterly reporting.

17 November 2004

Meteoric Resources is pleased to announce a joint venture with Giants Reef Mining Limited on tenements EL10370, ML C57, and ML C217-C224 totalling 422sqkm in the south eastern part of the Tennant Creek field. The Mineral Leases cover the Perseverance workings which have been previously drilled with best results of 3m @ 43.2g/t Au from 72m in hole PERC-01 and 4m @ 4.7g/t Au from 14m in hole PERC-06. This high-grade mineralisation is associated with a series of outcropping hematite and magnetite ironstones. The workings are covered by a Central Land Council exclusion zone. Just east of the exclusion zone the Bluebird workings have recorded historical production of 172 t @ 9.3g/t Au.

The ironstones form part of the Golden Mile line of historical workings that strike over a length of 4.5km. All the ironstones in this line are associated with numerous dipolar bullseye magnetic features with ground magnetic anomalies varying between 100nT to 5000nT. Within the Perseverance area the hematite ironstones are associated with the 100nT anomalies while the magnetite ironstones are associated with the 5000nT anomalies.

No detailed modern gravity surveys have been completed in this area and a detailed gravity survey is proposed covering the potential eastern extension of the Golden Mile line over an area of 2km x 6km to test for hematite Au/Cu-rich ironstones. A second target is a pronounced aeromagnetic anomaly at R29 located in the southern part of the Barkley project area where a number of holes were drilled in 1974 with best results of 3m @ 2.8g/t from 70m in hole DDH 468. None of the holes intersected any magnetic material to explain the aeromagnetic anomaly.

The key terms of the joint venture are as follows:

• Meteoric may earn a 51% interest by the expenditure of $300,000 within 3 years and must spend at least $75,000 within the first year with a $10,000 cash payment on signing of the agreement.
• Giants Reef may contribute at the 51% interest level. If Giants Reef does not contribute at this level Meteoric may earn a further 19% by expenditure of $200,000 within an additional 2 years.

• Giants Reef may elect to toll treat mineable gold (and/or copper-gold) deposits of less than 100,000oz at its Warrego treatment plant, up to a maximum of 200,000ozs.

The Barkley joint venture is considered to be an opportunity for Meteoric to increase its landholdings of prospective and under-explored tenements in this high-grade mining district.

31 December 2004

As previously announced (17 November 2004) Meteoric has agreed terms for a joint venture on the 422sq km Barkly project situated 30 km east of Tennant Creek. Target areas within the Barkly tenements have been identified adjacent to the Perseverance gold workings (best drill intersection; 3m at 43.2g/t Au from 72m) and at the Flag magnetic anomaly.

A detailed gravity survey has commenced over a 2.5 km x 6km area encompassing The Perseverance-Bluebird line of gold workings. To date 2,800 gravity stations have been completed on 30m x 60m centres with encouraging results. The survey has confirmed well defined anomalies over the known mineralisation and outlined a previously unknown 800m-long gravity anomaly some 600m to the south of Perseverance. 1,850 gravity stations are planned on 60m x 120m centres over the area surrounding the detailed survey.

In addition, 380 gravity stations are planned over the Flag target in the southern part of the project area to test a strong magnetic anomaly situated about 15km along strike from the Golden Kangaroo and Black Snake prospects where Giants Reef recently announced high grade gold intersections.

31 March 2005

Detailed gravity surveys have been completed over the Perseverance-Bluebird line of gold workings and the Flag magnetic target in the southeast corner of the Barkly exploration licence. In addition, a detailed ground magnetic survey was carried out over Flag. To date a total of 5,831 gravity stations and 35 line km of detailed ground magnetics have been completed on this property.

The gravity survey at Perseverance-Bluebird outlined a well defined west-northwest trending gravity ridge some 8km in length flanked by several pronounced gravity
anomalies, including the Perseverance gold workings (best drill intersection; 3m at 43.2g/t Au from 72m). Whilst the Perseverance workings are covered by a Central Land Council exclusion zone, 12 other gravity targets have been identified for detailed follow-up ground magnetic surveys which are scheduled to commence in May. Provision has been made for 4,000m of follow-up RAB drilling in June.

At Flag the detailed gravity and ground magnetic surveys identified a coincident magnetic and gravity feature some 600m in length situated about 15km along strike from the Golden Kangaroo and Black Snake prospects where Giants Reef recently announced high-grade gold intersections. It is proposed to drill this target in June subject to rig availability.

30 June 2005

A detailed 220 line-km cesium vapour ground magnetic survey has been completed in the Perseverance-Bluebird area about 30km east of Tennant Creek. This has outlined 8 discrete haematitic targets which correlate in part with apparent density anomalies that have been generated from inversion of detailed gravity data (5,800 stations). These targets vary in size from 4ha up to 22ha in size. These combined magnetic/gravity targets are considered to be worthwhile targets for Nobles Nob style haematite-Au/Cu deposits. In particular, 5 targets are in close proximity to the Perseverance and Bluebird historical gold workings and represent high priority areas.

A 5,000m shallow RAB programme is anticipated to start in August to test these areas.

30 September 2005

A 7,544m shallow vertical RAB drilling programme was completed over combined magnetic/gravity targets in the Perseverance-Bluebird area about 30km east of Tennant Creek. The drilling defined a 600m long bedrock copper anomaly, open to the east, along strike from the Bluebird workings. Follow-up inclined RAB drilling (1,373m) at Bluebird and on this anomaly gave a best intercept of 8m at 1.0% Cu and 0.3g/t Au from 72m at end of hole in drill hole TBRB-717. These encouraging results are currently being assessed.

31 December 2005

As reported last quarter, encouraging mineralisation was intersected at the Bluebird prospect 30km east of Tennant Creek in the NT. The drilling defined a 600m-long bedrock copper anomaly, open to the east, with a best intercept of 8m at 1.0% Cu and
0.3g/t Au from 72m at end of hole. A programme of follow-up RAB drilling is being planned for the onset of the dry season in April/May.

30 September 2006

A 36-hole, 2,215m RAB drilling programme was completed during the quarter at the Bluebird prospect situated about 30km east of Tennant Creek, NT. The drilling was designed to test a 600m-long E-W geochemical anomaly outlined by Meteoric's previous sampling and to follow up a previous RAB intercept of 8m at 1.0% Cu and 0.3g/t Au from 72m at end of hole in TBRB717. The geochemical anomaly coincides with a pronounced gravity ridge indicating the presence of a hematite ironstone or hematite alteration.

The drilling, on 100m line spacing’s, intersected hematite ironstone and/or hematitechlorite alteration over the 600m strike length tested. The steep-dipping ironstone unit ranges from 10m to 50m in thickness and remains open to the east.

Anomalous copper, gold and bismuth values were intersected within hematite alteration on four drill lines over a 100m strike length with values over various 4m intervals ranging up to 0.2% Cu, 1.1g/t Au and 0.13% Bi. These anomalous values suggest that the mineralised ironstone intersected in TRRB717 extends at least 100m to the east. A second anomalous copper-gold zone was intersected at the eastern end of the ironstone horizon where two 100m-spaced lines intersected values up to 0.1% Cu, 0.25g/t Au and 189ppm Bi over various 4m intervals in or adjacent to hematite alteration. This anomalous zone was not adequately tested by the easternmost drill line and remains open in that direction and coincident with a discrete magnetic anomaly. Both of these anomalous zones are open at depth and plans are in hand to test the down dip extensions after the current wet season.

Meteoric has confirmed a 51% interest in the 350sq km Barkly JV and elected to continue to earn up to a 70% interest. Under the terms of the joint venture Meteoric may earn a further 19% by expenditure of $200,000 by November 2009.

March 2007

DRILLING - An exploration programme comprising 2215 metres of inclined RAB drilling was carried out during 24 September to 30 September 2006 about the Bluebird prospect area within EL 10370 “Barkly”.

The drilling totalling 36 RAB holes TBRB-735 to TBRB-770 followed up results of previous exploration during 2004-2005 which included gravity and ground magnetic surveys, and extensive RAB drilling comprising shallow vertical geochemical drilling and deeper angle drilling.
Weak to moderate Cu/Bi/Au geochemistry was intersected in the vicinity of the Bluebird workings, in particular an assay of 1.27% Cu associated with ironstone near the base of TBRB-717.

The objective of this latest programme was to investigate this result in greater detail with infill drilling about TBRB-717, followed by reconnaissance drilling of E-W striking gravity and magnetic features extending some 700 metres east of Bluebird.

SURFACE MAPPING - The area about Bluebird was mapped whilst waiting for the drill rig to arrive. There is little outcrop except in the vicinity of the Bluebird workings which are sited near small outcrops of ironstone on top of a low hill which occupies the centre of a circle of ironstone/siltstone talus 200 metres in diameter. Sand/clay overburden overgrown with spinifex and scattered scrub occupies the remainder of the explored area.

Two varieties of ironstone are present. The most common is a red brecciated hematitic chert which forms a bouldery outcrop measuring 50m x 30m on the hilltop. The second is a black specular hematitic ironstone which forms a smaller outcrop measuring 20m x 10m and situated 20 metres to the SE. The hematitic chert is brecciated and shot through with stringers of quartz and specular hematite, suggesting the cherty phase developed initially, the specular hematitic phase and quartz being a secondary overprints.

The third outcropping lithology is a red massive siltstone which outcrops on the sides of the hill below the ironstones. The Bluebird workings consist of a single vertical shaft and two decline shafts in a collapsed pit some 20m apart, as well as various pits and trenches. The shafts were started in siltstone, presumably to access the margins of the ironstone by drives. The greatest amount of mullock is adjacent to the pit with its two shaft openings suggesting these were the main mine workings. A previous report cites the Bluebird as having recorded a production of 172 tonnes at 9.3 gm/t Au.

Minor outcrop or subcrop of brecciated cherty/hematitic ironstone also occurs occasionally to the east of the main outcrop zone in otherwise flat soil-covered terrain.

RAB DRILLING - Previous inclined RAB drilling had been to the south along a grid azimuth of 180° (magnetic azimuth 175°), so initial drilling of the current programme was also in this direction. The first two holes TBRB-735 and 736 sited 20m south and north of TBRB-717 respectively failed to intersect ironstone though drilled to 100m and 90m.

The next hole TBRB-737, collared 20m to the east was in ironstone from surface to EOH at 73m, the hole being terminated by the drill rig having insufficient air pressure to lift heavy ironstone cuttings from this depth. These inconsistencies and the failure of subsequent holes, particularly TBRB-738, 739 and 741 to encounter ironstone suggested the ironstone bodies were in fact south-dipping.
This conjecture was tested by a vertical hole TBRB-742 which collared in ironstone but passed into siltstone at 48m, confirming that the ironstone did in fact have a dipping contact. The next two holes TBRB-743 and 744 were therefore turned around to a north azimuth beneath the apex of the hill. The two holes intersected 29m and 13m of ironstone respectively, in positions that indicated a south-dipping, downward thinning body whose surface expression was the massive specular hematite outcrop on the hilltop. With this recognition the remainder of the planned drilling was turned around to a north azimuth, with hole collar positions shifted to take this change into account.

No massive ironstones were encountered in drilling to the east of the main zone though chloritic/hematitic alteration was noted in places, which probably represents the eastern strike extension of the ironstone-forming alteration though lacking its full development.

No ironstone was intersected in a single hole TBRB-750 collared 20m west of TBRB-717, indicating the ironstone body pinches out in this direction.

GEOCHEMISTRY - All holes were logged, selective chip samples retained, and cuttings sampled in 4m composites which were forwarded to ALS Chemex in Alice Springs. After sample prep in Alice Springs, pulps were sent to Perth for assaying for Au, Cu, Bi and Fe.

The data when plotted in sections shows good correlation between high iron assays and intervals logged as ironstone in drill holes in the Bluebird area. Similarly the intervals logged with chlorite/hematite alteration correlate well with high iron assays in drill holes to the east.

In preliminary interpreted configuration of the iron-rich zones is downward-thinning and south dipping. The fully-developed ironstone body occupies a zone some 120m long which includes the outcropping ironstones about the Bluebird workings and extending under cover for 60m to the west. Patchy ironstone occurs in association with the narrow belt of chlorite/hematite alteration which extends to the east.

Strongly anomalous bismuth with values of several hundred to +1000 ppm was reported in association with the main ironstone body at Bluebird. Weakly anomalous bismuth with values of <100 ppm occurs within the chlorite/hematite alteration zone to the east.

Copper assays when plotted in section appear to take the form of downward-opening haloes from about 50m vertical depth. The highest values are associated with the Bluebird area ironstone, generally on its southern hanging wall side. No results were obtained which approached the 1.27% Cu previously reported, but in this area values ranging from 200 to 2000 ppm were common. In places the anomalous copper extends beyond the ironstone, perhaps indicating parallel zones of alteration at depth.

Spotty gold ranging from 0.4 g/t to 1.14 g/t occurs with high Fe-Cu-Bi association in the main ironstone zone about Bluebird. The best gold values occur at depths in excess of 50m which with the copper configuration suggests possible zonation with depth. Minor spotty gold occurs in one intersection of the chlorite/hematite alteration zone to the east.
CONCLUSIONS - The results of this programme suggest that the ironstone body at Bluebird is mineralised with a typical Tennant Creek-style Cu-Bi-Au association.

The distribution of spotty anomalous gold and the downward-opening configuration of anomalous copper below 50m vertical depth may be indicative of zonation with depth, another typical feature of mineralised Tennant Creek ironstones.

Typically the smaller deposits have been small but high-grade once the gold-rich zone of alteration was discovered, such as the TC-8 deposit.

There is compelling evidence in favour of downward zonation of mineralisation beneath the Bluebird ironstone, and as such deeper drilling to explore this possibility is warranted.

Emmerson Work during 2009

Three RC drill holes (1,285m) were drilled into 3 Green field targets in the Comstock Area from the 29th of May to the 9th of June 2009. 1 hole into the C29 Prospect (CRC001), 1 hole into the Banker Prospect (BKRC001) and 1 hole into the Brumby Prospect (BRRC001) were drilled to test the magnetic models generated by Emmerson Contract Geophysicist Mr. Steve Massey of Western Geoscience.

All holes failed to intersect any ironstone.

Au values returned a range of <1 to 5 ppb for all holes (no significant intersections) were returned for Banker and Brumby targets.

RC hole CRC001 (179m) intersected chlorite altered siltstone with traces of disseminated magnetite and moderate silicification (Warramunga sediments) from 113m to 179m. The model position was pierced as planned however NSI for Au or pathfinders were recorded. Evaluation of DH probe data will assist in determining phase of exploration for this target.

CRC001 lithology - Based on the NTGS map, the C29 prospect area is covered by sheet and dune sand. Sheet and dune sand was intersected from the surface approx 2 meters then heavily to moderately clay altered siltstone from 2 to 100m. Siltstone has limonite, sericite and kaolinite alteration with very fine foliation. Kaolinite alteration was noticed from 34 to 57m which coincided with the small increase in gamma values in Brett Adam’s report. From 100 m to the end of hole (173 m), CRC001 intersected chlorite altered siltstone-sandstone with 2 to 5% disseminated magnetite.

Interpretations and suggestions - CRC001 intersected the upper edge of the magnetic anomaly but failed to intersect any ironstone. A small magnetic anomaly, with susceptibilities of 0.02 SI was defined from 50 to 70m using data from the downhole magnetic probe. The values indicate that the off-hole source contains very little magnetite and is unlikely to be the source of the magnetic anomaly. Magnetic susceptibility values obtained using a Kappameter KT-5 show relatively low magnetic susceptibilities from the same interval. Since the hole is blocked at 70m, which is above the area of interest, it
was suggested by Brett Adams to have the hole unblocked and be logged again to 173 m (end of the hole).

### 6.13 EL10406 MONTANA

The Cats Whiskers mine is a small working in an ironstone body that forms the crest of a low ridge. The mine produced 99.17 oz Au from 381.37 tons of ore.

During the period 1935 – 1937 geophysical surveys were carried out by the Aerial Geological and Geophysical Survey of Northern Australia (AGGSNA) with the aim of identifying magnetic bodies. Results from these surveys were unavailable, although AGGSNA conducted drilling in the Eldorado area including Anomaly 3, which is located in the south west corner of EL 9403, during 1936. The results from AGGSNA No. 2 hole drilled on anomaly 3, encountered a 13m talc-carbonate-magnetite formation containing disseminated sulphides from 135m, Cu assays from this interval ranged from 0.38% - 0.88%.

Exploration work was conducted over the Eldorado area in 1951 by N.J.McMillan and A.H.Debnam. The work they conducted focussed on geochemical prospecting for copper in the Tennant Creek Gold Field and included soil sampling over magnetic anomalies with 65m line spacing and sample intervals of 30m, the samples were only assayed for Cu. 80 soil samples and 220 bedrock samples were collected, with assay results averaging approximately 4ppm. The National Lead Company drilled two holes in this area, but neither encountered any magnetic material and the core was assayed with only background Cu results returned. It was concluded from these results that the potential for economic discoveries was low, and therefore further exploration wasn’t recommended. Detailed soil sampling was conducted over selected targets, which included Cats Whiskers, with the aim of checking the reliability of the sampling interval from the first soil sampling program. The results from Cats Whiskers were high Cu values at the surface and an inference was drawn for the prospect from the more explored Peko and North Star deposits, that the Cats Whiskers outcrop can be expected to have mineralisation at depth. Two diamond holes were drilled over the Eldorado area with on being in EL 10406, the results from this hole only returned background level Cu values.

Five diamond holes (DDH1 – DDH5), totalling 760m, were drilled under an agreement between Eldorado Tennant Creek Limited and Mines Branch, Northern Territory Administration. The holes were completed in August 1963. DDH1 intersected leached ironstone between 37m - 70m, with only rare hematite below this intersection. Results for DDH2 – DDH4 and assays for DDH1 – DDH4 are unavailable. DDH5 intersected the ironstone between 133m – 135m, best assays returned recorded background levels with the exception of the last 2m of the intersected ironstone where Cu values were 2.55%, the following 1m was logged as chlorite schist and Cu values were 1.1%.

Exploration work was conducted during 1973 by GeoPeko Limited, the project work was aimed at evaluating the causative body sizes and to estimate the completeness of exploration. Work conducted included the compilation and assessment of all historical
data. Anomalies 4 & 5 were reviewed, anomaly 4 indicated the presence of two parallel zones of Cu mineralisation that have not been adequately defined, and either has the ironstone body. Anomaly 5 indicated that various lithologic types existed in the main body of the ironstone and warrant further work, the ironstone contains Au, Cu and Bi values which can be correlated into three pods within the main body, the intersections to date support the presence of a main body and smaller satellite deposits to the north and south.

Aquitaine Australia Minerals Pty. Ltd. Conducted a further review of the Eldorado area in 1973-74. The review outlined that the known bodies needed to be further defined by geophysical and geological methods.

An honours thesis was conducted, examining the geology of the Eldorado area of Tennant Creek by Malcolm Norris, and completed in November 1980.

During the period July 1987 to January 1988 a program of 16 shallow holes comprising 10 RC (CW3 – CW12) and 6 diamond (CW13 – CW18) holes were drilled to test mineralisation. Patchy economic Au and Bi mineralisation was intersected with best results; CW# 1m @ 36.9g/t Au, 0.04% Cu, 0.63% Bi from 47m; CW5 1m @ 17.1g/t Au, 0.27% Bi from 62m, 1m @ 193.8g/t Au, 0.02% Cu, 0.21% Bi from 63m, 3m @ 3.9g/t Au, 0.20% Cu, 0.05% Bi from 64m, 1m @ 10.0g/t Au, 0.13% Cu, 0.02% Bi from 67m; CW14 2m @ 25.4g/t Au, 0.06% Cu, 0.10% Bi from 132m; CW17 2m @ 4.6g/t Au, 0.10% Cu, 0.18% Bi from 52m, 1m @ 47.0g/t Au, 0.04% Cu, 1.16% Bi from 54m, 2m @3.9g/t Au, 0.13% Cu, 0.42% Bi from 55m; CW18 2.2m @ 6.2g/t Au, 0.07% Cu, 0.04% Bi from 90m; CW11 3m @ 38.4g/t Au, 0.05% Cu, 0.99% Bi from 110m; CW16 3.3m @ 2.5g/t Au, 0.15% Cu, 0.41% Bi from 89m

An honours thesis was conducted, examining the geology and genesis of the Eldorado Au-bearing lode by Harry S. Horvath, and was completed in January 1988.

During 1990 detailed geological mapping and rock chip sampling was conducted. The mapping area was covered with a 10m x 10m grid and the mapping was carried out by traversing along north – south grid lines and the geology was inferred between grid lines, producing a 1:250 geology plan. The chip samples were taken at 1m intervals and each sample was logged before assaying. The assays showed very thin and patchy surface Au, of generally low grade. The higher values returned were from the north associated with the gossan.

In 2003/4 Giants Reef assessed Normandy’s 1998 detailed aeromagnetic data and generated a number of low order magnetic anomalies within EL 10406. Giants Reef view the Licences as prospective for ironstone-related gold-copper deposits due to presence of favourable structures, subtle magnetic features, and because of their position between the high-grade Juno and Eldorado mines. 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 10406. The Licence area was assessed based on its prospectivity, targets and overall geological and geophysical potential.
During the second year of tenure Giants Reef conducted further exploration which included; MMP’s covering work planned in Eldorado Project Area (Eldorado Comstock Mineralised Corridor) were submitted to DBIRD in July and approved in August. Geophysical consultant Resource Potentials Pty Ltd was contracted in July to undertake geophysical data processing and interpretation work. In addition to prospect work, Resource Potentials requested to review the 1998 Kevron Nob-Line airborne magnetic data, and assist with compiling a systematic database of all the available geophysical data in the TC mineral field. A gravity survey covering some 1.7 km2 of the Eldorado Project Area including the Anomaly 4 and 5 magnetic anomalies and portions of EL 10406 was planned in July. The survey also included several outcropping ironstones including those at the Mount, Ellen M and Cat’s Whiskers prospects. Daishsat Geodetic Surveyors completed approximately 22 line kilometres of gravity using 40 m station centres and 80 m line spacing. Geophysical modelling and interpretation of the newly acquired gravity data together with previous magnetic survey data was undertaken by Lindeman Geophysics Pty Ltd. The gravity, magnetic and geochemical data was also provided to Resource Potentials for modelling and interpretation. The new gravity data revealed more subsurface information than the magnetic data and resulted in the delineation of some 11 gravity high anomalies, which were interpreted as potential ironstones and/or structures. A density of 1.8g/cc rather than 2.2g/cc was applied to the bouguer correction in an effort to remove the effects of terrain and make the data more interpretable. Bouguer corrections use a uniform density over an area and the reality is that hills and gullies that produce topographic anomalies in the gravity data can be caused by rocks and regolith materials that have variable density across the survey area. Therefore, the Bouguer correction will not completely remove all terrain effect. Variable density Bouguer corrections can be undertaken, but this is a subjective process that may produce as many artefacts as it is trying to remove. RAB drilling commenced over the Eldorado Prospects in September and a total of 75 holes were completed for 1,929 meters. Of these, 7 holes (ELRB 59-65) for a total of 175 meters were sited in EL 10406. Drilling was broadly undertaken on a 50m x 50m grid pattern. The initial drilling program was designed to test the series of 11 gravity anomalies, some of which are coincident with magnetic anomalies (4 and 5) and numerous Au geochemical anomalies which lie along strike to the Eldorado Deposit. Approximately 40% of the initial designed program was precluded by the CLC, including the majority of the more highly ranked gravity/geochemical targets, due to there proximity to areas of topographical relief both within and proximal to a AAPA “Unconfirmed Recorded Sites”. These included gravity-magnetic anomalies associated with several outcropping ironstones (Mount, Ellen M and Cat’s Whiskers prospects).

Lithologies encountered in the drilling included moderate to strongly sheared intercalated Warramunga Formation siltstones, shales and sandstones. Apart from three holes approximately 100m east of the Cat’s Whiskers prospect (MLC528 & 529), magnetite – hematite – chlorite ironstone bodies were not encountered in any of the holes drilled in EL 10406. Results from the drilling were mostly disappointing and apart from the drilling in MLC528 & 529 (12m @ 103ppb Au and 853ppm Cu from 12m (ELRB028), and 12m @ 137ppb Au from 30m (ELRB031), no significant assays results were returned for the 7 holes in EL 10406. The weak Au-Cu anomalies encountered in ELRB028 are hosted by a 12m zone strongly hematitic and chloritic sheared siltstone. The Au anomalies...
encountered in ELRB031 are hosted within a 10m wide zone of strongly hematite-limonitic siltstone-sandstone units. Results from the drilling suggest that the gravity highs occur in association with lithology that is either sheared or more resilient to weathering (oxidation). In contrast, gravity lows appear to be associated with units that are more deeply weathered and are best described as clay saprolite.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included EL 10406. 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. 8 station readings were taken in EL 10406.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has further highlighted the potential of the Eldorado Area and more specifically Eldorado Anomaly 5 located in the north of the licence as a potential target.

Emmerson engaged a 4 year PhD project entitled, “4D structural, magmatic and hydrothermal evolution of the gold-copper-bismuth systems in the Tennant Creek Mineral Field, N.T.” with Centre for Exploration targeting (CET, of the University of Western Australia) student Matthew Hill. Assessment of various deposits within the Tennant Creek Mineral Filed including more specifically within the EPA the Eldorado Mine Area and included small areas within EL 9403.

Emmerson has scheduled to conduct an EM survey over the Eldorado Area including Anomaly 5 located within EL 10406 during January 2011, with the aim of generating targets for RC drill testing during 2011.

Other work conducted included the commencement of preparations for the tenement rationalisation that will be required, in terms of, the New Mineral Titles Act. This work has involved identifying historical exploration, including geophysical, geological and drilling, this data is being compiled for evaluation by Emmerson geologists and contract geophysicists. This work has mainly been focused around ML’s and MC’s but often includes larger scale historical exploration programs covering vast areas of the licence.

6.13 SEL25912 VOLK
Substitute Exploration License 25912 was initially applied to consolidate EL 10118 and SEL 8665, both now expired. Refer to Exploration history for EL 10118 in section 5.17 of this report.

The eastern most portion of this SEL was included in this new SEL and the previous exploration conducted was limited and included investigation by ADL in the late 1960s under Authority to Prospect (AP 2386) and work included auger drilling, diamond drilling and geophysical surveying.

PosGold explored the south eastern portion of SEL 8665 between 1986 and 1992 under EL 4929. An airborne survey flown in 1990 highlighted 2 magnetic features west of Nobles Nob. Four RC holes were drilled with Anomaly 2 showing significant gold grades and Anomaly 3 (located in the portion of SEL 8665 now part of SEL 25912, generating no significant anomalies

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

A Detailed Ground Gravity Survey, conducted by Fugro Ground Geophysics commenced 27 March 2008. This ground gravity survey was conducted over Emmerson’s entire Tennant Creek tenure package and included SEL 25912. 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. 412 station readings were taken in SEL 25912 (which also duplicates EL 10118 readings) and consisted of 92 Regional and 320 Detailed readings.

A Detailed Airborne Magnetic, Radiometric and Digital Terrain Survey was conducted by UTS Geophysics and commenced 26 May 2008 and was completed on 22 July 2008. The survey included areas of the EPA and included the north eastern half of SEL 25912, with the exception of a small corner in the south west. 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 2,461km’s (approximately 6.43%) being in the EPA. 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.

Emmerson conducted a more detailed ground gravity survey, totalling 12 lines for 324 stations over the Flag area with the aim of better defining the geophysical gravity models.
Boudin like gravity anomalies could be observed near FLRC001 and FLRC002. Discussion between B. Adams and G. Osborne led to the conclusion that the gravity highs could possibly be ironstones that formed between intrusives and sediments. They suggested that the circular gravity lows in-between the boudin like gravity ridges are intrusives. The detailed gravity survey was able to delineate a large gravity anomaly approximately 600m to the east of FLRC001.

Figure 24 - Flag’s Magnetic image (Analytical signal)
A complete compilation on the Flag area was completed in June including a revised geological model suggesting that the previous drilling by ERM did not intersect the prospective horizon but rather the limbs of a fold. The area was remodelled with results indicating that the target was at substantial depth (>600 m vertical). It was proposed that ADL306 be ‘twinned’ as the historic hole drilled a prospective structural zone and was prematurely terminated in 3m @ 1.22 g/t Au. The extension of ADL306 combined with the proposed extension of FLRC002 with a diamond tail of 450 m to intersect the target was put on hold due to focus elsewhere in the Tennant Creek Area. Re logging and sampling of the historic ADL diamond hole, ADL306 failed to reproduce the 3m @ 1.22 g/t Au as quoted in historical assay reports, however the target still remains untested and warrants further work.
Figure 26: Plan view, north at top. The location of ADL306 on a D3-D4 (?) structure. The green plates are the AMAG interpretation with the yellow shells indicated increasing magnetic susceptibility.

Figure 27: View to West. Section shows the location of the FLRC002 and the proposed diamond tail extension (in red). This target is 650 m vertically below surface

6.14 SEL 27011 SNAPPY GUM

SEL 27011 incorporates land previously covered by EL’s 10324 & 22285, exploration conducted over these two EL’s is detailed below;

EL 10324

The Licence was explored by Uranerz Australia Pty Ltd (Uranerz) during the 1980’s under EL 1745. Uranerz explored the Renate prospect area utilising magnetic prospecting, gamma logging, scintillometry, drilling and rock chip geochemistry in search of ironstone and unconformity related uranium mineralisation.
Between 1991 and 1992 Roebuck Resources NL (Roebuck) and North Flinders Mining (NFM) explored regions of the eastern half of the Licence under EL 7453. Exploration focussed on Renate prospect and a north west trending structural/shear corridor, which extends into EL10324. In 1991 Roebuck undertook photo-lineament evaluation and carried out mapping of ironstones and a “M” magnetic fraction surface soil sampling programme over the Renate prospect. This work extended into the eastern region of what is now EL10324. The soil sampling and rock chip sampling indicated four Au-Cu-Pb anomalies. Of these only anomaly “D” (7,828,450mN; 436,840mE GDA94) falls within EL10324 and this located within a north west structural corridor, 1.5 kms north west of the Renate prospect. Values of up to 3 ppb Au (+copper +lead) were found in conjunction with a small outcrop of hematite. Overall these were considered as low order anomalies. In 1992 NFM acquired aeromagnetic/radiometric data over the area and undertook a structural – geological interpretation over the area.

Between 1995 and 1998 PosGold explored the Licence under EL8947. PosGold explored the Licence for iron oxide copper gold deposits and carried out mapping, rock chip sampling and vacuum geochemical drilling. Results for this work were not sufficiently encouraging to warrant further work.

Exploration Licence 10324 was originally applied for by Giants Reef in 2004 to explore the extensions of the Quartz Hill and Mary Lane Faults which extend eastwards from the Lone Star and Mulga Hill group of prospects. The Licence is also considered highly prospective given its proximity to the Company’s Billy Boy deposit, which contains an inferred resource of 5,100 oz Au.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

**EL 22285**

Exploration License 22285 was initially applied to cover a prospective area of Warramunga Formation which is situated in close proximity to known mineralisation. This ranks this Licence as moderately prospective.

During the first year of tenure a preliminary assessment and reconnaissance of this small (two part-blocks) EL failed to produce any immediate high priority targets. The Licence area is located directly south of the prospective MLA 22284, which contains multiple magnetic anomalies, small mines and target areas including Metallic Hill, Leda and Ganeymede in the south.

Further work during the second year of tenure included an internal review of the Giants Reef tenement portfolio and a classification of exploration opportunities was conducted in the second year of tenure. The future exploration potential of Exploration Licence 22285 was assessed using an integrated geological, geochemical and geophysical approach. The close proximity of the Licence area to known mineralisation ranks this Licence as
moderate prospectivity. Work during the year focused on developing exploration models for the EL. The underlying geology of the EL was interpreted as predominately siltstone and greywacke of the Warramunga Formation. 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 underlying geology of the EL is interpreted as predominately siltstone and greywacke of the Warramunga Formation. This formation is host to virtually all the magnetite-haematite (ironstone–hosted) gold-copper-bismuth mineralisation and ore bodies in the Tennant Creek goldfield.

Exploration work conducted during subsequent years was dominated by the discovery of the non-magnetic, haematite-rich Chariot deposit which resulted in a broader exploration model by Giants Reef, which allows for the presence of extensive ore grade mineralisation hosted within primary, non to weakly magnetic (haematite-rich) ironstones. Discoveries by Giants Reef of high grade mineralisation associated with haematite dominant ironstone at Marathon and Billy Boy, although small, are further examples of this style of mineralisation. The potential for the haematite ironstones to host mineralisation in non magnetic areas essentially opens up the whole Tennant Creek goldfield to new target review. During the third tenure year, the Licence area was comprehensively assessed prior to statutory relinquishment. It was noted that the magnetics over the EL is relatively subdued, and there are no identified prospect areas or targets over the area. No historical drilling or surface geochemistry was identified within the Licence area. However, given Giants Reef decision to proceed with the granting of the Mineral Lease Application 22284 Billy Boy which is located due north of EL 22285, has technical and geological implications for the strategic future of the Licence.

Under the management of Emmerson exploration has been limited due to the initial purchase period and the period required to list the company on the Australian Stock Exchange (ASX), which occurred on 12 December 2007. Emmerson has now built a highly capable and skilled staff including an excellent team of Geoscientists to exploit Emmerson’s strong prospective tenement holding in the Tennant Creek Region.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has highlighted the potential of the ERM029 target. Work to model and further analyse ERM029 has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

6.15 EL 26787 RISING RIDGE

EL 26787 was granted during 2010 and no historical exploration has been identified yet by Emmerson.

6.16 EL 27135 DENDRITIC
EL 27135 was granted to Emmerson in 2009. Examination of historical exploration has identified a vacuum drilling program conducted, but further details are yet to be identified, such as who conducted the drilling and what results were yielded from the drilling.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has highlighted the potential of an anomalous VRMI ridge running through the central portion of the licence area and an identified gravity target, SMGrav47, in the western half of the licence. Work to model and further analyse SMGrav47 and the anomalous VRMI ridge as commenced and will be completed during early 2011.

6.17 EL 27408 GRIZZLY

EL 27408 was granted in 2010 and to date the only historical exploration has been 4 vacuum holes located in the extreme north western corner of the licence area drilled as a part of the vacuum program drilled over the mulga/lone star leases. Details of results and conclusions from his drilling are yet to be reviewed.

During 2010 exploration activities conducted included the analysis of geophysical datasets from the licence area using the VRMI technique, this has highlighted the potential of the ERM133 target, refer to figure 37. Work to model and further analyse ERM133 has yet to commence due to the prioritisation of other identified areas in the EPA, namely the Billy Boy Area, Gigantic Moon, C29, Eldorado, West & East Peko, Susan, West Argo, the Mulgas, Estralita, Flag and the Comstock Area.

6.18 EL 27537 CHAPPELL

EL 27537 incorporates land previously covered by EL’s 8279, 8786, 9293, 8705, 8199, and SEL 8665 (part only), exploration conducted over this tenure is detailed below;

Emmerson conducted previous exploration within MLC 577 (Golden Kangaroo) during 2008 and 2009. Modelling of the Clown prospect also occurred during 2008 and 2009. Both MLC 577 and the clown prospect are contained within EL 27537.

Golden Kangaroo

The Golden Kangaroo East prospect, MLC 577 located within Emmerson’s EPA, was evaluated for an initial resource calculation. The Global Resource was estimated based on three (3) mineralisation domains:

1. Oxidised Haematitic Shale (HSH),
2. Oxidised Haematitic Sandstone and Siltstone (HSS),
3. Shear Zone (SHZ).

The estimation was deemed to be of a low confidence level due to the drill hole density, sample length and density, accuracy of sample points, discontinuity of mineralisation and
Overall data quality, further exploration work will be required prior to confirming a resource.

**The Clown Prospect**

A geophysical report, provided to Giants Reef in 2004, was received from David Inkster during October, about the Clown prospect. The report stated that there was nothing of great interest in the models for the area and majority of the models end up to be broad, flat lying and shallow dipping bodies which are more indicative of iron-rich horizons than of ironstone.

There was one model, approximately 1,500m3 which is located at E427607, N7821477 and models 19m below surface, which would suggest that there might be small outcrops of ironstone at or near the above mentioned coordinates.

Steve Massey, consultant geophysicist for Emmerson suggested 2 magnetic bodies trending northwest with the top of the biggest model 65m below surface and the smaller model at 26m below surface.

David Inkster’s model is to the northeast of Steve Massey’s models. Brett Adams, another Emmerson geophysicist is re-modelling Steve Massey’s models using almost the same parameters as David Inkster’s.

The Clown Prospect can now be tested following the granting of EL 27537.

**EL 8279**

The Licence is largely covered by Mineral Leases over the Peko deposit and Comet workings.

Australian Development held this area from 1973 to 1976 under EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow-up.

In 1982, Peko-Wallsend Operations held the ground with EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

Between 1987 and 1993, Wiluna Gold Pty Ltd explored the area under EL 5304. Exploration was carried out under a joint venture with Asarco Gold and Top End Resources. Exploration was directed towards locating near surface gold deposits having weak to no magnetic signature. A prime near surface target such as the anomalous large chloritic zone that lies beneath the Juno deposit was investigated. Prior to the surrender of the Licence, Asarco completed lag geochemistry, auger soil sampling, 6.6 line km of ground magnetics and vacuum drilling. Only weakly anomalous values were obtained from this work. Wiluna Gold was granted EL7182, which covered a portion of EL 8279, in May 1991, however this was surrendered in May 1995 with no field work being carried out.
In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8279. In 1999, a Normandy proprietary airborne Time Domain ElectroMagnetics (TDEM) system was flown over the Nobles Nob and Peko areas, including EL 8279. The helicopter borne sensor was flown at 30m mean terrain clearance and 100m line spacing.

Following the acquisition of the Licence by Giants Reef a preliminary review of detailed aeromagnetics identified a significant magnetic anomaly in the central region of the north west block. This magnetic high forms one of a number of anomalies of similar magnitude along a major east-west “magnetic ridge”. A review of previous work undertaken in this area had shown that no geophysical assessment or modelling had been undertaken and previous explorers have considered the magnetic ridge to reflect a sequence of magnetite-bearing sediments within the Warramunga Formation. Whether the individual magnetic highs along this trend relate to ironstone bodies, and are therefore significantly prospective, or are merely the results of sporadic, relatively high concentrations of disseminated magnetite in the sediments, remains to be investigated.

**EL 8786**

Australian Development held part of this area from 1973 to 1976 with EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow up.

A part of the area covered by the present Licence was also covered by EL 143, held by Nobelex. Several anomalies were investigated but were not believed to be due to discrete ironstone bodies. A 1975 regional airborne geophysical survey failed to identify further targets.

In 1982, Peko-Wallsend Operations held the ground under EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

From 1984 to 1990 GeoPeko conducted exploration under EL 4536. Drilling at Explorer 26 prospect intersected several significant zones with the highest value at 5m @ 9.3 g/t Au. Exploration conducted by GeoPeko also included structural mapping.

PosGold explored the area between 1986 and 1992 under EL 4929. An airborne survey flown in 1990 and this defined two magnetic features west of Nobles Nob. RC drilling of these returned significant gold grades at Anomaly 2 while Anomaly 3 failed to return any significant results. A further 11 RC holes were drilled at other prospects, however results were disappointing.

Metana Minerals also held part of the area under EL 5729 from 1988 to 1991. Interpretation of the 1984 Austirex aeromagnetic survey indicated east-west trending beds with north west structural breaks. Soil samples collected in the north eastern part of the Licence did not return any anomalous values. Vacuum geochemical drilling failed to identify any presence of anomalous geochemical signatures within the bedrock.
TC8 Pty Ltd held part of the Licence from 1992 to 1997 under EL 7687. Rock chip and soil sampling was undertaken in the north east region of the Licences and assays returned anomalous gold and bismuth values. An extensive gravity survey and vacuum drilling program was completed over the licence in 1994. A review of the gravity data concluded that ground magnetics and vacuum drilling were required to determine drill targets.

The Exploration Licence was originally applied for in June 1994 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8705. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including EL 8750.

Following the acquisition of the Licence by Giants Reef in 2001, exploration had been aimed at the discovery of IOCG deposits hosted in Warramunga Formation units within the Eldorado – Juno - Juno trend and re-modelling of magnetic data. This work identified a number of prominent and discrete low amplitude magnetic highs which warrant further investigation. Other work completed by Giants Reef included data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys had also been undertaken.

**EL 9293**

Australian Development held part of this area from 1973 to 1976 under EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow up.

A part of the area covered by the present Licence was also covered by EL 143, held by Nobelex. Several anomalies were investigated but were not believed to be due to discrete ironstone bodies. A 1975 regional airborne geophysical survey failed to identify further targets.

In 1982, Peko-Wallsend Operations held the ground under EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

PosGold explored the area between 1986 and 1992 under EL 4929. An airborne survey flown in 1990 and this defined two magnetic features west of Nobles Nob. RC drilling of these returned significant gold grades at Anomaly 2 while Anomaly 3 failed to return any significant results. A further 11 RC holes were drilled at other prospects, however results were disappointing.

TC8 Pty Ltd held part of the Licence from 1992 to 1997 under EL 7687. Rock chip and soil sampling was undertaken in the north east region of the Licences and assays
returned anomalous gold and bismuth values. An extensive gravity survey and vacuum drilling program was completed over the licence in 1994. A review of the gravity data concluded that ground magnetics and vacuum drilling were required to determine drill targets.

The Exploration Licence was originally applied for in August 1995 by Poseidon Gold Limited (later NTC) because of favourable structural and geophysical anomalies, and its location between the high-grade Nobles Nob and Golden Forty mines.

Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 9293. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including EL 9293.

The acquisition of the Licence by Giants Reef in 2001 exploration was aimed at the discovery of IOCG deposits hosted in Warramunga Formation units within the Eldorado – Juno - Juno trend and re-modelling of magnetic data. This work has identified a number of prominent and discrete low amplitude magnetic highs which warrant further investigation. Other work completed by Giants Reef includes data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.

Reviews and modelling of the detailed aeromagnetic data by Giants Reef have shown a discrete magnetic anomaly in the northern block of EL 9293. It is located approximately 1km north of the JOKER mine. Reconnaissance surveys in this area have confirmed the presence of Warramunga Formation sub-outcrop, however as no ironstone outcrops, the source of the magnetic anomaly appears to be at depth.

**EL 8705**

In 1982, Peko-Wallsend Operations held the ground under EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

PosGold explored the area between 1986 and 1992 under EL 4929. An airborne survey flown in 1990 and this defined two magnetic features west of Nobles Nob. RC drilling of these returned significant gold grades at Anomaly 2 while Anomaly 3 failed to return any significant results. A further 11 RC holes were drilled at other prospects, however results were disappointing.

Between 1992 and 1994, Roebuck Resources and Normandy NFM held this area under EL 7650. Regional gravity data from a 1992 Aerodata multiclient survey outlined a gravity ridge trending across EL 7650. A weak aeromagnetic anomaly was delineated and tested by RAB drilling. Results from this produced a 400m by 100m copper anomaly (max 28ppm), however gold values were low.

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Exploration Licence 8705 was originally applied for in May 1993 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8705. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including EL 8750.

The acquisition of the Licence by Giants Reef in 2001 aimed at the discovery of IOCG deposits hosted in Warramunga Formation units within the Eldorado – Juno - Juno trend and re-modelling of magnetic data. This work has identified a number of prominent and discrete low amplitude magnetic highs which warrant further investigation. Other work completed by Giants Reef includes data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.

Other exploration work completed by Giants Reef included contracted work by Vector Research Pty Ltd to process Giants Reef’s magnetic survey data using their proprietary MAGSURF® (magnetic surface filter). This data processing uses an algorithm which detects high-frequency magnetic noise associated with surface occurrences of weakly magnetic iron-oxide minerals and is aimed at mapping the high-frequency “textural noise” associated with the surface geology. The application also attempts to resolve detail in the overburden and delineate the noisy surface magnetic responses of sub-surface features such as structures and rock formations. Increasing the magnetic surface filter resolution increases the resolution of high frequencies, or smaller features. High frequencies are associated with features in the surface geology, while low frequencies are associated with large and deeper features. Filter resolution (N) for this study used 2, 4, 6 and 8 and resolution smoothing (nn) used levels 5, 11 and 25 (This is the number of data points averaged by applying a low-pass Hanning filter to the final MAGSURF response).

The Magsurf filter was applied to an area comprising some 20 km² and covers EL 8705. Geophysical signatures were compared over 9 prospects within the corridor, including Juno and Nobles Nob deposit with those within the Licence. Interpretation of geophysical signatures over the Nobles Nob deposit was made difficult by the presence of both strongly magnetic and non-magnetic waste dumps and the open cut. Giants Reef’s Nobline RTP 1VD magnetic data highlights some 27 discrete magnetic anomalies in the corridor ranging from large (Juno, Nobles Nob) to small (Kimberly Kids). Of these, 5 smaller magnetic were located within Giants Reef’s Exploration Licences. Previous mapping in the corridor has defined some 21 outcropping mineralised and non-mineralised ironstones.

The Nobline RTP 1VD magnetic data shows strong magnetic anomalies over the Juno and Nobles Nob deposits and a more subtle magnetic ridge extending west northwest through EL 8705, however only very minor magnetic peaks occur along this trend. Interesting the Nobline RTP 1VD magnetic data and Magsurf filters did not highlight many of the mapped ironstones in the survey area.
Neither the Nobline RTP 1VD magnetic data nor Magsurf filters provide a good correlation between any of the anomalies directly over the Nobles Nob deposit, however this is most likely due to the effects of the open cut and irregular, artificial anomalies resulting from magnetite in waste dumps. Probably the best correlation with the deposit is the Nobline RTP 1vd data, which at least covers the eastern end of the pit. The waste dumps surrounding the Nobles Nob deposit is probably best mirrored by the Nobline RTP 1vd anomalies, however there is also some correlation with 400 series Magsurf filters. Interestingly all anomalies extend well beyond the waste dumps, suggesting that deeper source bodies exist or there are perhaps broader haloes of disseminated magnetite surrounding the main ironstone bodies. Another possibility is that the responses result from aerial dispersion of magnetite from the waste dumps and mine haulage activities. Not all of the waste dumps have a magnetic signature, suggesting that they comprise mullock material derived from the barren magnetite ironstone and non-magnetic Warramunga.

The Juno deposit is located centrally within the main Nobline RTP 1vd anomaly and correlates reasonably well with the 200 series Magsurf filters. The 400 series Magsurf filters appear to provide the best correlation to the Juno ironstone and defines a western anomaly which may represent a separate ironstone body. Unfortunately Exploration Licence 8705 does not include any significant 400 series Magsurf filter anomalies of interest. Further filtering (600 and 800 series) appears to only break the responses up into a myriad of anomalies that do not appear to correlate with any particular geological, regolith or topographical features.

The 200 series Magsurf filters defined the prominent north east trending fault structure at Nobles Nob which is also readily observed in the Nobline RTP 1vd magnetic data. This fault structure extends south west through the southern region of EL 8430, however no additional structures were observed elsewhere in the Exploration Licences. Interestingly none of the Magsurf filters reflected the prominent north west structure at Juno which is so clearly defined in the Nobline RTP 1vd magnetic data.

None of the filters appeared to correlate with drainage systems either emanating from known deposits or in the Exploration Licences which comprise sheet wash colluvium and minor drainages systems. Likewise areas of topographic relief, including low ridges of outcropping Warramunga Formation were not reflected in any of the Magsurf filtering.

EL 8199

Peko-Wallsend held the area of this lease between 1984 and 1987 under EL 4536 (432 graticular blocks). A number of prospects were discovered in EL 4536 including Metallic Hill (Lowe, 1986) but no prospects were discovered in the area of EL 8199. Metana Minerals explored the area between 1988 and 1990, however no reports are available for any of the work undertaken.

The Exploration Licence was originally applied for in May 1993 by Poseidon Gold Limited to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by
geochemistry, rather than by the more established method of drilling magnetic anomalies.

In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8199.

The acquisition of the Licence by Giants Reef in 2001 aimed at the discovery of IOCG deposits hosted in Warramunga Formation units within the Lonestar trend and re-modelling of magnetic data. This work identified a discrete low amplitude magnetic high (432700mE, 7828600mN MGA94) which, broadly coincides with the outcropping quartz reefs.

Giants Reef also conducted a number of field trips into the tenement to examine outcropping quartz reefs and to inspect areas coinciding with the magnetic anomalies, however these locations were found to be covered by Quaternary sediments, including red soil plains.

Other work completed by Giants Reef included data compilation, validation and integration of historical hard copy and digital data into the Company's exploration GIS database. Various ground reconnaissance mapping surveys and rock chip sampling have also been undertaken.

**EL 8991**

Australian Development held part of this area from 1973 to 1976 under EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow up.

A part of the Licence area was also covered by EL 143 held by Nobelex. Several anomalies were investigated but were not believed to be due to discrete ironstone bodies. A 1975 regional airborne geophysical survey failed to identify further targets.

In 1982, Peko-Wallsend Operations held the ground under EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

From 1984 to 1990, GeoPeko conducted exploration under EL 4536. Drilling at Explorer 26 prospect intersected several significant zones with the highest value at 5m grading 9.3g/t gold. Exploration conducted by GeoPeko also included structural mapping.

PosGold explored this area from 1986 to 1992 under EL 4929. An airborne survey flown in 1990 defined 2 magnetic features west of Nobles Nob. Four RC holes were drilled with Anomaly 2 showing significant gold grades and Anomaly 3 generating no significant anomalies. A further 11 RC holes were drilled (1071m) at other prospects but assay results were disappointing (Lindsay-Park, 1991). Exploration of this area was incomplete and inconclusive.
Metana Minerals also held part of the area under EL 5729 between 1988 to 1991. Interpretation of the 1984 Austirex aeromagnetic survey indicated east-west trending beds with north-west structural breaks. Soil sampling from the north-east were not anomalous. Bedrock drilling (111 vacuum drill holes – 580m, 187 RAB holes – 3,082m) failed to identify any presence of anomalous geochemical signatures within the bedrock.

Between 1992 and 1994, Roebuck Resources and Normandy NFM held this area under EL 7650. Regional gravity data from the 1992 Aerodata multiclient survey outlined a gravity ridge trending across EL 7650. A weak aeromagnetic anomaly was defined that was followed up by a 67 hole (1143m) RAB drill program. A 400m by 100m copper anomaly (max 28ppm) was outlined but gold values were low.

TC8 Pty Ltd held part of the ground between 1992 to 1997 under EL 7687. Rock chip and Soil samples were collected in the north east region of the Licence and results from this returning anomalous gold and bismuth values. An extensive gravity survey and vacuum geochemical drilling was completed over the licence in 1994. A review of the gravity data concluded that ground magnetics and vacuum drilling were required to determine drill targets.

The Exploration Licence was originally applied for in May 1993 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8705. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including EL 8750.

The acquisition of the Licence by Giants Reef in 2001 aimed at the discovery of IOCG deposits hosted in Warramonga Formation units within the Eldorado – Juno - Juno trend and re-modelling of magnetic data. This work has identified a number of prominent and discrete low amplitude magnetic highs which warrant further investigation. Other work completed by Giants Reef includes data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.

SEL 8665

Mining at Black Boy in the south eastern area of SEL 8665 was conducted by prospectors between 1938-39. Prospectors initially mined at Red Terror, however during the 1946-1952 period the mine was owned and operated by Red Terror Gold Mines NL (RTG). This company also owned the Edna Beryl and Blue Moon mines. Red Terror closed in 1952 owing to declining gold grades. Production figures for the Red Terror workings are 605 tonnes @ 68g/t Au and Black Boy produced 45 tonnes @ 36.7g/t Au.

Exploration has been conducted in the Red Terror and Black Boy area by the Bureau of Mineral Resources (BMR) and by a number of companies including RTG, ADL, Normandy and most recently by Giants Reef.
The area was investigated by ADL in the late 1960s under Authority to Prospect (AP 2386) and work included auger drilling, diamond drilling and geophysical surveying.

The area has been explored by ADL since the 1960s. During the period 1966 to 1975 ADL conducted a ground magnetic survey that delineated the R20 anomaly. This anomaly was tested by three diamond holes with limited drilling success. A Jacro Auger rig was also used for bedrock geochemical testing of this target. Between 1972 and 1975 the Licence was held by ADL under EL 96 between, however no exploration activities are recorded for this period.

Between 1981 and 1986, GeoPeko explored the Licence area under EL 2535. The focus of exploration was mostly on the Peko, Argo, Juno, Golden Forty and Golden Kangaroo prospects. GeoPeko also undertook a compilation of data from the Juno and Peko Mines, compilation of topographic, geological, geophysical information onto 1:50,000 scale plans, drilling, low level airborne magnetic and gravity surveys in 1984, ground magnetic surveys over four anomalies identified from the 1984 survey and compilation of a regional geological map.

From 1984 to 1990, GeoPeko conducted exploration under EL 4536. Drilling at Explorer 26 prospect intersected several significant zones with the highest value at 5m grading 9.3g/t gold. Exploration conducted by GeoPeko included structural mapping.

PosGold explored the south eastern portion of SEL 8665 between 1986 and 1992 under EL 4929. An airborne survey flown in 1990 highlighted 2 magnetic features west of Nobles Nob. Four RC holes were drilled with Anomaly 2 showing significant gold grades and Anomaly 3 generating no significant anomalies. A further 11 RC holes were drilled (1071m) at other prospects but assay results were disappointing.

From 1991 to 1994, Normandy NFM carried out exploration under EL 6343. A total of 1094 vacuum drill holes (4,377m) were drilled. Geochemical sampling, rock chipping (18 samples), soil sampling (22 samples), located several areas warranting follow up. Nine RAB holes (540m) tested two ironstones but results were disappointing.

PosGold carried out exploration between 1990 and 1994 under EL 6929 and this work focused on the Kiaora prospect. 62 vacuum holes (279m) were drilled but results suggested that it was unlikely that this area will host significant mineralisation. PosGold also explored the area under EL 7274 in the early 1990s. Work completed by PosGold included a review of the historical data, rock chip and soil sampling, regional regolith, structural and photo-geological mapping, a regional gravity survey, several ground magnetic surveys, prospect scale mapping, vacuum drilling, RAB drilling, RC drilling and down-hole magnetic surveying. Several subtle, coincident Au-Cu-Bi anomalies located along two structural gold bearing corridors: the Nobles Nob and Peko lines. Zones up to 380 ppb Au and 181 ppm Bi were reported. Exploration conducted within the Red Terror prospect during between 1996 and 1997 period included the drilling of 6 RAB drill holes totalling 388m.

The Exploration Licence was originally applied for in March 1994 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area.
Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included SEL 8665. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including SEL 8665.

Prior to the sale of SEL 8665 Poseidon carried soil sampling programs, however results returned only subtle anomalies. Higher gold values are more common in the sheet wash areas of the Western region of the Licence as opposed the eastern region, which includes more sub-outcrop. In the eastern EL higher values are scattered, but occur mostly in the large areas of sheet wash cover away from the hills and on the saddle between the central and eastern magnetics anomalies. This work demonstrated that there is less than 10% sub-outcrop in the eastern target area, and further follow-up was justified.

The acquisition of the Licence by Giants Reef in 2001, exploration was mainly focused on geophysical modelling of the two magnetic anomalies, which comprise the 7300 West target. Geophysical modelling of the larger anomaly calculated a depth to the top of the causative body of 353 metres, using a magnetic susceptibility of 0.09 SI units. Geophysical modelling was also undertaken on the Sexton’s Delight magnetic anomaly which forms one of an east-west string of elevated magnetic anomalies along what NTC referred to as the “Aeromagnetic Ridge”. Modelling of the Sexton’s magnetic source suggests it forms a “north-plunging 10 million tonne ironstone mass” between 160m and 480m vertical depth. An alternative explanation is that this anomaly, and others like it, is caused by disseminated magnetite. The Company was of the belief that if in-fact the magnetic source proves to be an ironstone mass, it could open up the possibly of many other ironstone masses and prospective targets along the “Aeromagnetic Ridge”. Disseminated magnetite had been the generally accepted cause of the magnetic features along the Ridge. The Company also identified a vacuum geochemical Au anomaly located about 3km west of the Comet mine, referred to as the Pointer geochemical anomaly, which it planned to follow-up.

Other work completed by Giants Reef within the Licence included data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.

6.19 EL 27538 MERCURY

EL 27538 incorporates land previously covered by EL’s 8279, 8280 & SEL 8665 (part only), exploration conducted over this tenure is detailed below;

Emmerson also began modelling of the Susan prospect located within MLC 524. MLC 524 is located within EL 27538.

Susan Prospect
The Susan prospect, located with Emmerson’s EL Application 27538 also had an EPP drafted, on completion primary data was sent to David Inkster for geophysical modelling; David Inkster’s magnetic models were received and produced several discus-shaped bodies that strike east-west and dip 70° towards the north. The main body (Model 4), located directly beneath the Susan mine, has dimensions of 900m long, 200m wide, 500m deep, starting at 300m below the surface. Inkster believes this model represents a broader package of magnetic sediments or iron-rich chlorite alteration (magnetic moment) that possibly hosts a single or several smaller ironstone bodies. The second main body (Model 10), located below and to the south of the International prospect, has similar proportions to Model 4 except it is only 30m wide. The source of this model is probably similar to Model 4, but less well-developed. Several smaller, discrete bodies have been modelled between the Susan and International structural zones, the main body (Model 1) has dimensions of 350m long, 25m wide and 230m deep. Two moderate-sized bodies are located within a structural zone approximately 400m south of International.

Geological mapping and broader magnetic interpretation indicate that the Susan-International system lies within the southern limb, in the southwest corner of a double-plunging anticline. Inkster’s models are preferred over previous interpretations because they better fit this geological information. Planned drillholes need to be reassessed based on this new interpretation, but will probably consist of an 800m hole (500m diamond tail) to test the Susan model (Model 4) and a 450m hole (250m diamond tail) to test the discrete magnetic anomalies (Model 1).
Susan Project Area identifying magnetic forward models on TMI image. Brett Adams reviewed the old David Inkster magnetic models and produced several new models of his own. There appears to be an untested TMI anomaly north of the old Susan mine that lies at the intersection of the WNW-trending D1 and NNE-trending D3 structure that can be traced down to Argo, approximately 1.8km to the SSW, refer to figures below;

ASVI tilt interpretation magnetic image (interpreted potential ironstone positions) of the Susan area showing a strong northeast structural control of the SUDD001 TMI magnetic anomaly.
Interpretive Susan cross section showing the drillhole trace of the proposed SUDD001 and the interpreted hematite-magnetite ironstone body that accounts for the TMI magnetic anomaly.

The Susan Prospect can now be tested following the granting of EL 27538.

**EL 8279**
Australian Development held this area from 1973 to 1976 under EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow-up.

In 1982, Peko-Wallsend Operations held the ground with EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features. Magnetic anomalies were identified and evaluated over ironstones at Juno East and other areas.

Between 1987 and 1993, Wiluna Gold Pty Ltd explored the area under EL 5304. Exploration was carried out under a joint venture with Asarco Gold and Top End Resources. Exploration was directed towards locating near surface gold deposits having weak to no magnetic signature. A prime near surface target such as the anomalous large chloritic zone that lies beneath the Juno deposit was investigated. Prior to the surrender of the Licence, Asarco completed lag geochemistry, auger soil sampling, 6.6 line km of ground magnetics and vacuum drilling. Only weakly anomalous values were obtained from this work. Wiluna Gold was granted EL7182, which covered a portion of EL 8279, in May 1991, however this was surrendered in May 1995 with no field work being carried out.

In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8279. In 1999, a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas, including EL 8279. The helicopter borne sensor was flown at 30m mean terrain clearance and 100m line spacing.

Following the acquisition of the Licence by Giants Reef a preliminary review of detailed aeromagnetics identified a significant magnetic in the central region of the north west block was undertaken. This magnetic high forms one of a number of anomalies of similar magnitude along a major east-west “magnetic ridge”. A review of previous work undertaken in this area had shown that no geophysical assessment or modelling has been undertaken and previous explorers have considered the magnetic ridge to reflect a sequence of magnetite-bearing sediments within the Warramunga Formation. Whether the individual magnetic highs along this trend relate to ironstone bodies, and are therefore significantly prospective, or are merely the results of sporadic, relatively high concentrations of disseminated magnetite in the sediments, remains to be investigated.

**EL 8280**

Previous exploration and mining history of the Argo leases which form part of the total area of EL 8280 has been presented previous reports.

Australian Development held this area from 1973 to 1976 under EL 96. Aeromagnetic surveys were carried out with several magnetic anomalies selected for ground follow-up.

In 1982, Peko-Wallsend Operations held the ground under EL 2535. Low level aeromagnetic survey revealed two parallel WNW-ESE trending features.

Between 1987 and 1993, Wiluna Gold Pty Ltd explored the area under EL 5304. Exploration was carried out under a joint venture with Asarco Gold and Top End Resources.
Resources. Exploration was directed towards locating near surface gold deposits having weak to no magnetic signature. A prime near surface target such as the anomalous large chloritic zone that lies beneath the Juno deposit was investigated. Prior to the surrender of the Licence, Asarco completed lag geochemistry, auger soil sampling, 6.6 line km of ground magnetics and vacuum drilling. Only weakly anomalous values were obtained from this work. Wiluna Gold was granted EL7182, which covered a portion of EL 8280, in May 1991, however was surrendered in May 1995 with no field work being carried out.

Exploration Licence 8280 was originally applied for in May 1993 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included EL 8280. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including EL 8280.

Following the acquisition of the Licence by Giants Reef in 2001, exploration was aimed at the discovery of IOCG deposits hosted in Warramunga Formation units within the Argo-Peko trend and re-modelling of magnetic data. This work has identified a number of prominent and discrete low amplitude magnetic highs which warranted further investigation. Other work completed by Santexco included data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.

Santexco identified a discrete magnetic anomaly, termed the “South Argo”, at the southern boundary of EL 8280 during a regional geophysical assessment of the Licence. The South Argo anomaly is positioned along a prominent north northwest trending fault that has a clear spatial relationship to the Argo and Juno deposits. Geophysical modelling of this anomaly has determined the depth to top of the main causative magnetic body is at 175m below ground level. This is in contrast to previous modelling by other explorers that estimated a depth of 400m using less detailed aeromagnetic coverage.

Further exploration work included a Vacuum, RAB and RC drilling program was carried out at The Susan and Argo prospects, and whilst this work was restricted to MLC’s within EL 8280, it has demonstrated the potential for extending exploration along strike and into the EL. The area of interest includes a corridor of anomalous geochemistry and or geophysical response, under shallow cover. This area was earmarked for further work including geochemical sampling, ground magnetic surveys and follow up Vacuum, RAB, or RC drilling.

SEL 8665

Between 1981 and 1986, GeoPeko explored the Licence area under EL 2535. The focus of exploration was mostly on the Peko, Argo, Juno, Golden Forty and Golden Kangaroo prospects.
From 1984 to 1990, GeoPeko conducted exploration under EL 4536. Drilling at Explorer 26 prospect intersected several significant zones with the highest value at 5m grading 9.3g/t gold. Exploration conducted by GeoPeko included structural mapping.

From 1991 to 1994, Normandy NFM carried out exploration under EL 6343. A total of 1094 vacuum drill holes (4,377m) were drilled. Geochemical sampling, rock chipping (18 samples), soil sampling (22 samples), located several areas warranting following up. Nine RAB holes (540m) tested two ironstones but results were disappointing.

The Exploration Licence was originally applied for in March 1994 by Poseidon Gold Limited (later NTC) to cover a regionally interesting geological and geophysical area. Poseidon’s exploration model was based on locating a non-magnetic gold or gold-copper deposit by geochemistry, rather than by the more established method of drilling magnetic anomalies. In 1998 Normandy carried out a detailed airborne magnetic survey (Nob Line Survey), which included SEL 8665. In 1999 a Normandy proprietary airborne Time Domain Electro Magnetics (TDEM) system was flown over the Nobles Nob and Peko areas including SEL 8665.

Prior to the sale of SEL 8665 Poseidon carried soil sampling programs, however results returned only subtle anomalies. Higher gold values are more common in the sheet wash areas of the Western region of the Licence as opposed the eastern region, which includes more sub-outcrop. In the eastern EL higher values are scattered, but occur mostly in the large areas of sheet wash cover away from the hills and on the saddle between the central and eastern magnetics anomalies. This work demonstrated that there is less than 10% sub-outcrop in the eastern target area, and further follow-up was justified.

Work completed by Giants Reef within the Licence included data compilation, validation and integration of historical hard copy and digital data into the Company’s exploration GIS database. Various ground reconnaissance mapping surveys have also been undertaken.
7.0 WORK DONE DURING THE REPORT PERIOD

EL’s and SEL’s in the EPA were explored by Emmerson Resources Ltd (Parent company of Giants Reef and Santexco) for Tennant Creek style IOCG deposits.

Exploration reported was conducted in the EPA during 16 November 2010 to the 15 November 2011.

EPA Exploration – General

During the reporting period Emmerson fly a Heli-TEM survey over a number of areas in the Tennant Creek Mineral Field to firstly orientate the survey over known deposits and secondly to fly over the highest priority VRMI target areas. Heli-TEM is a helicopter mounted system capable of measuring the conductivity of the rocks to significant depth and will utilise the world’s most powerful airborne, time-domain electromagnetic system. A breakthrough during late 2010 and early 2011 has been the recognition that drill core from the mineralised portions of Tennant Creeks historic deposits is conductive up to 80 times the background levels. Emmerson hopes that encouraging results from the Heli-TEM survey will further refine the exploration search workspace within recognised VRMI targets areas.

Emmerson has flown this first survey over one area in the EPA at the Golden Forty historical mine area, more precisely in EL 27537 (known deposit and area of exploration by Emmerson) refer to figure 26. Detailed interpretation and analysis have yet to commence as all resources have been allocated to the interpretation, analysis and drill testing (proof of concept drilling) at block 1 (Gecko & Orlando). The ‘proof of concept’ drilling program which is centred in EL 28777 around the Gecko area, has given very positive results to date with significant economic mineralisation intercepts at two new discoveries (Monitor & Goanna, reported to the ASX). Should results continue to be encouraging then the drilling of HeliTEM anomalies will be expanded and will include the areas covered in the EPA. Induced polarisation (IP) surveys have also recently been conducted to further define the identified anomalies and help in refining the drill targets.

HeliTEM Interpretation

Area 1 (Gecko & Orlando) HeliTEM CDI data were received from Spinifex geophysics and data based for geological appraisal and targeting. CDI data were imported into Microsoft access line by line, appended to a master table and cleaned of null values. Queries were then written to subset the data to between 150 and 500 meters below surface to overcome the noise exhibited in the data derived from the extremes. Data was exported, gridded in discover 3D and iso-surface wireframes constructed for 300, 800 and 1200 Siemens over the entire area 1 survey.

HeliTEM targets were selected firstly on the basis of their magnitude and secondly by their support from independent datasets such as geological interpretations, magnetics, gravity, fact geology, structural interpretations and know mineralisation.
Subsequently, FUGRO geophysics delivered a differently processed data set (version 2) in which tau was amended to enhance CDI at depth. The data failed to replicate the previous interpretation with all previous targets disappearing.

The version 1 data saw minimal post-production processing with version 2 data being post-processed according to the routine FUGRO method which is currently only available via FUGRO Toronto. FUGRO Osborne Park sent Stephen Carter, their Senior Data Processing Geophysicist, to Toronto to learn this process so that future HeliTEM surveys can also be processed in Australia. The version 1 data was processed through EMFlow software by Stephen Carter of FUGRO Osborne Park using his own input parameters.

The version 2 data were also processed through EMFlow software by Stephen Carter of FUGRO Osborne Park but instead using the input parameters supplied by the writer of the EMFlow software, James McNae of RMIT. As of 30 June 2011 James McNae had not had a chance to test Stephen's EMFlow input parameters although he indicated to Stephen that they looked okay and if there were any improvements to be made he would advise Stephen.

The difference between the two data sets results from the choice of input parameters chosen for EMFlow.
Version 1 data correlates well with contemporary geological models of the area and known mineralisation is estimated that the depth correction to be applied to the version 2 CDI points is 56% as well as a + 154m vertical offset so that the surface matches the real ground level (assuming surface is 350mRL). Version 1 data is reprojected +125m to achieve a very close correlation with known geology.

V2 HeliTEM data was discarded on the basis that it did not correlate with known geology and it was concluded that adjustments to the Tau calculation producing the CDI were ineffective. Subsequently V3 HeliTEM CDI’s were received, database and assessment is ongoing.

Also during the reporting period Emmerson and contract geophysical consultants, Spinifex Geophysics, further developed a processing technology, Vector Residual Magnetic Intensity (VRMI) aimed at existing magnetic data from Emmerson’s Tennant Creek tenure package, figures 28 (pre-VRMI) & 29 (VRMI) represent the success of the VRMI technology. Immediate identification of highly prospective VRMI targets reprioritised Emmerson’s target matrix, the Red Bluff Area in Emmerson’s Western Project Area became the No. 1 priority area for exploration activities. Drilling during 2010 at Red Bluff confirmed the VRMI technology with significant intercepts of thick ironstones, although assay results were mixed, the successful ironstone intercepts were evidence to support the development and use of VRMI technology. A VRMI assessment of the EPA has reignited the potential for many areas in the EPA.
Figure 28: Conventional Magnetics

Figure 29: VRMI
7.1 EL 8879 MOUNT CLELAND

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available and will be explored under the recently granted EL 28761.

![Image](image_url)

Figure 30: EL 8879 vs. VRMI & historical workings

7.2 EL 9403 JESS

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity associated in the south of the EL associated with the Eldorado Area located on the EL boundary with EL 10406. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28761.
EMERSON RESOURCES LTD

7.4 EL 9958 RUNNING BEAR

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity associated ERM’s 159 & 134 as targets. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. The EL contained both VRMI anomalies in the south east of the title including the Mulgas Area, Valhalla, Explorer 205, TC40, Lone Star Area and the Iris Area but also dominant areas which were subdued, but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28761.
7.6 EL 10114 McDougall Ranges

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for the Lone Star and Pepperjack Areas. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
7.7 EL 10124 SPEEDWAY

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for of Ace High and Explorer 109 as targets. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with an anomalous ridge located in the northern portion of the EL showing potential from the magnetic end of the scale, further to this the areas of subdued VRMI still warrant further work due to the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings in the title warrant the application of HeliTEM prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28761.
7.9 EL 10312 HOPEFUL

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28761.
Figure 38: EL 10312 vs. VRMI & historical workings

7.10 EL 10313 KODIAK

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for the anomalous ridge that runs northwest to southeast through the EL. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
7.11 EL 10370 BARKLY

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity associated in the Comstock and Flag areas, therefore Emmerson retained only the two blocks from EL 10370 associated with the Comstock region. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The remaining blocks are considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28618.
7.12 EL 10406 MONTANA

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity associated in the north section of the EL associated with the Eldorado and Cats Whiskers areas located on the EL boundary with EL 9403. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity associated in the Flag target, but also with numerous historical mine workings located throughout the title. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28618.
7.14 SEL 27011 SNAPPY GUM

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and identification of ERM029 and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This was subdued but with the successful ‘proof of concept’ drilling of the HeliTEM targets in the Gecko Area in Emmerson’s Northern Project Area which are also magnetically subdued and the presence of historical mine workings the application of HeliTEM is warranted prior to any relinquishment. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely the Gecko and Orlando Areas. The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment and will be explored under the recently granted EL 28761.
Figure 45: EL 27135 vs. VRMI & historical workings

7.17 EL 27408 GRIZZLY

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI. This provided further encouragement for prospectivity of the ERM133 target. Further exploration over the area was limited during the reporting period due to focus on VRMI and HeliTEM elsewhere in the Tennant Creek Mineral Field, namely at Gecko and Orlando. The licence is considered prospective and will have exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
Exploration activity conducted over the licence area consisted of the HeliTEM survey described above, covering the Golden Forty and East Peko Areas (Block 5). Although the exploration at golden Forty was conducted over Mineral Leases the exploration is recorded here as well as in the relevant Mineral Leases Annual Technical Reports. Assessment, interpretation and identification of anomalies and target generation has commenced and will continue into the next reporting period. Any identified targets will be assessed and further geophysical surveys such as IP may be conducted prior to drill testing of targets. Other activity included the reprocessing of magnetics data.

A VRMI assessment of the licence has provided further encouragement for prospectivity, particularly around the Golden Forty, Golden Kangaroo Area and Joker Areas.

The Golden Forty Mine and Golden Kangaroo Deposit were part of a re-evaluation of In-Situ resources and was conducted by consultancy firm, Optiro Pty Ltd.

Geological modelling and geophysical Modelling was conducted with all available data prior to the HeliTEM survey;

Golden Forty
The geophysical data in Golden Forty was re-assessed and re-worked using the latest 3D inversion codes after the area was considered a possible Tier 2 deposit. TMI 3D inversion models returned a deep and large magnetic target underneath the workings in Golden Forty South (Figure 47).

Gravity 3D inversion models suggested the presence of an unrecognised second order anticline (Figure 48). The existing Golden Forty mine lies on the northern limb while the Golden Forty south anomaly is on the southern limb of this anticline. The anticline has a spaced series of axial planar cleavages.

The Golden Forty South target lies below a porphyry cap possibly akin to Warrego. Existing drilling has not gone deep enough.

**Golden Forty 428675mE Semi Regional**

![Diagram](image)

Figure 47: Gravity inversion models with the G40 mine ironstone and drilling. Note the previously unrecognized second order anticline (black outline).
TMI model slice + 3D gravity shells (0.5, 0.625, 1.5) showing vertical axial planar cleavage

Figure 48: TMI model slice with Golden Forty South’s 0.35SI (green outline) inversion model and 3D gravity shells looking East at 428625mE.

Golden Forty on VRMI 1VD map with gravity contours

Figure 49: Golden Forty and Golden Kangaroo on VRMI 1VD map with gravity contours and historical and proposed drilling in Golden Forty and Golden Kangaroo West.
One 222m RC (GFRC052) hole targeting northerly extensions to the Golden Forty mine mineralisation and one 434.9m RC/DDH targeting the top of the Golden Forty South target (GFDD051) were drilled at Golden Forty.

GFDD051 had an EOH depth of 434.9m in which 216m is an RC pre-collar and a diamond tail of 218.9m. GFDD051 aimed to 1) test the hypothesis that Golden Forty South might possibly akin to Warrego in which mineralization lies below a porphyry cap. GFDD051 intersected primarily chlorite altered siltstone-sandstone with 40m of quartz-feldspar porphyry with large phenocrysts from 322.3m (Figure 50). The hole was able to test all the geophysical models except for the 0.45SI TMI (ground mag) in which 4 RC/DDH are proposed to test the central and bottom part of the 0.45SI TMI (ground mag) shell.

GFRC052 was drilled to 222m and aimed to 1) to test 50m down dip of GFRC043 (2m @ 17.7g/t Au, 0.41% Bi and 0.14% Cu from 135m) and GFRC038 (4m @ 15.3 g/t Au from 121m incl. 2m @ 28.6 g/t Au from 122m); and 2) to test mineralised ironstone intersection underneath the thrust fault. GFRC052 intersected 3m of magnetite-chlorite with specks of sulphide from 196m (Figure 51). The intersected iron-oxide alteration was deeper than expected and might not be associated with the projected G40 mine thrust fault.
The hole wasn't gyro surveyed and downhole probed due to a kink in the PVC casing.

Assay results from GFDD051 (G40 South) and GFRC052 (G40 deeps) have been received with only GFRC052 returning anomalous values for Au and Cu (3m @ 0.10 g/t Au and 0.56% Cu from 182m and 3m @ 0.10% Cu from 195m).

GFDD051 was been cased and downhole probed. Emmerson geophysical consultants Spinifex provided downhole magnetic models and showed a possible down dip magnetic source (Fig. 52). The biggest downhole magnetic target sits above the 0.45 SI TMI ground magnetic target.
A deeper RC/DDH is being proposed to test both the 0.45 SI TMI ground magnetic and downhole magnetic targets.

Three pole-dipole IP line surveys were completed during the month by Zonge. Initial results from 2 out of the 3 lines have been provided by Spinifex. An initial assessment of IP Lines 428600mE and 428700mE showed that the IP survey was able to delineate the G40 mine ironstone, G40 east and G40 south outcrops (Figs. 53 and 54).

Results from the 3 x IP lines will be further assessed in conjunction with other geophysical images, geological maps and 3D inversion models.
Figure 53: Initial results of IP line 428600mE with 0.45SI TMI ground magnetic target, historical drilling and G40 mine ironstone.

Figure 54: Initial results of IP line 428700mE with 0.45SI TMI ground magnetic target, historical drilling and G40 mine ironstone.
1 RC hole and an extension of ERM’s GFRC038 were completed. GFRC054 and the extension of GFRC038 tested the core of the IP anomaly on 428600mE and 428700mE, respectively.

GFRC054 was drilled to a depth of 365m and intersected regionally chlorite altered siltstone and greywackes with disseminated magnetite and chlorite-magnetite-hematite rock with specks of pyrite and chalcopyrite from 209-213m (Figure 55) associated with the core of the IP anomaly in 428600mE.

Assay results for GFRC054 returned 6m @ 0.34% Cu from 207m and 3m @ 0.07% Cu from 327m.

GFRC038 was extended from 209m by 96m and intersected regionally chlorite altered siltstone and greywackes with disseminated hematite-magnetite (Figure 56). Assay results for GFRC038 returned 3m @ 0.39 g/t Au from 255m.

No more further work is being recommended for Golden Forty deeps and an EPR will be completed next month.

Figure 55: GFRC054 in IP traverse 428600mE with intersected geology and significant intercepts.
Emmerson held an internal review and discussion on the results presented by Optiro from Phase 1 of the In-Situ Resources Re-evaluation, attended by Adam Walters, Steve Russell, Rob Bills, Rocky Osborne, Justin Hankinson and Shane Volk. The aim was to discuss each of the 7 projects subject to the In-Situ Resources Project and determine if it should progress to Phase 2. The determination for the Golden Forty Mine are detailed below and a brief summary of the discussion and determination is as follows;

**Positives**
- Au Only
- Existing Mining Tenure
- Proximity to 2011 Exploration Target
- Recent Drilling 2008 (likely intact QAQC)
- Potential 30,000 oz

**Negatives**
- No confidence in location and extent of underground workings, therefore no confidence in the existence of an In-Situ Resource
- Distance to Warrego Mill

**Determination**
It was agreed that the progression of Golden Forty to Phase 2 would be placed on hold pending the results from the 2011 exploration drilling at the Golden Forty South and Golden Forty North Ironstone targets. The clear result from the discussion was the very low level confidence in the location and extent of the recorded mine workings (Justin noted that no mine map had been produced after 1975, with the mine operating for a further 8 years), therefore the existence of any in-situ resource.

The results from the 2011 exploration drilling at both Golden Forty targets would have to be very positive (indicating a sizable resource) to warrant the approval for the progression to Phase 2. The results from that drilling were not encouraging, therefore the progression to Phase 2 of the Re-evaluation remains on hold.

STATUS: ON-HOLD

**Golden Kangaroo East & West**

Emmerson held an internal review and discussion on the results presented by Optiro from Phase 1 of the In-Situ Resources Re-evaluation, attended by Adam Walters, Steve Russell, Rob Bills, Rocky Osborne, Justin Hankinson and Shane Volk. The aim was to discuss each of the 7 projects subject to the In-Situ Resources Project and determine if it should progress to Phase 2. The determination for the Golden Kangaroo East deposit are detailed below and a brief summary of the discussion and determination is as follows:

**Positives**
- Au Only
- Open Pit
- Existing Mining Tenure
- Proximity to 2011 Exploration Target
- Recent Drilling 2008 (likely intact QAQC)

**Negatives**
- Very Small Resource (3,215oz)
- Distance to Warrego Mill

**Determination**

It was agreed that the progression of Golden Kangaroo East to Phase 2 would be placed on hold pending the results from the 2011 exploration drilling at the Golden Kangaroo West gravity targets.

The clear result from the discussion was the very small size of the resource and resultant negative cash flow.

The results from the 2011 exploration drilling at the Golden Kangaroo West gravity targets would have to be very positive (indicating a sizable resource) to warrant the approval for the progression to Phase 2. Further to this should a sizeable resource be discovered at Golden Forty South, Golden Kangaroo East may form one of a number of
economically exploitable smaller satellite resources? The results from that drilling were not encouraging, therefore the progression to Phase 2 of the Re-evaluation remains on hold.

STATUS: ON-HOLD

A total of 542m from 4 shallow RC holes were drilled to test shallow gravity targets from May 14 to 15, 2011. All 4 holes failed to explain the source of the gravity anomaly.

GKWRC001 (102m EOH) and GKWRC002 (150m EOH) aimed to test 0.2 and 0.3 density contrast shells with coincident strong Au and Bi anomaly along an interpreted cross-cutting structure. Both holes intersected hematite and chlorite altered siltstone-greywacke (Figure 6.4.1) and was not able to explain the source of the gravity anomaly.

GKWRC003 and GKWRC004 aimed 1) to test a near surface 0.2 and 0.1 density contrast shell; 2) to test coincident strong Bi and moderately anomalous Au and Cu anomaly; 3) to test along strike Cu anomalies from ERM’s GK West RAB program (GKWRB001: 42m @ 35 ppb Au & 387ppm Cu from 12m incl. 4m @ 108 ppb Au from 46m and GKWRB003: 4m @ 15 ppb Au from 4m); and 4) to test 150m along strike of a hematite-quartz outcrop.

GKWRC003 (120m EOH) and GKWRC004 (170m EOH) primarily intersected hematite and chlorite altered siltstone-greywacke but GKWRC003 intersected 3m of chlorite and hematite altered greywacke with 15% hematite-magnetite blebs from 89m (Figure 6.4.2).

Every 10th meter interval from GKWRC001 and GKWRC003 were sampled and sent to the lab for SG readings.
Assay results for RC holes GKWRC001 to GKWRC004 were received with 3 of the 4 holes returning anomalous values, refer to the table below.
SG readings were taken by Amdel from some samples from GKWRC001 and GKWRC003 to help Spinifex in reconciling the gravity inversion models.

![Figure 59: 3D density contrast shells and ERM's May 2011 shallow RC program and SG readings. A) GKWRC001 and GKWRC002, and B) GKWRC003 and GKWRC004](image)

The licence is considered highly prospective and will have exploration conducted as priority of targets are tested and resources become available. The Golden Forty Block
will processed in detail in early 2012 with the aim of generating targets for drill testing prior to any relinquishment.

7.19 EL 27538 MERCURY

Exploration activity conducted over the licence area consisted of the HeliTEM survey described above, covering the Golden Forty and East Peko Areas (Block 5) which captured the southernmost portion of the title, that being the East Peko Area. Assessment, interpretation and identification of anomalies and target generation has commenced and will continue into the next reporting period. Any identified targets will assessed and further geophysical surveys such as IP may be conducted prior to drill testing of targets. Other activity included the reprocessing of magnetics data.

A VRMI assessment of the licence has provided further encouragement for prospectivity, particularly around the East Peko, Argo, Susan and large VRMI anomalous region running through the centre of the title.

The licence is considered highly prospective and will have exploration conducted as priority of targets are tested and resources become available. The East Peko region of the HeliTEM Block 5 survey will processed in detail in early 2012 with the aim of generating targets for drill testing prior to any relinquishment.

East Peko

East Peko was included in the areas to be reviewed as a possible Tier 2 deposit. Inversion magnetic models were provided by Spinifex geophysics which coincided with the areas historically tested (Anomalies 2 to 5). The inversion models show a big magnetic source which dips to the south in Anomaly 2 with smaller, near surface models for Anomalies 3 to 5 (Figures 60 & 61).
East Peko is recognized as a potential Tier 2 deposit. Historically, 4 anomalies in the Peko East area have been identified (Figure 62). All 4 anomalies have been tested but only Anomaly 2 returned significant Cu and gold grades. Current drilling data suggests Anomaly 2 is still open down dip and to the west (Fig. 63).
Figure 62: East Peko Anomalies 2 to 4 with historical drilling on a VRMI 1VD map.

Figure 63: East Peko long section (looking North) showing mineralization and ironstone open to the west.

Anomaly 6, a new target, is a shallow magnetic target based from the inversion of the TMI ground magnetic data. After checking available satellite images and air photos, it was observed that the proposed magnetic target is adjacent to an ironstone outcrop (Figures 64 & 65).
It will be difficult to test the magnetic target since the area is outside the scope of CLC clearance 2008-035 and the presence of the ironstone outcrops might cause problems due to scared site issues.

Figure 64: Satellite imagery of East Peko’s Anomaly 6

Figure 65: Ironstone outcrop with shallow TMI ground magnetic targets in Anomaly 6.
7.20 EL 28618 COMSTOCK

Exploration activity conducted was limited to the reprocessing of magnetics data with VRMI, refer to EL 10370 and SEL 25912.

The licence is considered prospective and will have further exploration conducted as priority of targets are tested and resources become available, with a priority for the application of HeliTEM to determine its detailed prospectivity prior to any relinquishment.
8.0 REHABILITATION

Rehabilitation was completed as per detailed in the EPA Mining Management Plan – Authorisation 0463-03, rehabilitation conducted during the reporting period is as follows;
<table>
<thead>
<tr>
<th>Target Name</th>
<th>Tenement(s)</th>
<th>RAB Holes #</th>
<th>RAB (m)</th>
<th>RC Holes #</th>
<th>RC (m)</th>
<th>RC Pre Colls #</th>
<th>RC Pre Colls (m)</th>
<th>DDH Holes #</th>
<th>DDH (m)</th>
<th>Drill Pads Cleared but not used</th>
<th>Status</th>
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No drilling was conducted in the EPA during the 2010 field season and therefore no rehabilitation was required.

Table: EPA MMP Drill Collar Numbers for the 2011 field season.

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<th>Target Name</th>
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<th>RAB (m)</th>
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Emmerson now considers rehabilitation of all drilling conducted by Emmerson in the EPA up to 30 December 2011 to be completed.

For more details on rehabilitation refer to the Eastern Project Area MMP.
9.0 CONCLUSIONS

9.1 EL8879 MT CLELAND

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 8879 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 8879, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10077 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.2 EL9403 JESS

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 9403, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 9403 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.3 EL9930 NEW MOON
Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 9930 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 9930, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 9930 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.4  EL9958 RUNNING BEAR

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 9958, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 9958 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.5  EL10113 IVORY

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to
other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 10113 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 10113, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10113 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.6 EL10114 McDougall Ranges

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 10114, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10114 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.7 EL10124 Speedway

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 10124, the expansion of HeliTEM surveys is likely to include the licence.
Emmerson considers EL 10124 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.8 EL10203 WHITE HILL BORE

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 10203 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 10203, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10203 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.9 EL10312 HOPEFUL

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 10312 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 10312, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10312 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.
9.10 EL10313 KODIAK

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas were HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 10313, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10313 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.11 EL10370 BARKLY

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas were HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 10370 has expired all future exploration will be conducted under EL 28618.

Although HeliTEM is yet to be flown over EL 10370, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10370 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.12 EL10406 MONTANA

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

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Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 10406, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 10406 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.13 SEL25912 VOLK

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As SEL 25912 has expired all future exploration will be conducted under EL 28618.

Although HeliTEM is yet to be flown over SEL 25912, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers SEL 25912 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.14 SEL27011 SNAPPY GUM

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over SEL 27011, the expansion of HeliTEM surveys is likely to include the licence.
Emmerson considers SEL 27011 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.15 EL 26787 RISING RIDGE

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas were HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 26787, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 26787 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.16 EL 27135 DENDRITIC

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas were HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

As EL 27135 has expired all future exploration will be conducted under EL 28761.

Although HeliTEM is yet to be flown over EL 27135, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 27135 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

9.17 EL 27408 GRIZZLY

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological,
historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas were HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 27408, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 27408 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.

**9.18 EL 27537 CHAPPELL**

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing and centres around the Gecko and Orlando areas in Emmerson’s Northern Project Area. As results have been very positive to date with the identification of significant economic mineralisation as a direct result of exploration of HeliTEM anomalies and solid geological and geophysical work, Emmerson will devote significant resources in 2012 to detailed analysis, interpretation and given positive results the drill testing of any identified targets from the HeliTEM survey flown over the Golden Forty and East Peko Ares..

Emmerson considers EL 27537 to be highly prospective and will focus a lot of exploration over the title during the next reporting period.

**9.19 EL 27538 MERCURY**

Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing and centres around the Gecko and Orlando areas in Emmerson’s Northern Project Area. As results have been very positive to date with the identification of significant economic mineralisation as a direct result of exploration of HeliTEM anomalies and solid geological and geophysical work, Emmerson will devote significant resources in 2012 to detailed analysis, interpretation and given positive results the drill testing of any identified targets from the HeliTEM survey flown over the Golden Forty and East Peko Ares..

Emmerson considers EL 27538 to be highly prospective and will focus a lot of exploration over the title during the next reporting period.

**9.20 EL 28618 COMSTOCK**
Emmerson’s exploration activities are currently focused on ‘proof of concept’ drilling of identified HeliTEM anomalies, further integration of the HeliTEM data, VRMI, geological, historical, geochemical and other relevant data sets to further define targets for drill testing.

Focus over the next reporting period will be on the areas where HeliTEM surveys have already been conducted, given success in these areas then HeliTEM will be expanded to other tenements, with the aim of generating quality targets for drill testing, this will occur during the 2012 field season and further into the future.

Although HeliTEM is yet to be flown over EL 28618, the expansion of HeliTEM surveys is likely to include the licence.

Emmerson considers EL 28618 to remain prospective until it can be fully assessed by HeliTEM, once the HeliTEM data and interpretations have been proved and made applicable across the Tennant Creek Mineral Field.
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HARD COPY REPORT META DATA FORM

REPORT NAME: COMBINED ANNUAL REPORT FOR THE EASTERN PROJECT AREA 16 NOVEMBER 2010 – 15 NOVEMBER 2011

PROSPECT NAMES(s): RUNNING BEAR, McDOUGALL RANGES, KODIAK, SPEEDWAY, IVORY, NEW MOON, SNAPPY GUM, MT CLELAND, ROCKY RANGE, HOPEFUL, JESS, MONTANA, VOLK, WHITE HILL BORE, CHAPPELL, MERCURY, GRIZZLY, RISING RIDGE, DENDRITIC

GROUP PROSPECT NAME:

TENEMENT NUMBERS(s): EL 9958, EL 10114, EL 10313, EL 10124, EL 10113, EL 8879, EL 10312, EL 9403, EL 10406, EL 9930, EL 10203, SEL 25912, SEL 27011, EL 26787, EL 27135, EL 27408, EL 27537, EL 2538, EL 28618, EL 28760, EL 28761

ANNIVERSARY DATE: 15 NOVEMBER

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

AUTHOR(s): A. WALTERS

COMMODITIES: GOLD, COPPER, BASE METALS

MAPS 1:250 000: TENNANT CREEK SE53-14

MAPS 1:100 000: FLYNN 5759, TENNANT CREEK 5758

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, BASE METALS

AMF GEOPHYSICAL: MAGNETIC INTERPRETATION, GRAVITY SURVEY

AMF GEOCHEMICAL:

AMF DRILL SAMPLING:

HISTORIC MINES: RIA’S REVENGE, BOSEIVER, QUEEN ALEXANDRIA, EDNA BERYL, GOLDEN SLIPPER, WHIPPET, GREAT BEAR, TRUMP, IRISH EMBLEM, SHAMROCK, BURNT SHIRT, WEDGE/GOLDEN BOY, LEICHERDT, LEICHERDT ONE, ACE HIGH, LEICHERDT TWO, KATHLEEN/CAVEMAN, ORTELLE STAR, TRUE BLUE, MINT, AGA
DEPOSITS:
Khan, Memsaib, Iris, Yellow Flame, Mammoth, Three Keys, Copper Head, Little Wonder, New Moon, Black Cat, Mt Margaret, Hopeful Star, Renate, Koala, Golden Mile, Hopeful Star Extended, Jess, Montana
Peko, Nobles Nob, Kathreen, Burnt Shirt, Golden Key, Black Cat, Lone Star, Argo, Red Terror, Rising Sun, Comstock, Hopeful Star, Memsaib, Mint, Ortelle Star, Renate, Golden Mile, Cats Whiskers

PROSPECTS:
Carlsberg, Bintang, San Miguel, Boseiver, First Light, Sun Rise, Running Bear, McDougall Ranges, Kodiak, Chappell, Rising Ridge, Mercury, Grizzly, Dendritic, Quartz Hill, Delta

KEYWORDS:
Carlsberg, Bintang, San Miguel, Boseiver, First Light, Sun Rise, Running Bear, McDougall Ranges, Kodiak, Chappell, Rising Ridge, Mercury, Grizzly, Dendritic, Quartz Hill, Delta