Cracking the code of the Tennant Creek Mineral Field - Luck is not a good strategy!

Emmerson Resources Exploration Team – March 2012
The real authors: The Emmerson Team!

Please visit our booth # 31 and website:
www.emmersonresources.com.au
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Contents & Location

- A Reality Check – what are the odds?
- New Technology Drives Discovery
- ERM Exploration Evolution Highlights
  - Geochemistry
  - Geophysics
  - Geology
  - Research
- Recent Discoveries - Goanna and Monitor
  - Where to next?
- What to expect in 2012
- Conclusion
The Tennant Creek Mineral Field (TCMF) hosts over 700 ironstones, with 130 mineralized, but only 10 have yielded significant mines – there are many red herrings!

- Exploration (2008-2010) using the traditional exploration-driven model yielded sporadic tantalizing intersections and uncovered yet another ironstone but nothing economic
- Even without today’s sophistication historical exploration was smart!

There must be a better way to target!
Discovery has been driven by application of best available geophysics
ERM Geochemistry

- Assessment of historical BLEG and vacuum drilling
- Orientation surveys (NITON XRF, soil, lag)
- Ironstone discriminant ratios, multi-element geochemistry
- Case studies (mineralized vs barren ironstones)

“The tried and true came up trumps”

- The essential elements are Au, Bi, Fe, Cu and surface geochemical expressions of mineralized systems that breach the B. Ox cannot be missed
- 3D metal zonation highlights structure
ERM Geophysics

- Detailed aeromagnetics (100m line spacing)
- Detailed gravity (100m - 500m spacing)
- Trial of CSAMT and Pole-Dipole IP profiles
- Down hole magnetics and radiometrics
- Targeting using combined Gravity/Magnetics
  - VRMI, Magnetite- and Hematite-end members, mafic intrusions
  - 3D inversions

“Ambiguity always exists with potential field methods”

- Physical Property measurements
- Gradient array IP and more Pole-Dipole IP profiles
- HeliTEM, FLEM and DHEM
HeliTEM— a more direct targeting tool?

**Time-Domain Electro-Magnetics**
- Most powerful in the world
- Designed for deep exploration
- Only system with XYZ fields
- 100m spaced flight lines
- 30-50m above ground

**ERM Experiment** (n=608)
- 5 deposits, 8 targets
- TC deposits variably conductive
- Barren host rocks very resistive

Conductivity of drill core from various deposits in the ERM tenements
Magnetics & HeliTEM of the Gecko Mine area

GODD004

GODD008

Monitor

Goanna

2km

N
ERM Geology

- Mineral Systems Approach – what controls the ore?
- Detailed assessment of the Gecko Mine
  - Oriented drilling reveals the importance of structure in ore control – “conglomerate” vs fault breccia
  - “Hematite Shale” = proximal alteration vs stratigraphy
  - Au-Cu mineralization exists in areas without magnetic signatures
- Reassessment of Gecko + Orlando in situ resources
- CORESCAN study reveals spatial alteration zoning

“Seeing what other explorers have seen before but thinking what no-one else has thought before”
In situ Resource Update (Oct. 2011)

Monitor Discovery
22/08/11  GRC1355
27m @ 1.75% Cu
9/11/11   GODD008
12m @ 16.9g/t Au & 2% Cu

Goanna Discovery
6/10/11   GODD004
21m @ 2.63% Cu
16/11/11  GRC1367
15m @ 8.13g/t Au

24th October 2011
Gecko (underground)
1.48Mt @ 2.5% Cu or 5.1g/t Au Eq
36,900t of Cu metal or 240,000 Oz Au Eq

Orlando (open cut)
980Kt @ 2g/t Au & 1.4% Cu or 4.8g/t Au Eq
70,000 oz Au & 13,900t of Cu metal or 150,000 Oz Au Eq
• Matt Hill PhD (CET-UWA)
  • Joint Magnetic Gravity inversion to aid structural interpretation – see poster in ERM booth
  • New geochronology
• Hamish Johns (CODES-UTas)
  • Research into uranium association with Au/Cu mineralization and geochronology
• Amy Cockerton MSc (Monash)
  • The Liquid Bismuth Collector model
• HeliTEM – which interpretation software is best?
Recent Discoveries – The Gecko Corridor

Vector Residual Magnetic Intensity

Goanna

Monitor

Bouguer Gravity

Gradient Array Resistivity

Ironstone

U/G workings

HeliTEM 500,1000, 5000 mS/m

2km
Goanna – Plan with drilling and HeliTEM

- ERM drilling
  - Pre-ERM drilling
    - Mined ironstone

- GODD004
- Gecko Shaft 1.2km
- 300m

- NSZ
- CSZ
- SSZ
- FSSZ

- HeliTEM shells 550
  - 1000, 5000 mS/m
Goanna – Pole/Dipole IP Chargeability and HeliTEM

SSW

GODD004

GODD001

NNE

HeliTEM shells 550, 1000, 5000 mS/m

200m
Goanna – Simplified Interpreted Geology

- **GODD004**
  - 6/10/2011
  - 350mRL

- **GRC1367**
  - 16/11/2011
  - 15m @ 8.13g/t Au

**Discovery Section**

**GECKO STRUCTURAL CORRIDOR**

- **SSW**
  - GODD004 6/10/2011
  - GRC1367 16/11/2011
  - 15m @ 8.13g/t Au

- **NNE**
  - 350mRL

**Highlights**

- **GODD004 core can be inspected at ERM booth**
- **21m @ 2.63% Cu & 0.69% Bi from 297m incl. 7m @ 4.96% Cu & 0.25% Bi**
- **3m @ 1.45% Cu from 203m**
- **1m @ 1.14% Cu from 208m**
- **3m @ 1.38% Cu & 0.28% Bi from 235m**

**Mineralised Shear**

- **SSZ**
- **CSZ**
- **NSZ**

**Metasediments**
- **Quartz-Hematite Ironstone**
- **Quartz-Dolomite Rock**
- **Chlorite Alteration**
- **Mineralised Shear**

**Reference Values**

- **3m @ 0.64% Cu from 291m**
- **3m @ 0.59% Cu from 309m**

**-50mRL**

**Emerson Resources Limited**
Monitor – Plan with drilling and HeliTEM

- Pre-ERM drilling
- ERM drilling

GODD008

Unmined ironstone

HeliTEM shells 550, 4000, 5000 mS/m

Mined ironstone

Gecko Shaft 1.1 km

Section

300m
Monitor – Pole/Dipole IP Chargeability and HeliTEM

HeliTEM shells 550, 1000, 5000 mS/m
Monitor – Simplified Interpreted Geology

- GRC1355
  22/08/2011 27m @ 1.75% Cu

- GODD008
  9/11/2011
  12m @ 16.9g/t Au, 2% Cu

GODD008 core can be inspected at ERM booth
Where next at Gecko? Structure on HeliTEM image

- Monitor
- Gecko Mine
- Goanna
- Horner #2
- Orlando Mine

Gold Prospects

Horner #1
6.7m @ 1.9% Cu incl. 2.4m @ 4.7% Cu
## What to Expect in 2012

### Greenfields Targets, Monitor + Goanna Copper-Gold Resource, Gecko Gold

<table>
<thead>
<tr>
<th>Activity</th>
<th>Timing</th>
<th>Details</th>
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<tbody>
<tr>
<td>Approx budget of $10m</td>
<td>Feb – November 2012</td>
<td>Approx. 30,000m of RC and diamond drilling. The funding will be a mix of IVA and ERM</td>
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<tr>
<td>Diamond Drilling</td>
<td>Feb-March</td>
<td>Ascertain plunge of ore shoots, opportunistic testing Au + Cu potential beneath Monitor &amp; Goanna</td>
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<tr>
<td>Scheduling</td>
<td>March</td>
<td>Finalise Tier 1 JV drill targets /geophysics /processing</td>
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<tr>
<td>Ground Geophysics</td>
<td>March-April</td>
<td>Gecko Corridor + Regional Targets</td>
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<tr>
<td>RC Drilling</td>
<td>March-April</td>
<td>Horner 2 RC and pre-collars Extensional drilling of high grade copper and supergene at Monitor &amp; Goanna, pre collars for testing Au potential at Goanna, Monitor &amp; Gecko</td>
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<tr>
<td>Diamond drilling</td>
<td>April-May</td>
<td>Horner 2 plus Whippet Test gold potential at Goanna, Monitor &amp; under Gecko</td>
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<tr>
<td>RC Drilling</td>
<td>June-July</td>
<td>Regional Targets – TC8 (?), Chariot East (?)</td>
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Conclusion - A Successful Exploration Company

1. Recruitment: it must be the responsibility of the best scientists
2. Study Leave: a smart way to keep in touch with “cutting-edge” geoscience
3. Seeing what other people see BUT thinking what no one else has thought before which is the key to being “the first mover”.
4. As exploration becomes more challenging and complex we need teams, multi-skilled in geology, geophysics and geochemistry.
5. The confidence the Board has in its explorers.

- The best people
- R&D
- Scientific Excellence
- Dynamic teams, good communication
- Leadership, persistence and funding

ERM exploration has had tremendous support from the ERM board through the “grind” of systematic but focussed exploration over the last 4 years
As a consequence we have been successful and are on the cusp of even greater things in 2012!

At ERM we don’t believe luck is a good strategy!
The information in this report relating to Exploration Results and Mineral Resources is based on information compiled by Mr Steve Russell who is a Member of the Australian Institute of Geoscientists and has sufficient exploration experience which is relevant to the style of mineralization under consideration to qualify as a Competent Person as defined in the 2004 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’. Mr Russell is a full time employee of Emmerson Resources Ltd. Mr Russell consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.