GLASSHOUSE PROJECT

FINAL TECHNICAL REPORT

FOR

EXPLORATION LICENCE

EL 26314

GEORGINA BASIN, NORTHERN TERRITORY

For the period 8th April 2008 to 22nd March 2013

JUNE 2013

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ABSTRACT

Location: The Glasshouse Project is located in the Barkly Tableland region within the Tennant Creek Mineral Field of the Northern Territory.

Geology: The project is located within the Georgina Basin which is prospective for uranium and phosphate rock mineralisation within Middle Cambrian shallow marine sediments.

Work done: Geophysical data review and evaluation, field reconnaissance & soil sampling

Conclusion: Phosphate, Base Metals and Uranium prospectivity is limited in EL 26314 and hence the tenement was surrendered in March 2013.
This final report details exploration and project activities completed during the tenure period on Exploration License EL 26314 since the tenement was first granted to Australis Exploration Limited in April 2008.

EL 26314 is part of the Glasshouse Project and is located in the Barkly Tableland region within the Tennant Creek Mineral Field of the Northern Territory.

In 2008 Australis was a wholly owned subsidiary of Mineral Securities Ltd (Minsec) which in turn was owned by CopperCo Ltd (CopperCo). CopperCo fell into receivership in November 2008 and its assets were finally sold to Cape Lambert Iron Ore (now Cape Lambert Resources Limited) in June 2009.

Australis Exploration Limited is now a wholly owned subsidiary of Cape Lambert Resources Limited (Cape Lambert).

Since obtaining the tenement from Copper Co, Australis Exploration Limited has undertaken the following work in the tenement.

- Historical Literature Review and Compilation
- Geophysical interpretation by Consultant Resource Potentials
- Prospectivity and Valuation by Consultant Geologists Ravensgate
- A site visit in October 2011, where a series of scintillometer readings were collected across the Glasshouse project anomalies
- Geological data collection and interpretation

As a result of the site visit, a decision has been made to relinquish the tenement in full.
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EL26314 is part of the Glasshouse Project which is a package of tenements that Australis Exploration Limited ("Australis") holds in Queensland and the Northern Territory. Australis was a wholly owned subsidiary of Mineral Securities Operations Limited (Minsec) A.C.N. 077 507 521, which merged with CopperCo Limited ("CUO") in 2008. CUO subsequently entered administration and receivership in November 2008. Cape Lambert Resources purchased the project in June 2009.

EL 26314 is located in the Barkly Tableland region within the Tennant Creek Mineral Field of the Northern Territory. The tenure was acquired for its potential to host phosphate mineralisation.

Figure 1: Location of the Georgina Basin
The tenure is located on freehold land in the Barkley tablelands in the Northern Territory. The tenement can be accessed by the bitumen Barkley Highway from Camooweal (in Queensland) or Tennant Creek (in Northern Territory), which crosses the tenement group. Within the tenement, there is a network of unsealed roads and station tracks. Some of the tracks traverse black soil plains that can be impassable in wet weather. The tenements are located in the Barkley Tableland region that has low topographic relief. They cover the headwaters and a section of the watershed of the southwards flowing Georgina River. With the low relief and seasonal high rainfall, the drainages form broad braided channels that flow in a general southwards direction. Locally, the southern part of this region is referred as ‘channel country’.

Vegetation in the Tableland region is dominated by open savannah woodland and grassland (Figure 2). Taller and more abundant trees are restricted to the banks of the major drainage systems which only flow for short periods after storms.

*Figure 2: Photographs of the Barkly Tableland terrain and vegetation*
EL 26314 forms part of the Australis Exploration Limited’s Glasshouse Project in the Northern Territory. The tenement covered a series of north-west trending magnetic linear that parallel the structural trend passing through the McArthur River, Century and Mount Isa base metal deposits and also covered extensive areas of the Georgina Basin cover sequence sediments prospective for phosphate and uranium.

EL 26314 was granted on the 8th April 2008 for a total area consisting of 500 sub-blocks. Subsequent partial relinquishments in 2011 and 2012 have reduced the size to the current 125 sub-blocks.

<table>
<thead>
<tr>
<th>Table 1: Tenure Schedule</th>
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<tbody>
<tr>
<td>Tenure ID</td>
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<td>EL 26314</td>
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Figure 3: EL26314 Tenement Location
2.0 EXPLORATION RATIONALE

Based on initial review of the recently released geological and geophysical data, Australis applied for 57 exploration licenses covering some 41,742 km² to the west and south of Mount Isa, and extending to the north-west into the Northern Territory. In this area, outcrop is dominated by Paleozoic, Mesozoic and recent sediments of the Georgina Basin and Eromanga Basin. The geophysical data suggests that there are parts of the tenement area where the prospective Proterozoic-age basement extends beneath the region at relatively shallow depths. Historically, this region has received little attention for mineral exploration due to the Mesozoic and Paleozoic cover. However, the new compilation of geophysical data for the region provides a useful guide to focus exploration on targets with the potential to host large-scale base metal and uranium ore-deposits. In addition, the geophysical and historical database compilation has highlighted opportunities to explore for uranium and phosphate deposits in the younger overlying sediments.

In summary, the Australis tenements cover an area with extensive aeromagnetic, radiometric and gravity anomalies, where historical company reports and current exploration activities by other companies indicate potential for:

- Copper
- Zinc-Lead-Silver
- Uranium
- Phosphate

Proterozoic-age rocks of the Mount Isa Block in north western Queensland host one of the major Copper-Zinc-Lead-Silver and Uranium provinces of the world, including:

- Mt Isa Cu and Pb-Zn-Ag and George Fisher Pb-Zn-Ag mines
- Century Zn-Pb mine
- Ernest Henry Cu-Au mine
- Cannington Ag-Pb mine
- Valhalla and Westmoreland U deposits
- Duchess Phosphate mine

The company’s primary focus has been on identifying phosphate mineralisation in Cambrian sedimentary cover sequences. The potential still exists to explore the extensive tenement package for large mineralized systems of copper, lead, zinc and their associated metals (i.e. gold and silver) within the Proterozoic basement rocks beneath the superficial and Phanerozoic units, and the overlying superficial and Phanerozoic sediments for roll-front type and calcrete type uranium mineralisation, phosphate deposits and possible MVT base metals mineralisation.
The Georgina Basin, together with the Wiso, Daly, Amadeus and Ngalia basins, form remnants of the stratigraphically continuous Centralian Superbasin that extended over most of central Australia from the Neoproterozoic to Paleozoic. Structural dismemberment of the Superbasin during Paleozoic intra-plate orogenic events (400–300 Ma Alice Springs Orogeny) has resulted in the exposure of Palaeoproterozoic to Mesoproterozoic basement between basin fragments in their current configuration (Khan, Ferenczi, Ahmad and Kruse, 2007), see Figure 4.

The Georgina Basin is the largest of the intracratonic Neoproterozoic to Palaeozoic basins. It covers a large part of eastern Northern Territory and extending into northwest Queensland, for a total area of about 325,000 km², of which 185,000 km² lies within the Northern Territory. Down faulted blocks and half-grabens typically contain up to 1.5 km of Neoproterozoic sedimentary rocks. Up to 2.2 km of overlying Palaeozoic succession is preserved in depocentres and synclines. Cambrian platform carbonate rocks dominate the basin fill. Accompanying sandstone and shale were deposited during relative uplift and subsidence, respectively. The Cambrian–Ordovician succession is most complete in the southern portion of the basin. In contrast, the central region contains only a relatively thin Middle Cambrian succession (Khan, Ferenczi, Ahmad and Kruse, 2007).

Basement rocks consist of Mesoproterozoic and minor Neoproterozoic sediments, characterised by shallow marine epicontinental successions of carbonate and marine clastic rocks, evaporite, and fluviatile lacustrine continental sandstone, glaciogenic sediments, shale and siltstone. These sediments were succeeded by marine carbonate and clastic deposits, which accumulated in Cambrian and Ordovician times. Younger, non-marine Silurian to Early Carboniferous successions is restricted in areal extent. In addition, extensive sub-aerial flood basalt (Peaker Piker Volcanics and Antrim Plateau Volcanics) of Early Cambrian age (540 Ma) floor these basins in much of the northern part of the Northern Territory. The volcanics are amygdaloidal and porphyritic tholeiitic basalts and have associated dolerites (McCrow, 2008; Gifford, 2006; Khan, Ferenczi, Ahmad and Kruse, 2007).

The Georgina Basin is bounded by the South Nicholson and McArthur Basins to the north, Tennant Inlier to the west and Arunta Province to the south, and continues eastward into western Queensland to abut the Mt Isa Block. It has been subdivided into several sub-basins that primarily reflect the thickness of Cambrian deposition (Khan, Ferenczi, Ahmad and Kruse, 2007).

In the northern part of the project area, the central Georgina Basin contains a relatively thin stratigraphic succession, up to 450m thick, deposited on a tectonically quiescent platform. Deposition commenced with a marine transgression in the early Middle Cambrian and may have extended into the Late Cambrian (McCrow, 2008). This central platform has been subdivided into an eastern Undilla Sub-basin and a western Barkly Sub-basin, separated by a NNE – SSW striking structural ridge known as the Alexandria-Wonarah Basement High (McCrow, 2008, Gifford, 2006). In the northern tenements, this structural ridge outcrops as two north-east trending Precambrian basement highs within Georgina Basin sediments, with the Buchanan-Alroy-Alexandria phosphate occurrences occurring nearby. The Mittiebah Range forms the northern Pre-Cambrian inlier, the western end extending into EL26701, while the southern Pre-Cambrian inlier, south of Alexandria homestead and phosphate occurrence, outcrops in the north-east part of EL26310.
By the Middle Cambrian, marine conditions prevailed in the basin and phosphogenesis was widespread (McCrow, 2008). The Middle Cambrian succession has been subdivided into two depositional sequences with three discrete phosphogenic episodes. Sequence 1 (early Middle Cambrian) comprises terrigenous siliclastic rocks, peritidal and shelf carbonate rocks, carbonaceous shale and phosphatic carbonate rocks; sequence 2 (remainder of Middle Cambrian) comprises siliclastic and carbonate rocks, phosphorite and phosphatic limestone, and carbonaceous shale. Major phosphate deposits are apparently in sequence 2, including the Wonarah, Alexandria and Alroy deposits in the Northern Territory. All three appear to be hosted in the Wonarah Formation, although others have assigned the Wonarah deposit to the Gum Ridge Formation (sequence 1) (Khan, Ferenczi, Ahmad and Kruse, 2007). There have been efforts to correlate sedimentary horizons from one area to another but this has been difficult to achieve, other than in the broadest terms, due to rapid lateral facies changes, see Figure 5.

Figure 4: Simplified geology of the Georgina, Wiso and Daly basins showing the distribution of phosphorite facies depocentres and major phosphate deposits. Source: Khan, M, Ferenczi, PA, Ahmad, M and Kruse, PD (2007).
Figure 5: Stratigraphy of the Georgina and Wiso basins in the Northern Territory, showing the stratigraphic location of phosphate occurrences in Lower to Middle Cambrian sediments (Source: Khan, M, Ferenczi, PA, Ahmad, M and Kruse, PD (2007)).
3.1 REGIONAL PHOSPHATE PROSPECTIVITY

Australia’s largest phosphate deposits (phosphorites) are the shallow marine siliclastic and carbonate sediments of the Lower to Middle Cambrian Georgina Basin sequence in north-west Queensland and Northern Territory. These sedimentary phosphate deposits occur where the phosphorus has been chemically and biologically precipitated as apatite group minerals (McCrow, 2008). An up-welling process of phosphogenesis of cold phosphate enriched water onto warm shallow marine shelves and embayments is the mechanism favouring precipitation.

Exploration and phosphate resource development has largely focused on the well-endowed Georgina Basin, which contains significant deposits in the Northern Territory (Wonarah, Highland Plains, Alexandria, Alroy and Buchanan Dam) and Queensland (Duchess, Lady Annie, D Tree, Lady Jane, Galah, Sherrin Creek and others) (McCrow, 2008). Previous studies have also outlined the presence of phosphorite in the Wiso and Daly basins (Khan, Ferenczi and Ahmad, 2005a).

Economic phosphate deposits in Middle Cambrian Georgina Basin sediments are being mined at Duchess (Phosphate Hill) in Queensland (Figure 4). These phosphatic sediments were deposited in a restricted embayment that was bounded by land on its northern, western, and southern sides, and whose eastern connection with the Burke River Outlier, an appendage of the Georgina Basin, was restricted by shallow banks (McCrow, 2008). Incitec’s (ex WMC) Phosphate Hill, Duchess Mine and DAP plant produces 648,000 t of di-ammonium phosphate and 236,000t of mono-ammonium phosphate (from 2 Mt of phosphate rock) annually from a deposit containing a total resource of 131 Mt @ 23.5% P2O5 (McCrow, 2008; Ferenczi, Khan and Ahmad, 2005b). That facility commenced production in December 1999 (Gifford, 2006).

The host rocks for these deposits are typically recessive and often covered with surficial sediments. Previous exploration and discovery of known deposits involved shallow reconnaissance drilling programs (and phosphate testing of drill cuttings) in favourable stratigraphy in close proximity to palaeo-highs (Ferenczi, Khan and Ahmad, 2005b). Future targeting of phosphorite deposits would involve a structural interpretation which would include identifying possible embayments and structural palaeo-highs (McCrow, 2008).

Howard (1990) examined the distribution of phosphatic facies in the Georgina, Wiso and Daly River Basins. He used lithological logs and analyses of cuttings from water bores and Bureau of Mineral Resources stratigraphic holes, together with aeromagnetic, gravity and elevation data, to define a carbonate-siltstone- chert phosphatic lithofacies of Middle Cambrian age within the basins. The deposition of these phosphatic lithofacies is related to the basement configuration and its depth. They occur as belts, peripheral to and within the basins, with an average width of 32 km, a thickness of 10 to 190 metres, and have been traced over a distance of 2,100 km. Some phosphorite deposits (such as the Lady Judith in the Wiso Basin) rest on volcanic rocks and interdigitate with carbonates of the Montejinni Limestone, while others, such as the Ammaroo phosphatic belt in the southwestern portion of the Georgina Basin, are contained within a depression bounded by limestones of the Arthur Creek Formation. The phosphatic sediments are believed to have been deposited primarily as an Ordian Middle Cambrian event in the west with a ‘younging’ transition through Ordian and/or Early Templetonian to Late Templetonian in the southeast. The basins are extensional, exhibiting a series of broad downwarps crossed by peripheral aulacogens, grabens, half grabens formed in the Late Proterozoic and modified subsequently by the development of plateau, narrow horst blocks and adjacent deeps during the Middle Cambrian along basin-dividing arches. The basement to
the shallow-water phosphatic lithofacies consists of Proterozoic sediment or Early Cambrian volcanic plateau or peripheral sloping platforms which in the Brunette Sub-basin have present elevations of 0-300 metres ASL (Howard, 1990).

3.2 LOCAL GEOLOGY

Alexandria-Alroy-Buchanan Dam Geology

In the Alexandria Region, the early Middle Cambrian sediments include the Wonarah Beds, Burton Beds and Anthony Lagoon Beds. They all consist predominantly of siltstone, sandstone, chert, limestone and dolomite. IMC reported that sequences of Middle Cambrian siltstone/sandstone deposition in close proximity to mapped Precambrian basement highs almost invariably overlie Peaker Piker volcanics of Lower Middle Cambrian age (northern Alexandria) or Precambrian Mittiebah Sandstone/ Mullera Formation (most of Alexandria) (McCrow, 2008).

In 1976 ICI reported no Pre-Cainozoic outcrops in the Alroy area which is totally covered by pedo-calcic black/grey soils, with alluvium in the seasonal swamps associated with the Playford and Buchanan Rivers. The underlying rocks were siltstone, shale, chert, limestone and dolomite. These are probably the Lower Middle Cambrian Burton Beds, considered to be the stratigraphic equivalent of the Wonarah Beds to the south and the Beetle Creek Formation in Queensland, both of which are phosphatic in parts. No information is available about rocks below the Middle Cambrian (McCrow, 2008).

Wonarah Deposit Geology

The Wonarah deposits occur along the flanks of the Alexandria – Wonarah High. On lapping dolomitic members equivalent to the Middle Cambrian Thorntonia Limestone are present on the lower flanks of this structural ridge and, when present, the phosphorus-bearing sediments (Upper Gum Ridge Formation) occur on the limestone and extend in thicker beds, lying directly on the Peaker Piker Volcanics, on the upper flanks of the ridge. This succession is then overlain by the Convolute Mudstone followed by the Hanging Wall Mudstone. Two basal sedimentary units that are not always present are the Transitional Sediments and the Potassium Marker Horizon. The transitional sediments consist of mixed mudstone, siltstone, sandstone, and a possible palaeo soil. The overlying Potassium Marker Horizon is a clay rich mudstone (Gifford, 2006).

There are two mineralised rock types at Wonarah – Mudstone Phosphorite and the Chert Breccia Phosphorite (Gifford, 2006). The Mudstone Phosphorite contains most of the mineralisation, forming friable and fine grained beds 2 metres to 10 metres thick with grades up to 40% P2O5 but typically between 20% and 30% P2O5. The Chert Breccia Phosphorite occurs beneath the Mudstone Phosphorite with a gradational boundary and contains discrete clasts of chert breccia in a phosphorite matrix. The grade ranges from 5% to 20% P2O5 but is typically between 10% and 15% P2O5 (Gifford, 2006).
Figure 6: NT Surface Geology over the Glasshouse Project Area (MGA94 Zone 53)
The Glasshouse Project area has been explored by numerous previous workers. The details of this and the work that was completed are presented in Table 2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Company</th>
<th>Exploration</th>
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<tbody>
<tr>
<td>1968-1971</td>
<td>IMC Development</td>
<td>IMC Development completed an extensive phosphate exploration program covering the majority of the project area. Work completed included air photo interpretation, geological mapping, and interpretation of radiometric and magnetic geophysics surveys. They completed and extensive drilling program which led to the discovery of the Wonarah and Alexandria phosphate deposits (outside of project area to the south). They note that phosphate mineralisation occurs within clastic sediments on the margins of Precambrian basement highs and these sediments (the Wonarah Beds, Burton Beds and Anthony Lagoon Beds) are likely to be Mid-Cambrian correlates of the Beetle Creek-Inca Creek Formations in Queensland that host the D-Tree phosphate deposit. They also note that the most favorable environment appears to be have been in silt-chert facies in the shallows of the Middle Cambrian phosphogenic sea. A total of 12 widely spaced drill holes were completed within the project area (426 metres). Drill cuttings were tested with ammonium molybdate to assess whether phosphate was present and select intervals for assaying. Two holes intercepted narrow widths of phosphatic beds returning 1.5m at 2% P₂O₅ and 0.8m at 2.2% P₂O₅. The tenements were relinquished as they were not thought prospective for phosphate mineralisation and to focus on the neighbouring Wonarah and Alexandria deposits.</td>
</tr>
<tr>
<td>1981-1982</td>
<td>BHP Minerals</td>
<td>Pegged tenement in central part of project area targeting Mississippi Valley lead-zinc type deposits. Completed literature review and photo-geological studies and decided to relinquish tenement.</td>
</tr>
<tr>
<td>1984-1985</td>
<td>CRA Exploration</td>
<td>Completed diamond exploration program over the eastern two thirds of the project area. Completed a helicopter supported drainage sampling program with several micro-diamonds recovered that were believed to have been recycled from a secondary detrital source. Orientation aeromagnetic surveying was completed, indicating the area was amenable to detailed magnetic for detecting magnetic diatremes.</td>
</tr>
<tr>
<td>1985-1986</td>
<td>Australian Diamond Exploration/ Design and Construction</td>
<td>Completed a sampling program over the north-eastern part of the project area. Collected 24 samples, of which five contained microdiamonds. No kimberlite indicator minerals were identified. Thematic mapping was carried out over the area. No targets were identified and the tenement was relinquished.</td>
</tr>
<tr>
<td>1983-1989</td>
<td>AOG Mines / Ashton / Aberfoyle / Australian Diamond Exploration JV&quot;s</td>
<td>Completed extensive diamond exploration programs throughout the project area. Work completed included aeromagnetic and ground magnetic surveys, stream sediment sampling for kimberlite indicator minerals, and bulk sampling of alluvial material by costean sampling and shallow RAB drilling. Several microdiamonds were found in bulk samples, but it was concluded that potential for diamondiferous kimberlite pipes in the area was remote.</td>
</tr>
<tr>
<td>1984-1990</td>
<td>CRA Exploration</td>
<td>Completed an extensive diamond exploration program over the much of the project area. Several micro diamonds were recovered and orientation magnetic surveys were completed. It was noted that detailed aeromagnetics would be useful for detecting magnetic diatremes.</td>
</tr>
<tr>
<td>1989-1990</td>
<td>CRA Exploration</td>
<td>Completed an extensive diamond exploration program over the eastern part of the project area. Helicopter and ground magnetic was carried out identifying many magnetic targets, of which 15 were drill tested. One microdiamond was recovered from the sampling program and no further work was completed. The MVT potential of</td>
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The areas was also reviewed but was not considered prospective for this style of mineralisation due to the lack of indicator minerals in loam samples and the low fluorine levels in groundwater.

<table>
<thead>
<tr>
<th>Year</th>
<th>Company/Group</th>
<th>Description</th>
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<tr>
<td>1985-1991</td>
<td>Ashton / Design and Construction JV</td>
<td>Completed diamond exploration programs throughout the central part project area. Work completed included thematic mapping and stream and bulk sampling of alluvial material. Several microdiamonds were found in bulk samples, but it was concluded that potential for diamondiferous kimberlite pipes in the area was remote and the tenement was relinquished.</td>
</tr>
<tr>
<td>1991-1992</td>
<td>BHP Minerals</td>
<td>Based on aeromagnetic interpretation, a tenement was pegged that covered a small portion of the south east of the project area targeting SEDEX deposits within the interpreted shallow Proterozoic basement. Shallow ground magnetic soundings revealed Proterozoic basement was at depths greater than 300m. The tenement was relinquished.</td>
</tr>
<tr>
<td>1993-1997</td>
<td>Aberfoyle / Ashton Mining</td>
<td>Completed diamond exploration programs in the north east of the project area. Work completed included stream sediment sampling and loam sampling. One microdiamond was recovered but no other diamond indicator minerals were identified.</td>
</tr>
<tr>
<td>1995-1997</td>
<td>BHP Minerals</td>
<td>Completed reconnaissance geological programs targeting SEDEX style base metal deposits within outcropping and below cover basement Proterozoic rocks. Geophysical and geological interpretations concluded that prospective host rocks of the Proterozoic Fickling Group may lie below cover south of the interpreted extension of the Fish River Fault. Several PROTEM readings were taken indicating that the cover sequence was not conductive and would not present problems for planned airborne EM. An airborne GEOTEM survey was completed, covering part of the northern most part of the project area. A number of low order GEOTEM anomalies were defined, but were not deemed worthy of further follow up and no more work was completed on the tenements.</td>
</tr>
<tr>
<td>2002-2004</td>
<td>De Beers Australia</td>
<td>Reconnaissance diamond exploration was carried out over an area that onlaps the southeast part of the project area. 37 Streams sediments were collected and analysed for the presence of diamond indicator minerals. No kimberlite indicator minerals were found and no priority magnetic anomalies were defined and the ground was relinquished.</td>
</tr>
<tr>
<td>2003-2004</td>
<td>Anglo American Exploration</td>
<td>Completed an exploration program targeting SEDEX style Pb-Zn mineralisation over a tenement that overlaps the north east part of the project area (the work was targeted Proterozoic rocks outside of the current project area). Work included a review of previous exploration and 40.2 km of TEM surveying (outside of project area). Evaluation of the data and target review downgraded the prospectivity of the lease and it was surrendered.</td>
</tr>
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5.0  EXPLORATION BY AUSTRALIS EXPLORATION LIMITED

Exploration by Australis Exploration Limited within the EL 26314 tenement includes:

- Geophysical Interpretation
- Prospectivity assessments & valuation
- Site visit

5.1 GEOPHYSICAL INTERPRETATION

Consultant Resource Potentials was contracted to carry out processing of all available geophysical data sets and provide targets for future exploration. An extract of the report detailing this work is in Appendix 1.

The report concluded that the tenement has little potential for phosphate, base metals and uranium development.

5.2 PROSPECTIVITY ASSESSMENTS & VALUATION

Consultant Ravensgate were contracted to carry out a prospectivity analysis and valuation on the Australis Glasshouse Project. An extract copy of the report is in Appendix 2.

The report by Ravensgate concluded in the Mittiebah area (which EL 26314 is located) that there were a number of prospective target zones for phosphate mineralisation throughout the project area and were defined based on geology, geophysics and past exploration.

Potential for base metals deposits and near surface uranium is considered to be low prospectivity.

5.1 SITE VISIT

In October 2011 a site visit to the Glasshouse Project which includes EL 26314 was undertaken by personnel from Australis Exploration Limited. The aim of the visit was to assess the anomalies targets from the Ravensgate report.
Figure 7: EL 26314 over Gravity geophysics
In light of the site visit and reports from various consultants indicated that there is limited prospectivity for phosphate, base metals and uranium, a decision has been made to relinquish the tenement in full.
7.0 REFERENCES


Howard, PF 1990 The distribution of phosphatic facies in the Georgina, Wiso and Daly River Basins, Northern Australia. GEOLOGICAL SOCIETY OF LONDON, SPECIAL PUBLICATIONS; 1990; v. 52; p. 261-272.


NTGS Various Open File Reports
AUSTRALIS EXPLORATION PTY LTD

Northern Territory Tenements:
Geophysical Data Compilation, Processing and Target Generation.

Report No: RP-100515-01
Author: M. Cooper
Date: May 2010
Distribution: Kim Bischoff
General Manager – Exploration

Original + digital copy

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Resource Potentials were engaged by Australis Exploration Pty Ltd to carry out geophysical data compilation, processing and target generation for rock phosphate, uranium and base metal mineralisation over their Northern Territory tenements from available government and company open file geophysical datasets. The project covers approximately 25,000sqkm and consists of 15 tenements of which 14 are granted, located in the north east of the Northern Territory, close to the Queensland border.

The tenements cover the central northern region of the Georgina Basin which contains all of the large known phosphate deposits in the north east Northern Territory including Wonarah, Arrawurra, and Highland Plains. The tenements are underlain by Proterozoic sedimentary and volcanic rocks which may also be prospective for base metals and IOCG mineralisation, in addition to phosphate.

The geophysical data coverage is very good over the area with regional to semi-regional government aeromagnetics, radiometrics, gravity, landsat and aster datasets available. The geophysical datasets were compiled, processed and reviewed to determine if a characteristic signature could be detected from known mineralisation, which could then be used as a targeting tool over the tenements. It was found that with the exception of Highland Plains which has a discrete radiometric signature, no other major phosphate occurrences within the central northern region of the Georgina Basin appear to be directly associated a radiometric response. However there are elevated uranium responses within the vicinity (1km) of Alroy.

The tenements have been grouped into 3 sub-projects (North, Central, South) based on their location for the purposes of this exercise.

The Northern project is considered highly prospective for shallow phosphate mineralisation within the outcropping Wonarah Formation and likely extensions of this unit beneath recent cover sediments to the west of the project. Ten target areas which display some elevated uranium anomalism have been selected for priority follow up work, however there remains a number of additional outcrops of Wonarah Formation which should also be systematically sampled for phosphate mineralisation.

Two areas considered anomalous and prospective for base metal mineralisation located in the north of EL26314 and the west of EL26312 have also been selected. The target area within EL26314 is considered to be relatively shallow (200m depth) whereas the target within EL26312 appears quite deep (400m-500m), however modeling of the data is required to validate this.
Some potential for Clinton Style Oolitic iron occurrences may also exist in EL26311, where the outcropping South Nicholson Playford Sandstone contains hematitic siltstones to ironstones. This area should be mapped and sampled to confirm.

The Central project is considered highly prospective for shallow phosphate mineralisation within the western tenements EL26310, EL26702 and EL26309. Wonarah Formation is likely present in the other tenements but at depths not currently considered economic as highlighted in drill hole NTGS01/1. There is some potential for base metals as Phosphate Australia mentioned in their prospectus that Minoil Services Pty Ltd 3m intersected a 3m band of “dark shale” that returned Cu-1500ppm, Pb-8000ppm and Zn-8000ppm and 17% Mn within the Alroy area. As such review of previous explorer’s reports should be undertaken to confirm the potential for SEDEX and manganese mineralisation within the project.

The Southern project has limited prospectivity for manganese mineralisation, as indicated by a number of reportedly stratiform manganese occurrences which are located immediately to the west of the project and are interpreted to be controlled by regional structures evident in the magnetic data which extend into the project. This could be confirmed through completing geological mapping and sampling focussed over the interpreted structural corridor, plus reconnaissance of a mapped manganocrete in the north east of the project tenement.

There remains small potential for uranium mineralisation, within the Austral Downs Limestone or palaeochannels, which could be quickly verified through field checking of stronger uranium responses with a spectrometer to determine the grade and extent of mineralisation.

The project tenement is not considered prospective for phosphate mineralisation due to the perceived depth to the phosphatic host sediments indicated by the mapped geology and geophysical responses, which indicate considerable thickness of younger, overlying sediments cover the area.

Target areas have been defined for each project area along with recommendations for follow up work.

It is believed that the compilation, purchase and processing of geophysical datasets has been successful in providing new information and imagery that has been used to generate target areas prospective for rock phosphate, base metals and uranium.

This report presents a summary of the data compilation, processing and target selection over Australis Exploration Pty Ltd, Northern Territory Projects.
2 SCOPE OF STUDY

The scope of the work undertaken for this project incorporated:

• Compilation of the available government geophysical survey data over the project area;
• Windowing, merging and processing of the geophysical and satellite data to highlight mineralogy, geology and controlling structures;
• Generation of a suite of imagery to assist in the delineation of target areas for Phosphate, Uranium and Base Metal mineralisation;
• Compile target areas for above commodities within the tenement areas;
• Provide the processed imagery and targets in suitable digital format for incorporation by Australis Exploration Pty Ltd into their GIS software package for interrogation and statutory reporting requirements.

3 PROJECT AREA

3.1 Location

The project area is located in the north east of the Northern Territory near the Queensland border and covers the central region of the Georgina Basin, figure 1. The project area consists of 15 tenements which cover an approximate area of 25,000 sqkm.

As the project covers a vast area the physiography varies greatly. However, it generally consists of open, grassy, clay rich soil plains, which are flat to gently undulating and are within the range of 200m-240m in elevation. To the south the area is dominated by undulating penep lain/sandplain with dunal systems developed. In the north and north east there are more prominent ridges and deeply incised plateaus where more resistant sandstone lithologies are abundant. tropical savannah grasslands, black soil plains and relatively flat alluvial plains. Some areas have more undulating terrain with low rocky outcrops and hills in others. The annual average rainfall is about 250-350mm, but can vary greatly from year to year, depending on the magnitude of the tropical influence. Stream and drainage channels are typically incised up to 1-2m into the alluvial plains.

3.2 Geology

Geology within the project area has been derived from the published 1:250,000 map sheets, figure 2. A full description of the geology is not provided here, however the project area has good outcrop towards the margins of the Georgina Basin in the north east where it abuts the South Nicholson Basin.
Elsewhere outcrop is variable and large portions of the project area are covered by recent tertiary alluvium and colluvium.

Figure 1: Project Location map. Australis NT Tenement outlines in red, Queensland Tenements in black. Outline of Georgina Basin = Dashed Brown line.
Figure 2: Project Geology map. Australis NT Tenement outlines in red, Queensland Tenements in black. Outline of Georgina Basin = Dashed Brown line.
4.1 Airborne Magnetic and Radiometric Data

The project area has been covered by good quality regional aeromagnetic surveys flown by Geoscience Australia (GA) and the Northern Territory Geological Survey (NTGS) generally with a 400m-500m line spacing. The aeromagnetic data was obtained from Geoscience Australia’s Data Delivery System (GADDS) and the NTGS. The aeromagnetic survey coverage is shown as figure 3.

Figure 3: Aeromagnetic Survey Coverage Map.
4.2 Gravity Data

Gravity data consisted of regional surveys from GA and the NTGS. The data was collected on variable station spacings ranging from approximately 10km x 10km to 4km x 4km centres. The data was obtained from Geoscience Australia’s Data Delivery System (GADDS) and supplied corrected to a Bouguer density of 2.67g/cc.

Figure 4: Gravity Survey Coverage Map.

4.3 Satellite Data

Landsat 7 ETM+ data were obtained over the entire project area. The Landsat data was obtained from the NTGS and GA. The Landsat consisted of two images showing an aerial photo equivalent and a two composite false colour images. Aster data is available from the NTGS, however it does not provide full coverage. Due to the estimated time it would take to fully compile and process the available scenes over the project area, and considering that no discrete response was found attributable to phosphate mineralisation over the known Queensland occurrences examined within report RP-100315-1, the Aster data has not been used here.

Landsat 7 ETM+ is a thematic mapping instrument that records 7 bands of spectral radiation from visible to short wave infrared (SWIR) and thermal infrared (TIR). Spectral responses from different band can be processed to determine lithological and mineral assemblages and assist in geological mapping and area assessment. Landsat 7 ETM+ data resolution ranges from 15m for the panchromatic band to 90m for the SWIR band 7. Aster data measures the same spectral radiation as Landsat, but with higher discrimination achieved through recording over 14 spectral bands as shown in figure 5 below. Aster has a spatial resolution similar to Landsat with 15m for the VNIR out to 90m for the TIR.
Shuttle Radar Topography Mission (SRTM) data was obtained over the entire project area and surrounds. SRTM provides high resolution elevation data of the entire globe and is accurate to approximately 10m vertically and 90m horizontally.

5 DATA PROCESSING AND IMAGE GENERATION

5.1 Airborne Magnetic and Radiometric Data

All airborne magnetic and radiometric data were provided or obtained as levelled or finally corrected gridded datasets. The gridded datasets were re-merged at the optimal resolution to provide higher quality final image products. The merged datasets were processed to highlight and better define controlling structures, local lithological variations and anomalous features. Data processing of the magnetic data included calculation of the first vertical and second vertical derivatives, automatic gain control filtering, analytic signal and reduction to the pole and are explained further below;

The first vertical derivative (1VD) is theoretically the rate of change of the magnetic field with increasing height. In practice it has two desirable effects. Firstly it tends to sharpen and separate magnetic anomalies. Secondly it makes the mean background level of the data equal to zero. The second vertical derivative (2VD) is essentially completing the first vertical derivative on the data twice, and is the rate of change of the rate of change of the magnetic field with increasing height. It sharpens and separates anomalies even further and is also symmetric about zero.
Automatic gain control (AGC) was performed on the vertical derivatives in order to enhance magnetic features within the dataset. It is a process whereby magnetic anomalies or features within a dataset are all reduced to similar amplitudes. This is very useful for extracting fine detail from datasets that are otherwise dominated by one or two high amplitude features, as is sometimes the case where magnetite bodies are present.

Analytic signal (AS) processing converts negative portions of magnetic response to be positive, which can be helpful where remnant magnetization is present. Mathematically it is the square root of the sum of the square of each derivative of the magnetic field in its three principal directions (X,Y,Z).

Reduction to the pole (RTP) is the correcting of the magnetic field for the inclination of the earth’s magnetising field in the survey area. It theoretically removes dipolar lows in strongly magnetic bodies and places the positive highs directly over the magnetic bodies. In practice it can result in artifacts, particularly if remanent magnetization is present, however it is recommended that it is always performed on all datasets as it assists in more accurately locating drill targets.

The radiometric data highlights signatures that can be related to surficial cover, regolith and outcrop. The merged radiometric grids were separated into individual radioelement Potassium (K), Thorium (Th) and Uranium (U). Apart from highlighting abundances of the specific radioelements, composites and ratios can delineate lithological variability and further refine anomalous responses. The best image for making geological assessment and interpretation is the Ternary Image which displays Potassium in Red, Thorium in green and Uranium in blue. High responses within individual radio-elements are displayed in their primary colour, and different concentrations of radio-elements are displayed as a combination of the primary colour. Black or very dark areas occur where there is no radioactive response and can occur over silica rich rock or sands, or water bodies.

The subsequent processed magnetic and radiometric grid files were then imported into ERMapper to generate final georeferenced imagery including sun shaded, grey scale, composite and ratioed imagery. In addition to the imagery, contours files of the magnetic and radiometric data where generated to refine the extents of responses and provide actual magnetic and radiometric values. A full list of the generated imagery and vector products have been included in the appendices.

5.2 Gravity Data

Gravity data was obtained as point located data and were imported into the Geosoft geophysical processing software to generate processed grids in geodetic coordinates with GDA94 datum. Data and
image processing of the gravity data included generation of derivatives and utilisation of various sun angle shading in order to highlight basement geology and regional controlling structures.

5.3 Satellite Data

Landsat 7 ETM+ data was obtained as colour balanced, ortho-corrected imagery consisting of a 741,742 and 321RGB ratio image. The 321 RGB represents visible light and provide an “aerial photo” type of image, and the 741 RGB shows Fe rich rocks in red, vegetation green, quartz rich rocks in blue.

The wavelengths measured by the Landsat 7 showing some of the absorption features (which can also be applied to Aster and HYMAP) are displayed in figure 10.

Figure 6: Landsat 7 ETM+ wavelength positions and spectra of selected surface materials (from Wilford and Creasey, 2002).

SRTM products including colour and sun shaded images were generated in ERMapper.
As part of this report a brief review of the geophysical responses from major phosphate, uranium and base metal deposits within the vicinity of the Project area was undertaken to determine if a characteristic response or signature could be detected that could then be applied to the Australis tenements.

The findings are summarized below:

**Phosphate Deposits : (Wonarah, Arrawurra, Alroy, Buchanan Dam, Alexandria and Highland Plains)**

Nearly all of the current Northern Territory sedimentary phosphate deposits are located distally from the margin of the Georgina Basin with the exception of the Highland Plains deposit, which like the major deposits in Queensland are located close to the Basin margin. All of the deposits are hosted within Middle Cambrian sediments. Highland Plains is locally hosted within the Water Hole Formation, and all the other Northern Territory sedimentary deposits are hosted within the Wonarah Formation, which is equivalent to the Beetle Creek Formation in Queensland. A simplified stratigraphic sequence is provided in table 1. In contrast to the Queensland deposits and with the exception of Highland Plains, there is no strong surficial uranium response associated with any of the deposits. This finding was also highlighted in Khan et al 2007, where it was found during hand held logging that the high grade core from the Wonarah deposit induced only a marginal increase in the scintillometer count. There are also no direct magnetic or gravity signatures associated to the deposits, but they do indicate relative basement depths and both Alroy and Buchanan Dam are located close to magnetic and gravity features.

There does not appear to be a characteristic spectral response for phospathic horizons in the Landsat imagery obtained, as it has likely been affected by recent processes including weathering, laterisation or erosion that may distort or mask the spectral response. However it is a useful surface mapping tool and appears to have greatly assisted in the NTGS regional mapping compilations.
Uranium Deposits: (None)

There are no significant Uranium deposits or occurrences that have been discovered within the Georgina Basin in the Northern Territory. Elevated uranium responses can be attributed to enrichment from recent process and drainage systems. Below is a summary of the styles of Uranium deposits that may be located within the project area, however the prospectivity for discovery of a uranium mineral deposit is considered to be low.

The different styles are summarised in part below from Australia’s uranium resources, geology and development of deposits by McKay, A.D., and Miezitis, Y., 2001. Geophysical methods can provide a major role in detecting and delineating these styles of mineralisation.

Unconformity related deposits occur immediately below and above major unconformities that separate crystalline basement from overlying clastic sandstones of either Proterozoic or to a lesser extent Phanerozoic age. High grade deposits (1-14% U3O8) occur in clay altered and faulted sandstones immediately above the unconformity. Deposits immediately below the unconformity are usually medium to high grade deposits (0.3-1% U3O8), with mineralisation occurring in fault and
fracture zones of altered metasediments that often contain graphitic. Ranger and Kintyre are examples of unconformity deposits.

Sandstone uranium are usually contained in fluvial or marine margin sandstone. The host rocks are medium to coarse grained, poorly sorted and contain pyritic and organic matter. In this environment uranium is mobile under oxidising conditions and precipitates under reducing conditions. Sandstone uranium deposits can be subdivided into three main types: tabular, roll-front and tectonic-lithologic.

Tabular deposits consist of tabular or elongate lenticular zones of uranium mineralisation within selectively reduced sediments and are orientated parallel to groundwater flow.

Roll-Front deposits are crescent-shaped in cross section and mineralisation cross cuts bedding and extends from the overlying to the underlying impervious mudstone/siltstone layers. Mineralisation usually has a diffuse boundary with reduced sandstone on the down gradient side and sharp contacts with the oxidised sands on the up-gradient side.

Tectonic-Lithologic deposits occur along permeable fault zones which cut the sandstone-mudstone sequence. Mineralisation forms tongue shaped ore zones along the permeable sandstone layers adjacent to the fault, and may form vertically stacked mineralised zones.

Surficial uranium deposits are broadly defined as young (Tertiary to Recent) near surface uranium concentrations in sediment or soils. They usually have secondary cementing minerals including calcite, gypsum, dolomite, ferric oxide and halite. Uranium deposits in calcrete are the largest of the surficial deposits e.g. Yeelirrie and the main mineral is carnotite (hydrated potassium uranium vanadium oxide).

Base Metal Deposits: (MacArthur River, Mt Isa, Cannington, Century, Ernest Henry)

There are only a small number of known base metal occurrences within the Georgina Basin. In general these can be usually grouped into either Iron Oxide Copper Gold (IOCG) or Broken Hill Type (SEDEX) Lead-Zinc-Silver style deposits. Both styles of deposit generally display coincident magnetic and gravity anomalies and may have associated electromagnetic and electrical signatures. A number of papers exist on the geophysical signatures of some of the major deposits which go into further detail about the geophysical responses, and limitations. Of these the following are suggested for further reading (Anderson 1992 Osborne, Brescianini 1992 - Eloise, Fallon 1992 - Mt Isa, Webb 1995 - Ernest Henry, Christensen 2001- Cannington and Thomas 1992 - Century).

Phosphate Australia have noted in their prospectus that Minoil Services Pty Ltd explored for both phosphate and sedimentary base metal mineralisation in the Alroy area and noted that one hole
contained a 3m intersection of “dark shale” that returned Cu-1500ppm, Pb-8000ppm and Zn-8000ppm. This interval also contained 17%Mn and may suggest that the region could also be prospective for Mn mineralisation.

Other Occurrences
Clinton Style Oolitic Iron Ore

Iron Ore occurrences of the Clinton Oolitic Style are located within the South Nicholson Basin which abuts the Georgina Basin in the north east of the Northern Territory. They are Proterozoic to Cretaceous in age and formed in shallow marine environments and accumulated along passive continental margins during times of quiescence, extension and global sea level change (Ferenczi, 2001). Several ironstone beds up to 20m thick within the Mullera Formation containing hematite and goethite have been reported by Sweet 1984. The largest occurrence of this type is located in the Constance Ranges area in Queensland containing approximately 360Mt of 51% iron ore (Harms 1965). The occurrences are associated with narrow, strike extensive weak to moderate magnetic responses, and also have a discrete uranium signature.

Manganese

The major manganese occurrences and deposits of the Northern Territory have been summarized by Ferenczi NTGS Report 13, 2001. The main styles are sedimentary (Grooyte Eylandt), hydrothermal (Bootu Creek) and surficial. A number of manganese occurrences have been reported by the NTGS to be located within or close to the margins of the Georgina Basin e.g. Camp No 1 and Lucy Creek. In addition there may be further manganese mineralisation discovered through review of previous explorers open file reports as highlighted in the previous sections. Geophysics can be an import tool in detecting manganese mineralisation, with particular success shown by the application of both high resolution gravity, electrical methods and airborne electromagnetics. The airborne electromagnetic techniques has proven particularly successful at both the Bootu Creek and Grooyte Eylandt manganese deposits (OMH 2008 and Irvine 2001 respectively) in detecting mineralisation or the marker beds immediately adjacent to mineralisation.
7.1 Northern Project

Tenements EL26311, 26312, 26314 and 26701.

Geophysical data coverage includes full magnetics, radiometrics, gravity and Landsat.

The project area straddles the Georgina Basin and South Nicholson Basins with the majority of the tenure located over the Georgina Basin, figure 8. The southern project tenement lies immediately north of the Buchanan, Alroy and Alexandria phosphate occurrences, with the mapped margin of the Georgina Basin located in the eastern third of the tenure. The western two thirds of the tenements consisting of Georgina Basin sediments are dominated by recent cover and drainage systems, with outcropping Georgina Basin and South Nicholson Basin sediments plus Helen Springs Volcanics in the east. Outcrops of Wonarah Formation are mapped within EL26311, 26312, and 26701 and could potentially extend under recent overlying Cenozoic cover. As such the project is considered highly prospective for phosphate mineralisation.

Of the geophysical datasets both the radiometrics and satellite imagery are considered the most useful for outcrop interpretation and phosphate targeting in this project. In particularly the Landsat imagery appears to have been extensively used by the NTGS for mapping outcrop geology, defining drainage and regolith landform mapping, as it has a close correlation to the published geology. The limitation of both methods are that they only show surficial responses. The ternary radiometric image and Landsat 742, figures 9 and 10, show good correlation to the mapped geology in the east where outcrop is good. The most significant responses are from thorium, which appear to be associated with Cambrian Helen Springs Volcanics and Wonarah Formation sediments. The significant thorium responses suggest that area has been subject to widespread laterisation and ferruginisation processes. Large regions of weak radiometric response especially in the western two thirds of the project, shown as light blues to greens and black in the ternary image represent recent drainages, black soil plains, silica rich material and surface water.

In the Landsat 742 imagery, outcropping Georgina Basin, South Nicholson and Helen Springs Volcanics are readily defined by their dark brown, black, red and blue responses.

Of particular note is that the Wonarah Formation within the project area does not have a significant uranium or uranium²³/thorium response that can be used to discretely identify outcropping phosphatic material as it does for the Queensland occurrences. The Highland Plains phosphate occurrence does
have a discrete uranium and uranium\(^2\)/thorium response but it is hosted within the Border Waterhole Formation, not the Wonarah Formation.

Target areas considered prospective for phosphate mineralisation have been selected over elevated or anomalous uranium or uranium\(^2\)/thorium responses that are closely associated to mapped outcrop of Wonarah Formation sediments. These are mainly restricted along the eastern third of the project area, with some targets selected in the south, figure 11. There remain considerable further outcrops of Wonarah Formation, which have not been selected here but also require suitable sampling.

In addition there are no strong uranium responses within the project which indicate the potential for significant near surface uranium mineralisation.

The magnetic data highlight variably low to moderately magnetic basement volcanic rocks (Helen Springs Volcanics) which extend from outcrop in the east under Georgina Basin sediments to the west, figure 12. The response from the volcanics can be used to estimate basement depth, interpret potential sediment thicknesses and assist in prioritising defined target areas. Major structures and lithostratigraphic boundaries can be interpreted from the magnetic imagery, especially from the derivative products. Figure 13 shows the 1\(^{st}\) vertical derivative as colour draped over the second vertical derivative in grey scale. It can be clearly seen that within the northern tenements EL26312 and EL26314 there is complex area of mostly north east trending structures and magnetic units which show evidence of shearing and faulting. The northern portion of EL26314 is considered prospective for base metal mineralisation as it corresponds to a corridor of major, variably magnetic, generally north east trending structures and is where magnetic stratigraphy from the south terminates.

The gravity coverage is quite good over the project area generally consisting of 4km spaced observations and highlights regional structures and broad features, figure 14. Further processing highlights more discrete gravity highs which can be broadly correlated and interpreted be due to volcanics, and gravity lows can be attributed to deeper basement and thicker basin sediment piles. Major regional structures which compliment the magnetic data can be interpreted where strong gradients are apparent. Small gravity variations over the project likely represent near surface changes in rock type, facies changes and increased silicification of the Georgina Basin sediments.

A discrete coincident gravity and magnetic anomaly located in the western extent of EL26312 indicates a zone where structures trending in different directions intersect which may represent a deep base metal (or IOCG?) target and should be considered for further investigation. The north east trending structural corridor indicated from the magnetics within the northern portion of EL26314, also has a weakly elevated gravity response.
The project is also considered prospective for base metals in EL26314 along north east trending structures and a coincident magnetic and gravity anomaly located in the south west of the tenement. A Clinton Style Oolitic iron occurrences may exist in EL26311, where the outcropping South Nicholson Playford Sandstone contains hematitic siltstones to ironstones.

This project is considered highly prospective for shallow phosphate mineralisation located within or close to the outcropping Wonarah Formation in the eastern and southern portion of the project. Areas considered prospective for base metal and iron mineralisation have been proposed for further investigation. The project is not considered prospective for extensive, near surface uranium mineralisation.
Figure 8: Northern Project Geology and Phosphate Occurrences.

Figure 9: Northern Project Radiometric Ternary Image.
Figure 10: Northern Project Landsat 742 Image.
Figure 11: Northern Project uranium/thorium image, with target areas (pink) and Wonarah Formation (black) outlines.
Figure 12: Northern Project Magnetic Image, with target zones and interpreted major structures.
Figure 13: Northern Project Magnetic 1VD (colour) over 2VD (grey) Image, with target zones and interpreted major structures.
Figure 14: Northern Project Gravity 1VD Image.
8.1 Northern Project

This project is considered highly prospective for shallow phosphate mineralisation within the outcropping Wonarah Formation and likely extensions of this unit beneath recent cover sediments to the west of the project. Only a few target areas which display some elevated uranium anomalism have been selected, figure 11, and there remains a number of Wonarah Formation outcrops which should be systematically sampled for phosphate mineralisation.

Areas considered anomalous and prospective for base metal mineralisation located in the north of EL26314 and the west of EL26312 have also been selected, figures 13 and 14. The target area within EL26314 is considered to be relatively shallow (200m depth) whereas the target within EL26312 appears quite deep (400m-500m), however modeling of the data is required to validate this.

Some potential for Clinton Style Oolitic iron occurrences may exist in EL26311, where the outcropping South Nicholson Playford Sandstone contains hematitic siltstones to ironstones. This area should be mapped and sampled to confirm.

The area is not considered prospective for significant uranium mineralisation.
9 CONCLUSIONS AND RECOMMENDATIONS

The compilation, purchase and processing of geophysical datasets has been successful in providing new information and imagery that has been used to generate target areas prospective for phosphate, base metals and uranium. The Northern and Central Projects are considered highly prospective for phosphate mineralisation, as the projects contain considerable outcrop of Wonarah Formation which host most of the major phosphate deposits within the central Georgina Basin. There exists some prospectivity for Clinton Style Oolitic iron in the northern Project and base metal minerals within all projects.

The base metal targets are all expected to be located under variably deep cover. Further work is necessary to estimate this depth, so that it can be determined if they represent economically viable targets prior to committing to potentially expensive exploration programs.

Recommendations for future work include:

- Completion of a full literature search and compilation of results from previous exploration activities.
- Complete depth to basement modeling over all areas prospective for base metals.
- Based on these results propose further geophysical programs to better define/model the depth to basement or potentially directly target mineralisation (IP/EM techniques).
- Field reconnaissance, mapping and sampling of all elevated uranium anomalies to determine their source and concentration, taking spectrometer readings as a precursor to potential drilling programs.
- Systematic geochemical sampling of target areas and known outcrops of Wonarah Formation, in conjunction with field mapping and drilling where appropriate.
This information should be used as an adjunct to any other information from the area that may be available to Australis Exploration to provide further indications of the mineral potential.

10 REFERENCES


Phosphate Australia Prospectus 2008


APPENDIX 1

List of Georeferenced Images and Vector Files Supplied
**Image Files**

**Magnetics**
- NT_tmi1vd_g
- NT_tmi2vd_g
- NT_tmi_1vd_nesun_HSI
- NT_tmi1vdage_g
- NT_tmi1vdage_rbw
- NT_tmi2vdage_g
- NT_tmi_nesun_he_rbw
- NT_tmi_nesun_HSI
- NT_tmi1vdrtp_over_2vdagertp_psc
- NT_tmi2vdagertp_g
- NT_tmiAS_nesun_psc
- NT_tmi_nesun_psc
- NT_tmirtp_over_1vdagertp_nesun_psc

**Radiometrics**
- NT_K_nwsun_psc
- NT_K_psc
- NT_RADRGB_99
- NT_RADRGB_he_
- NT_Th_nwsun_psc
- NT_Th_psc
- NT_Ur_nwsun_psc
- NT_Ur2Th_psc
- NT_Ur_psc
- NT_ternary
- NT_ternary_he

**Gravity**
- NT_BG_nesun_rbw
- NT_BG1VD_nesun_rbw

**Landsat**
- NT_Landsat_742

**SRTM**
- NT_SRTM_nesun_rbw
- NT_SRTM_rbw
Vector Files

Geology
NT_250K_Geology

Interpretation
NT_Australis_Target_Outlines

Processed Imagery Filename Structure:

tmi = total magnetic intensity
DTM = digital terrain model
AHD = Australian Height Datum
RAD = radiometric image
K/Th/Ur = Potassium/Thorium/Uranium Image
Grav/BG267 = Bouguer Gravity 2.67gcc (220 = 2.20 etc)
SRTM = Shuttle Radar Topography Mission (DTM)
L7 = Landsat7 ETM+

1vd = 1st vertical derivative
2vd = 2nd vertical derivative
agc = automatic gain control filter
rtp = reduced to the magnetic pole
as = analytic signal
TD = tilt derivative
HD_TD = horizontal derivative of the tilt derivative
text57 = texture filtered with 5,7 filter variables
nesun = north east sun angle shading
nwsun = north west sun angle shading
resid = residual
pct = percentage concentration
ppm = equivalent concentration ppm
Brovey = brovey transformation

RGB = Red, Green, Blue radiometric ternary image (Potassium/Thorium/Uranium)
lin = linear histogram stretch
he = histogram equalised
99clip = histogram 99% clipped
psc/50 = pseudocolour image/50% transparency
rbw/50 = rainbow colour image/50% transparency
g = greyscale image
wet = wetlook (HSI)

m52 = GDA94 Datum and MGA Zone 52 projection
gll = GDA94 Datum Lat/Long Coordinates

e.g. tmi1vdagcrtp_g_m52 = magnetics, 1st vertical derivative, agc filtered, reduced to the magnetic pole, grey scale image, GDA94 Datum and MGA Zone 52 projection coordinates
RAVENSGATE-PROSPECTIVITY ASSESSMENT AND VALUATION- JUNE 2010
(EXTRACT ONLY)
VALUATION

on the

Regional Tenement holdings

in

Queensland and the Northern Territory

for

AUSTRALIS EXPLORATION LIMITED AND MOJO MINING PTY LIMITED

30 June 2010
## VALUATION

Prepared by RAVENSGATE on behalf of:

Australis Exploration Ltd and Mojo Mining Pty Ltd

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<th>Principal Consultant</th>
<th>Reviewer</th>
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| Date:                           |                            |                                       |
| 30 June 2010                     |                            |                                       |

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1. EXECUTIVE SUMMARY

BACKGROUND

Ravensgate has been commissioned by Australis Resources Limited (Australis) to provide a review of the phosphate, uranium and base metal prospectivity of their Queensland and Northern Territory exploration leases and to provide an Independent Technical Valuation of these leases (for the company’s internal use).

Australis Exploration Limited and Mojo Mining Limited have acquired a very large holding of exploration licenses and license applications comprising some 70 tenements covering 45,149 km² of Queensland and the Northern Territory. Of this 31 tenements (25,124 km²) are granted with the remainder applications in Queensland that are at varying stages of the title application process.

Australis’ and Mojo’s licenses are centred on the Georgina Basin, an extensive sedimentary basin infilled with predominantly Cambrian age marine carbonate rocks. Elsewhere in the basin these Mid-Cambrian carbonates host large sedimentary phosphate deposits including Phosphate Hill, D Tree, Wonarah and Highland Plains. Forming the basement to the Georgina Basin is a sequence of Proterozoic rocks including interpreted extensions of the highly mineralised Mount Isa Inlier which hosts several world class Zn-Pb-Ag and Cu deposits including Mt Isa, Hilton and Century.

This large tenement holding has been grouped into ten geographic project areas. Five project areas lie in the eastern Northern Territory (Mittelbah, Desert Creek, Ranken, Tablelands, Tobermorey) and five lie in northwest Queensland (Mojo, Camooweal, West Isa, Glenormiston, Boulia).

Ravensgate has completed an extensive review of the geology, previous exploration and prospectivity of these project areas focussing on phosphate, base metal and uranium. The projects generally have had little in the way of modern exploration. The identified exploration targets and mineral assets have been categorized as ‘grass roots’ or conceptual in nature, with most targets having been generated from regional geophysical data-sets.

PROSPECTIVITY

Phosphate Prospectivity:

• The best phosphate targets lie in the Camooweal Project area in close proximity to the Sherrin Creek and Lily Creek Deposits.
• The Mittiebah, Ranken, and Desert Creek projects in the NT have moderate potential and are in close proximity to other known deposits such as Alroy, Wonarah and Alexandria

Base metal Prospectivity:

• The best areas for identifying a Mount Isa style Pb-Zn or Cu deposit lies within the Mojo project area under deep cover (>300m), where the same stratigraphic sequence that hosts Mount Isa style mineralization may occur at depth.
• Base metal targets have been identified within Boulia, West Isa, and Glenormiston Project areas. All of these targets are under deep cover (>200m) and lie within an inferred Proterozoic basement area.

Uranium Prospectivity:

• Surficial uranium targets have been identified within the Tobermorey Project in the NT which is a granted tenement.
• Surficial uranium targets have also been identified within the West Isa and Glenormiston project area in Queensland. The Glenormiston and Tobermorey targets represent a continuation of the same paleo-channel from QLD to NT.
• Surficial / Sandstone targets have been historically identified within the Longsight Sandstone and equivalents. These targets occur within the Boulia, Glenormiston and Mojo
Projects. Current geological and geophysical information suggests a fairly low prospectivity.

VALUATION

A summary of the Australis and Mojo project valuations in 100% terms is provided in Table A for granted tenements and Table B for tenements in application. The applicable valuation date is 30 June 2010 and is derived from the Comparable Transaction valuation method after review of the Valuation Methods. The value of a 100% equity interest in the Australis NT and QLD Projects is considered to lie in a range from $8.5M to $47.8M (in total and assuming all relevant tenements in application are granted to Australis), within which range Ravensgate has selected a preferred value of $16.5M. The preferred value reflects the project’s potential which remains to be fully tested and the accompanying opportunity to find economic mineralisation. In Ravensgate’s opinion the provisional value also reflects the uncertain nature of early-stage, greenfields exploration over large tenement holdings. The valuation has been derived for 30 June 2010 and is only applicable at this point in time. The technical valuation is for internal purposes only and not for reporting on the ASX.

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<th>Valuation High</th>
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<td>0.9</td>
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Note: Minor rounding errors may occur.
2. TERMS OF REFERENCE

2.1 Introduction and Scope of Work

Ravensgate has been commissioned by Australis Resources Limited (Australis) to provide a review of the phosphate, uranium and base metal prospectivity of their Queensland and Northern Territory exploration leases and to provide an Independent Technical Valuation of these leases (for the Company’s internal use).

This report is concerned primarily with the technical valuation of the Australis’ and Mojo’s tenements with the geology and prospectivity of each project only briefly summarised. An accompanying report commissioned by Australis Exploration Limited (name of report, etc) contains a more detailed geological assessment of each project area including information previous exploration, targets and recommendations for future exploration work.

Ravensgate understands the granted exploration tenements are held by Australis Exploration Ltd and by Mojo Mining Pty Ltd (Mojo). Ravensgate makes no other assertion as to the legal title of tenements and is not qualified to do so.

2.2 Terms of Reference

The objective of this report is; (1) to provide a fair assessment of the geological prospectivity of the project areas; and, (2) to provide a project valuation and technical assessment of the mineralisation within the various NT and QLD Exploration Projects. The project valuation is not considered a strictly compliant Valmin valuation and is for internal purposes only. This reflects the inclusion of tenements under application where tenure or permits have not been granted to the relevant company and the company does not therefore own the tenements or any exploration value within the tenements. The project valuation has been split between granted tenements and tenements-in-application to provide an understanding of overall value increase if further relevant tenements are granted. Ravensgate considers that in other respects the valuation methodology is consistent irrespective of tenement status and fit for the purposes of internal reviews and studies. In conclusion the valuation is intended for Australis’ and Mojo’s internal use only, and that the valuations included in this document for granted tenements comply with the Valmin Code (2005) but those provided for tenement applications do not comply with the Valmin Code (2005).

The work has been commissioned by Australis and Mojo. Australis and Mojo will rely upon and use the report to assist separately forming an opinion about the value of the mineral rights in relation to an internal review of the project tenements granted and in application. This report does not provide a valuation of Australis or Mojo as a whole, nor does it make any comment on the fairness and reasonableness of any aspect of any proposed transactions.

The conclusions expressed are valid as at the Valuation Date (30 June 2010). The valuation is therefore only valid for this date and may change with time in response to changes in economic, market, legal or political factors, in addition to ongoing exploration results. All monetary values included in this report are expressed in Australian dollars (AUD) unless otherwise stated. The report has been compiled based on information available up to and including the date of this report. Consent has been given for the internal distribution of this report in the form and context in which it appears.
2.3 Disclaimer
Australis Exploration Limited and Mojo Mining Limited are understood to be the beneficial owner of the tenements in Table 1. Ravensgate is not qualified to make any statement or comments whatsoever regarding the legal tenure of the mining properties.

Of note is that this report is intended for Australis’ internal use only as the valuation includes both granted tenements and tenement applications. The valuations provided for granted tenements have been prepared in accordance with the Valmin Code (2005). However the valuation provided for tenement applications do not comply with the Valmin Code.

All work conducted during this study is based on information provided by the understood title holders of the project, along with technical reports by other consultants, associated contractors, previous tenement holders, and other relevant published and unpublished data specified for the project areas concerned.

2.4 Principal Sources of Information
The principal sources of information used to compile this report comprise technical reports and data variously compiled by Australis or Mojo and their consultants, publicly available information such as ASX releases, and discussions with Australis technical and corporate management. A listing of the principal sources of information is included in the references.

No site visits were undertaken to the exploration projects as they are generally at an early stage of development. Ravensgate is of the opinion that no significant additional benefit would have been gained through site visits.

All reasonable enquiries have been made to confirm the authenticity and completeness of the technical data upon which this report is based. A final draft of this report was also provided to Australis or Mojo, along with a request to identify any material errors or omissions prior to final submission.

2.4.1 Qualifications and Technical Experience of Author

Author : Don Maclean - Principal Consultant - Geology
MSc Geology, MAIG, MSEG

Don is a geologist with over fifteen years experience in exploration geology, mine geology, resource modelling and project management throughout Australasia and Europe. He has worked in a variety of commodities, including gold, precious and base metals. Prior to joining Ravensgate, Don was the Chief Geologist for Ironbark Zinc where he was responsible for managing exploration and resource development work at the Citronen Fjord Zinc project in Greenland. Prior to this, Don worked for Newmont and Normandy throughout Australasia in a variety of senior exploration and mine based roles. Don was instrumental in the discovery and development of the 1.5 Million ounce Westside Gold Deposit at Nimary-Jundee in Western Australia. Don has a broad skill base, having worked in regional and near mine exploration, resource development, open pit and underground geology as well as senior company management roles. He has extensive experience in planning and managing large exploration projects, working on feasibility teams, technical audits, resource generation, and exploration target generation. He has worked in a variety of geological terranes ranging from the high Arctic to the arid deserts of Australia. Mr. Maclean holds the relevant qualifications and professional associations required by the ASX, JORC and ValMin Codes in Australia.
Co Author: Craig Allison, Principal Consultant.
BAppSci (Hons) Geology, Member of Australasian Institute of Mining and Metallurgy.

Craig Allison is employed by Ravensgate Consulting as a Principal Consultant where he carries out work for Mineral Resource estimations, Independent Technical Valuations, Independent Geologist Report’s and Formal Technical Project reviews. He has over 15 years mining industry experience in operational project exploration, grade control and resource estimation. Craig has worked for both Junior and larger ASX listed companies, encompassing open-cut/underground base and precious metal operations and uranium resource evaluation. Competent Person sign-off was undertaken for BHP Billiton’s Mt Keith nickel resource and other projects surrounding the mine in 2007. A Post Graduate course in Geostatistics was completed in 2006. Craig Allison holds the relevant qualifications and professional associations required by the ASX, JORC and ValMin Codes in Australia. He is a Qualified Person under the rules of the CIMM and NI43-101.

Co Author: H. Kate Holdsworth, Senior GIS Geologist
BSc (Hons) Geology, MAusIMM

H. Kate Holdsworth is a senior GIS geologist with over 17 years GIS experience who joined the Ravensgate team in September 2006. During her tenure at Ravensgate, she has contributed to the compilation of numerous Independent Geologists Reports, Valuation Reports, GIS projects as well as having assisted clients with their exploration reporting requirements and QA/QC investigations into client’s data quality.

Prior to joining Ravensgate, she worked for Giscoe Pty Ltd, a GIS company in Johannesburg, for ten years, where she was involved in diverse GIS projects, including database creation, database population and data validation. Kate has four years experience in GIS with the Geological Survey of South Africa, where she was a member of their GIS database design team.

Reviewer: Stephen Hyland, Principal Consultant, Ravensgate.
Bachelor Of Science (Geol). MAusIMM, CIM & GAA.

Stephen Hyland has had extensive experience of over 20 years in exploration geology and resource modelling and has worked extensively within Australia as well as offshore in Africa, Eastern and Western Europe, Central and South East Asia modelling base metals, phosphate, precious metals and industrial minerals. Stephen’s extensive resource modelling experience commenced whilst working with Eagle Mining Corporation NL in the diverse and complex Yandal Phosphate Province where for three and half years he was their Principal Resource Geologist. The majority of his time there was spent developing the historically successful Nimary Mine. He also, however assisted the regional exploration group with preliminary resource assessment of Eagle’s numerous exploration and mining leases. Since 1997, Stephen has been a full time consultant with the minerals consulting firm Ravensgate where he is responsible for all geological modelling and reviews, mineral deposit evaluation, computational modelling, resource estimation, resource reporting for ASX / JORC and other regulatory compliance areas. Primarily, Stephen specialises in Geological and Resource Block Modelling generally with the widely used Medsystem / Minesight 3-D mine-evaluation and design software. Stephen Hyland holds the relevant qualifications and professional associations required by the ASX, JORC and ValMin Codes in Australia. He is a Qualified Person under the rules for NI43-101 reporting and compliance requirements.
Reviewer: Richard Hyde, Associate Consultant.
Bachelor of Science, Geology and Geophysics, Member of Australasian Institute of Mining and Metallurgy.
Mr Richard Hyde, is a geologist with more than 14 years experience in the minerals industry including over five years experience operating in exclusively West Africa. Richard has worked in a number of different geological environments in Australia, Africa and Eastern Europe. He has managed large exploration projects and worked extensively within the minerals industry as a consulting geologist. He is an Associate Consultant of Ravensgate and a Member of the AusIMM, and has the appropriate qualifications, experience and independence to satisfy the requirements as an “Expert” as defined under the Valmin code.
3. BACKGROUND

3.1 Project Area Overview

Australis Exploration Limited and Mojo Mining Limited have acquired a very large holding of exploration licenses and license applications throughout northwest Queensland and eastern Northern Territory (Figure 1). The licenses are centred on the marine carbonates of the Georgina Basin and the basement Proterozoic rocks of the Mount Isa group and correlates. The tenement package is primarily prospective for phosphate, base metal and uranium mineralisation.

This large tenement holding has been grouped into nine geographic project areas to aid in description and evaluation (Figure 1):

- Mittiebah Project (NT)
- Desert Creek Project (NT)
- Ranken Project (NT)
- Tablelands Project (NT)
- Tobermorey Project (NT)
- Mojo Project (QLD)
- Camooweal Project (QLD)
- West Isa Project (QLD)
- Glenormiston Project (QLD)
- Boulia Project (QLD)
Figure 1  Australis Exploration Limited and Mojo Mining Limited tenement holdings and project areas. Note Georgina Basin (pale blue) covers much of the exploration license areas.
3.2 TENURE

Australis Exploration and Mojo Mining’s tenure comprises some 70 tenements covering 45,149 km² of Queensland and the Northern Territory. Of this 31 tenements (25,124 km²) are granted with the remainder of applications in Queensland at varying stages of the title application process. Tenement details are summarized in Table 1.

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Table 1  Australis Exploration and Mojo Mining Tenement Schedule

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3.3  Sources of information and methodology

Australis Exploration provided Ravensgate an extensive array of data on the projects which included:

- Geophysics (Magnetics, Radiometrics, Gravity)
- Government Geological Mapping
- Historical Reports
- Various internal company reports

Of note is that Australis commissioned M Cooper of Resource Potentials to undertake compilation and geophysical target identification of their geophysical data sets and provided these reports to Ravensgate. This work is of excellent standard and Ravensgate has drawn on the targets
identified in this work and attempted to put them into geological context. In addition there has also been good prospectivity work done on the Mojo Project area by Groves (2008) and Mclean et al (2008) which Ravensgate has also used and acknowledges.

Ravensgate methodology was to systematically review the geological and geophysical data sets for each project area and review previous work. Extensive searches of historic tenement reports were carried out as the set of reports provided by Australis was incomplete. In addition historic drilling information for mineral exploration and waterbores was obtained from the relevant Northern Territory and Queensland authorities. Unfortunately none of these drilling data sets appear to have any sampling for phosphate, base metals or uranium within the project areas.

Targets were reviewed and ranked using a set of subjective geological and economic criteria. Using these ratings and rankings the prospectivity of each project area was evaluated, and on this basis, recommendations for tenement holding strategy and future exploration work are based. This information, along with relevant comparable transactions was used to estimate valuations for the projects.

4. REGIONAL GEOLOGICAL SETTING

The regional geologic setting of Australis’ and Mojo’s tenement holdings are dominated by a sequence of extensive marine carbonates and sediments of the Paleozoic Georgina Basin (Figure 1). These are underlain by Proterozoic sediments, volcanics and granitoids of the Mount Isa Inlier and South Nicholson Basin.

The Mount Isa Inlier outcrops over some 50,000 km$^2$ of North Queensland (Blake et al, 1990) and consists of Early and Middle Proterozoic rocks which can be grouped into three broad tectonic belts; the Western Fold Belt, the Kalkadoon-Ewen Province and Eastern Fold Belt (Figure 2).

The Western Fold belt is further subdivided into three main units the Lawn Hill subprovince, the Mt Gordon Fault Zone and the Leichardt River subprovince. The Eastern fold belt is subdivided into the Mary Kathleen, Quamby-Malbon and Cloncurry-Selwyn zones (Blake et al, 1990).

The oldest Proterozoic basement metamorphic rocks are dated around 1890-1870 Ma (Blake et al, 1990). Three Proterozoic cover rock sequences of shallow marine and sub aerial volcanics have been identified with ages ranging from 1870 to 1670 Ma. Regional deformation, compression and metamorphism up to amphibolite facies occurred around 1620 to 1550 Ma. Granitoids and mafic intrusions have been emplaced at various times before 1100 Ma with those older than 1550 variably deformed and metamorphosed (Blake et al, 1990). Of note is the Syabella Granite, which is interpreted to underlie parts of the Mojo project area, which has been dated at 1670 Ma.

The Western Fold belt outcrops in the eastern part of the Camooweal project area and is interpreted to form the basement to the Mojo and Boulia project areas. The belt is comprised of a sequence of felsic volcanics and coarse conglomerates (Bottle Tree Formation) overlain by the sandstones/siltstones/quartzites, mafic volcanic (Eastern Creek Volcanics) and carbonates of the Haslingden Group. These units are overlain by felsic/silicic volcanics and the shales and siltstones of the Mount Isa and McNamara Group rocks.

The Mount Isa Inlier is a highly mineralized province with four major styles of mineralization recognized:

- **Sediment hosted Zn-Pb-Ag**: these are found within metamorphosed pyritic and dolomitic shales of the sedimentary successions of the Western Fold Belt. Notable deposits including Mount Isa Pb-Zn, Century, George Fisher, Hilton, Dugald River and Lady Loretta

- **Brecciated Sediment Hosted Cu**: brecciated sediment hosted Cu deposits occur within the brecciated sediments proximal to fault zones within the Western Folds Belt. Notable examples are the Mount Isa, Esparanza/Mammoth and Cloncurry-Selwyn Groups.

- **Iron-oxide Cu-Au**: these styles occur within high metamorphic grade rocks of the Eastern Fold belt with examples including Ernest Henry, Selwyn and Osbourne. Mineralisation is typically chalcopyrite-pyrite-magnetite.
• **Broken Hill Type Ag-Pb-Zn:** this style of mineralization occurs within high metamorphic grade rocks of the Eastern Fold Belt with the Cannington being the only major example.

Unconformably overlying the Western Fold belt are Proterozoic age rocks of the South Nicholson Basin. These are comprised of sandstones, siltstones and shales of the South Nicholson Group. These rocks outcrop in the northeast of the Mittiebah project area and are interpreted to form basement to much of Australis’ Northern Territory and western Queensland project areas. Of note is that little mineralization of economic significance (aside from sedimentary ironstone deposits) has been identified within these rocks to date.
Figure 2  Geological Setting of North Queensland Proterozoic Basement and major deposits (after Queensland Geological Survey)
The majority of Australis’ and Mojo’s tenement holdings are held within the Georgina basin which is Cyrogenian (Neoproterozoic) to Devonian in age. This extensive basin has an area of over 325,000 km² (Khan, 2007). Basin thickness ranges from tens of metres on basin margins and highs to up to two km in the deepest parts. The basin fill is dominated by Cambrian marine carbonate platform sediments.

The Basin has been subdivided into several smaller sub-basins (Figure 3) which reflect the thickness of fill (Khan, 2007). Australis’ projects are generally on the margins of the Barkly and Undilla sub-basins.

The stratigraphic sequence within the basin consists of a basal sequence of terrigenous sediments overlain by Early Cambrian flood basalts (Helen Creek Volcanics and equivalents). These are overlain by marine arenaceous rocks that grade upwards into marine carbonates as the basin deepened (Thortonia Limestone) and siltstone-shale-ocher sequences (Gum Ridge Formation). At this time the sedimentary lateral facies trends of arenites, lutites, plastic and chemical carbonates and chert was established and deposition of phosphate began (Howard, 1986).

A marine regression and transgression followed in the Mid Cambrian and in the Undillan sub-basin the major deposition of phosphorite within the silt-shale-ocher-carbonate facies of the Beetle Creek, Border Waterhole, Wonarah and Burton beds began (Howard, 1986). These are overlain and interdigitated with marine carbonates (Camoweal Dolomite). In deeper parts of the basin these grade upwards into deeper marine siltstones and sandstones (Ninmaroo Formation).

A number of major phosphate deposits are hosted within the Mid Cambrian carbonates of the Georgina Basin which Howard (1986) groups into three distinctive depositional regimes:

- **Open marine shelf** - deposition of phosphorites on the marine shelf on the seaward flank of the margins of the basin (e.g., Duchess)
- **Shallow marine epicontinental basin** - deposition of phosphorites in hypersaline carbonate banks on the margins of channels within lagoons and estuaries (e.g., D-Tree, Lady Annie)
- **Epicontinental basin high** - deposition of phosphates on the crest and margin of a submarine ridge within an area dominated by red beds (e.g., Wonarah, Alroy)

Overlying the Georgina Basin Cambrian-Ordovician rocks are a sequence of Jurassic Cretaceous shales, siltstones and sandstones and carbonates related to the Carpenteria Basin, formed in an extensive shallow marine basin (Longsight Sandstone, Poland Waterhole Shale).

In the Tertiary uplift and erosion resulted in formation of ferruginous duricrust and weathered leached kaolonised rocks throughout many areas. In the Miocene transgression resulted in the formation of extensive lacustrine or shallow marine carbonates (Austral Downs Limestone, Brunette Limestone). Uplift and erosion from the Pliocene to present has resulted in the development of nodular ferricrete, residual soils, colluvium and alluvial material related to the development of drainage systems.
Figure 3  Georgina Basin and major phosphate deposits. Note deposits lie on the margins of the basin or on a major basin high (the Wonarah-Alexandria basement high) (after Khan, 2007)
5. TARGET MINERALISATION STYLES

5.1 Phosphate

Phosphate mineralisation within the Georgina Basin are classified as marine sedimentary type and exhibit a number of key geological features. All deposits are shallow marine and are either within 20 kilometres of the margins of the basin or lie on a major structural high within the basin (Figure 3). The depth at which phosphate precipitates out of solution is generally accepted to be in the range of 30 to 200 metres below surface, with most Georgina Basin deposits likely to be at the shallower end of this range.

The depositional environment bathymetry and sedimentary facies distribution play major roles in phosphate deposition and concentration. In particular embayments in the basin margin (ie lagoonal or estuarine environments) appear to often have been important sites for phosphate deposition. Understanding the depositional environment is very important to identify areas that have potential for accumulation of phosphate at economic grades at thicknesses.

In addition all known major deposits in the basin are of Middle Cambrian age and occur within the Beetle Creek and Wonarah Formations or equivalents. It appears that at this time the paleoclimatic and oceanic chemical conditions were the most favourable for deposition of phosphate.

5.2 Uranium

Different styles of uranium mineralisation occur throughout the world, and those which are relevant to projects discussed in this report are noted here. Information regarding various deposit styles has largely been compiled from McKay & Miezitis, 2001. Uranium deposition has been proven to occur in a variety of environments of many different origins, and as many diverse ore types. Economic uranium deposits occur in a variety of geological environments which include:

- Vein-related eg Jachymov (Czech Republic) and Shinkolobwe (Zaire).
- Primary magmatic intrusion eg Rossing-alaskite (Namibia), Olympic Dam (Australia) and skarns.
- Ancient placers eg Elliot Lake (Canada), Witwatersrand (South Africa).
- Unconformity-related eg Athabaska (Canada), Alligator River (Australia).
- Sandstone-hosted ‘roll front’ eg Grants Mineral Field (New Mexico, USA).
- Calcrete drainage and playa lake eg Yeeleirrie (Australia).

Unconformity-related deposits - Unconformity deposits are typically Proterozoic in age and are developed in association with major structural dislocation and thrusting on the margins of basement ridges. Reactive metasedimentary rocks such as marble, calc silicate, graphitic schists, within and proximal to thrust zones, are preferred host lithologies especially where overlain unconformably by sheet sandstone sequences. The uranium is considered to be eroded initially from the high background basement and deposited in the overlying porous sandstone sequence. Subsequent fluid flow dissolves the uranium and transports it to suitable chemical and physical trap sites at the unconformable base of the sandstone and within underlying basement structures. Accompanying the uranium mineralisation is chlorite and hematite alteration which destroys magnetite and associated magnetic response. Unconformity deposits can be of relatively high grade and of significant tonnage. Examples of unconformity related deposits are Ranger, Nabarlek, Koongara and Rum Jungle in the Pine Creek Geosyncline of Australia and Cigar Lake, Gaertner and Midwest Lake in the Athabasca region of Canada.

Sandstone deposits - Sandstone uranium deposits occur in medium to coarse-grained sandstones deposited in a continental fluvial or marginal marine sedimentary environment. Impermeable shale/mudstone units are interbedded in the sedimentary sequence and often occur immediately above and below the mineralised sandstone. Uranium is precipitated under reducing conditions caused by a variety of reducing agents within the sandstone including: carbonaceous material (detrital plant debris, amorphous humate, marine algae), sulphides (pyrite, H2S), hydrocarbons (petroleum), and interbedded basic volcanics with abundant ferromagnesian minerals (e.g. chlorite).
There are three main types of sandstone deposits:

- Rollfront deposits, which are arcuate bodies of mineralisation that crosscut sandstone bedding;
- Tabular deposits are irregular, elongate lenticular bodies parallel to the depositional trend which commonly occur in palaeochannels incised into underlying basement rocks; and
- Tectonic/lithologic deposits which occur in sandstones adjacent to a permeable fault zone.

Sandstone deposits constitute about 18% of world uranium resources. Ore bodies of this type are commonly low to medium grade (0.05 - 0.4% U3O8) and individual ore bodies are small to medium in size (ranging up to a maximum of 50 000 tonnes U3O8). The main primary uranium minerals are uraninite and coffinite. Conventional mining/milling operations of sandstone deposits have been progressively undercut by cheaper in situ leach mining methods. Some of the largest known uranium deposits are of a sedimentary origin, and in particular from roll front deposition. The roll front deposition mechanism depends upon the geochemical cycle of uranium. At low temperature and pressures, uranium in rocks and minerals undergoing weathering and leaching is oxidised from U⁴⁺ to U⁶⁺. This is then soluble in ground waters as the (UO₂)²⁺ ion. As long as the ground water remains oxidizing, the uranium ions remain mobile; when the water percolates through a reducing environment the uranyl ions are reduced and uranium is re-precipitated as crystalline uraninite, as coliform bands or pitchblende, or in some cases as the silicate coffinite. The uranium may also bond with vanadium to produce uranium/vanadium minerals.

Roll front deposits form in porous sandstone units confined between impervious clay layers in arid continental environments. They are Tertiary to Recent in age and typically occur in clusters. This style of uranium deposit was the major source of uranium for the USA from 1950 to the 1970’s. Other examples of roll front deposits are the Beverley Mine in South Australia, the Manyengee deposit in Western Australia and the Kayelekera deposit in Malawi. They generally require easily weathered tuffs or other uranium-rich source rocks in outcrop which are actively undergoing oxidation and leaching. Uranium is released into the groundwater and transported down the hydrological gradient within the sandstone aquifer. When the migrating tongue of oxidized fluid meets reduced waters at depth the chemical interface is known as the redox boundary. The ground waters become reduced and the uranium and associated elements drop out of solution and form a roll front deposit. Such deposits may develop into tabular ore bodies or develop lobates around the progressive roll front as it migrates forward with the ground water flow.

Surficial deposits - Surficial uranium deposits are broadly defined as young (Tertiary to Recent) near-surface uranium concentrations in sediments or soils. These deposits usually have secondary cementing minerals including calcite, gypsum, dolomite, ferric oxide, and halite. Uranium deposits in calcrete are the largest of the surficial deposits. Uranium mineralisation is in fine-grained surficial sand and clay, cemented by calcium and magnesium carbonates. Surficial deposits comprise about 4% of world uranium resources. They are formed where uranium-rich granites were deeply weathered in a semi-arid to arid climate. The Yeelirrie deposit in WA is by far the world’s largest surficial deposit. Other significant deposits in WA include Lake Way, Centipede, Thatcher Soak, and Lake Maitland. In Western Australia, the calcrete uranium deposits occur in valley-fill sediments along Tertiary drainage channels, and in playa lake sediments. These deposits overlie Archaean granite and greenstone basement of the northern portion of the Yilgarn Craton. The uranium mineralisation is often comprised of carnitite (hydrated potassium uranium vanadium oxide).

Intrusive deposits - included in this type are those associated with intrusive rocks including alaskite, granite, pegmatite, and monzonites. Major world deposits include Rossing (Namibia), Illimaussaq (Greenland) and Palaborwa (South Africa). In Australia, the main locations are Radium Hill (South Australia) which was mined from 1954-62 (mineralisation was mostly davidite) and the larger ore bodies of low grade mineralisation known at locations such as Crocker Well and Mount Victoria in the Olary Province, South Australia.

Phosphorite deposits – Cambrian phosphorites at the Duchess deposit in north-west Queensland feature an average grade of 0.0126% U3O8 (126ppm) in phosphate ore. Uranium concentrations are generally noted as 0.01 to 0.0015% U3O8 within secondary phosphorates which may contain low concentrations of uranium in fine-grained apatite.
5.3 Base Metals

There are many different styles of base metals mineralisation however only those types that are relevant to the project area are discussed here.

Mount Isa style Sediment hosted Zn-Pb-Ag: these are found within metamorphosed pyritic and dolomitic shales of the sedimentary successions of the Western Fold Belt. Mineralisation typically occurs as tabular bedding parallel massive sulphide beds ranging from several mm up to 1m in thickness. The major sulphide minerals galena, sphalerite, pyrite and pyrrhotite. There is some debate as whether the deposits are synsedimentary (sedimentary exhalative (SEDEX)) or epigenetic in origin, with current consensus favoring the later. Notable deposits including Mount Isa Pb-Zn, Century, George Fisher, Hilton, Dugald River and Lady Loretta.

Brecciated Sediment Hosted Cu: brecciated sediment hosted Cu deposits occur within the brecciated ‘silica-dolomite’ host sediments proximal to fault zones within the Western Folds Belt. Sulphides are typically chalcopyrite and pyrite. Deposits show a strong structural control and are often intimately associated with sediment hosted Pb-Zn mineralisation. Notable examples are the Mount Isa, Esparanza/Mammoth and Lady Annie.

Iron-oxide Cu-Au: these styles occur within high metamorphic grade rocks of the Eastern Fold belt with examples including Ernest Henry, Selwyn and Osbourne. This style of deposit typically occurs at the margins of large igneous bodies that intrude into sedimentary strata and typically occurs as pipes and breccias. Mineralisation is typically chalcopyrite-pyrite-magnetite.

Broken Hill Type Ag-Pb-Zn: this style of mineralization occurs within high metamorphic grade rocks of the Eastern Fold Belt with the Cannington deposit being the only major example. Broken Hill type orebodies are generally accepted as being SEDEX style deposits that have been extensively reworked and modified by metamorphism and shearing.

Mississippi Valley Type Pb-Zn (MVT): this style of mineralization occurs in carbonate rocks where low temperature metal rich diagenetic fluids migrate into and are trapped in stratigraphic highs (typically folds, faults on sedimentary basin margins and graben structures). Mineralisation often occurs as massive sulphides with galena and sphalerite the main sulphide minerals and often forms pipe like bodies. Several explorers have explored for MVT deposits within the Georgina Basin carbonate rocks in the past, but to date no mineralization of this style has been identified.
6. VALUATION METHODOLOGY

6.1 Introduction

There are a number of recognised methods used in valuing “mineral assets”. The most appropriate application of these various methods depends on several factors, including the level of maturity of the mineral asset, and the quantity and type of information available in relation to the asset. The Valmin Code, which is binding upon “Experts” and “Specialists” involved in the valuation of mineral assets and mineral securities, classifies mineral assets in the following categories:

- Exploration Areas refer to properties where mineralisation may or may not have been identified, but where specifically a JORC compliant mineral resource has not been identified.
- Advanced Exploration Areas and Pre-Development Projects are those where Mineral Resources have been identified and their extent estimated, but where a positive development decision has not been made.
- Development Projects refers to properties which have been committed to production, but which have not been commissioned or are not operating at design levels.
- Operating Mines are those mineral properties, which have been fully commissioned and are in production.

Various recognised valuation methods are designed to provide the most accurate estimate of the asset value in each of these categories of project maturity. In some instances, a particular mineral property or project may include assets that comprise one or more of these categories.

When valuing Exploration Areas, and therefore by default where the potential is inherently more speculative than more advanced projects, the valuation is largely dependent on the informed, professional opinion of the valuer. There are a number of methods available to the valuer when appraising Exploration Areas.

The Multiple of Exploration Expenditure (“MEE”) method can be used to derive project value, when recent exploration expenditure is known or can be reasonably estimated. This method involves applying a premium or discount to the exploration expenditure or Expenditure Base (“EB”) through application of a Prospectivity Enhancement Multiplier (“PEM”). This factor directly relates to the success or failure of exploration completed to date, and to an assessment of the future potential of the asset. The method is based on the premise that a “grass roots” project commences with a nominal value that increases with positive exploration results from increasing exploration expenditure. Conversely, where exploration results are consistently negative, exploration expenditure will decrease along with the value.

Where transactions including sales and joint ventures relating to mineral assets that are comparable in terms of location, timing, mineralisation style and commodity, and where the terms of the sale are suitably “arms length” in accordance with the Valmin Code, such transactions may be used as a guide to, or a means of, valuation. This method is considered highly appropriate in the current volatile financial environment where other “cost based” methods may tend to overstate value.

The Joint Venture Terms valuation method may be used to determine value where a Joint Venture Agreement has been negotiated at “arms length” between two parties. When calculating the value of an agreement that includes future expenditure, cash and/or shares payments, it is considered appropriate to discount expenditure or future payments by applying a discount rate to the mid-point of the term of the earn-in phase. Discount factors are also applied to each earn-in stage to reflect the degree of confidence that the full expenditure specified to completion of any stage will occur. The value assigned to the second and any subsequent earn-in stages always involves increased risk that each subsequent stage of the agreement will not be completed, from technical, economic and market factors. Therefore, when deriving at technical value using the
Joint Venture Terms method, Ravensgate considers it appropriate to only value the first stage of an earn-in Joint Venture Agreement.

The total project value of the initial earn-in period can be estimated by assigning a 100% value, based on the deemed equity of the farm-in or, as follows:

\[ V_{100} = \frac{100}{D} \left( CP + CE \ast \frac{1}{i} + EE \ast \frac{1}{(1+i)^t} \right) \ast P \]

where:

- \( V_{100} \) = Value of 100% equity in the project ($)
- \( D \) = Deemed equity of the farm-in or (%)
- \( CP \) = Cash equivalent of initial payments of cash and/or stock ($)
- \( CE \) = Cash equivalent of committed, but future, exploration expenditure and payments of cash and/or stock ($)
- \( EE \) = Uncommitted, notional exploration expenditure proposed in the agreement and/or uncommitted future cash payments ($)
- \( I \) = Discount rate (% per annum)
- \( t \) = Term of the Stage (years)
- \( P \) = Probability factor between 0 and 1, assigned by the valuer, and reflecting the likelihood that the Stage will proceed to completion.

Where mineral resources remain in the Inferred category, reflecting a lower level of technical confidence, the application of mining parameters is inappropriate and their economic value can therefore not be demonstrated using the more conventional DCF/NPV approach. In these instances it is considered appropriate to use the ‘in-situ’ Resource method of valuation for these assets. This technique involves application of a heavily discounted valuation of the total in-situ metal or commodity contained within the resource. The level of discount applied will vary based on a range of factors including physiography and proximity to infrastructure or processing facilities.

In the case of Pre-development, Development and Mining Projects, where Measured and Indicated Resources have been estimated and mining and processing considerations are known or can be reasonably determined, valuations can be derived with a reasonable degree of confidence by compiling a discounted cash flow (DCF) and determining the net present value (NPV).

The Australasian Code of Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC code, 2004) sets out minimum standards, recommendations and guidelines. A Mineral Resource defines a mineral deposit with reasonable prospects of economic extraction. Mineral Resources are sub-divided into Inferred, Indicated and Measured to represent increasing geological confidence from known, estimated or interpreted specific geological evidence and knowledge. An Ore Reserve is the economically minable part of a Measured or Indicated Resource after appropriate studies. An Inferred Resource reflecting insufficient geological knowledge, cannot translate into an Ore Reserve. Measured Resources may become Proved (highest confidence) or Probable Reserves. Indicated Resources may only become Probable Reserves.

6.2 Previous Valuations and Material Agreements

Ravensgate is not aware, nor have we been made aware, of any other valuations over the Australis and Mojo Projects. The date of this valuation is 30 June 2010 and the provisional project valuations reflect a 100% interest in the project assets. Ravensgate understands the tenement project list includes tenements granted and in application at this point in time. A schedule of tenements and expenditure commitments is listed in Appendix A. Tenements in application may normally be excluded from the valuation as the client company does not own tenement rights, either directly held or in joint venture. However for the purposes of this internal report and at client request the project valuation includes tenement rights under application and reflect a 100% interest. We are not aware, nor have we been made aware, of any other agreements that have a material influence on the provisional valuations of the Australis and Mojo mineral assets, and on this basis have made no adjustments on this account. Ravensgate is not qualified to comment on Queensland state government policy which allows exploration for uranium exploration but prohibits mining of uranium and accordingly has not done so.
Ravensgate has completed an intensive search for publicly available market transactions involving exploration projects in Australia. Ravensgate notes an Ore Reserve or Mineral Resource estimation reported in accordance with the guidelines defined in the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code - 2004 Edition) has not been carried out for the reported project tenements. The transactions identified relating to Australian projects have been specifically selected to reflect sizeable tenement holdings in geological provinces that are considered prospective for mineralised deposits, and that are of similar prospectivity to the Australis and Mojo portfolio of uranium, phosphate and base-metal mineral assets. Australis and Mojo prospects are generally at reconnaissance level. The transactions identified along with the implied cash-equivalent values are summarised in the tables below. Analysis of these market transactions indicates that particularly early-stage uranium exploration projects throughout Australia have a range of implied values between $150/km² and $1,200/km² while very early-stage base metal projects throughout Australia have a range of implied values between $250/km² and $1,850/km² and early-stage phosphate projects have a range of implied values between $280/km² and $1,500/km² (Table 2 and Table 3). Ravensgate notes that current Queensland state government policy prohibits uranium mining but does allow uranium exploration.

### Table 2: Market Transactions Involving Australian Uranium Exploration Projects. Note the WA development ban on uranium deposits was overtaken in November 2008. QLD Government policy prohibits uranium mining but does allow uranium exploration.

<table>
<thead>
<tr>
<th>Project</th>
<th>Transaction Details</th>
<th>Area (km²)</th>
<th>Purchase Price 100% Equity Basis (A$)</th>
<th>Implied Value/km² (A$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lake Blanche, SA</td>
<td>27/11/2008: Uranium Equities Ltd entered into agreements to acquire 51% of the Lake Blanche Project located in SA, totaling 6,253km². The implied cash equivalent on a 100% equity basis, provided the terms of the agreement were met, was $6.86M.</td>
<td>6,253</td>
<td>$6.86M</td>
<td>$1,100</td>
</tr>
<tr>
<td>Georgina Basin, QLD</td>
<td>11/04/2008: Newland Resources Ltd completed negotiations with Summit Resources Ltd to purchase 100% of the Georgina Basin Project for a mixture of shares, cash and previous exploration. The tenement area totals 11,800km² for prospective sedimentary and breccia hosted uranium mineralization. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $1.769M.</td>
<td>11,800</td>
<td>$1.769M</td>
<td>$150</td>
</tr>
<tr>
<td>Bushy Park JV, NT</td>
<td>5/02/2008: Western Desert Resources Ltd entered into agreements to acquire 51% of the Bushy Park JV located in NT, totaling 1848.7km². The implied cash equivalent on a 100% equity basis, provided the terms of the agreement were met, was $1.96M.</td>
<td>1,849</td>
<td>$1.96M</td>
<td>$1,100</td>
</tr>
<tr>
<td>Cocata Projects, SA</td>
<td>21/02/2007: Uranium Equities Ltd entered into agreements to acquire 51% of the Cocata Projects located in SA, totaling 1,210km². The implied cash equivalent on a 100% equity basis, provided the terms of the agreement were met, was $1.47M.</td>
<td>1,210</td>
<td>$1.47M</td>
<td>$1,200</td>
</tr>
<tr>
<td>Coulta Projects, SA</td>
<td>13/02/2007: WCP Uranium Ltd entered into agreements to acquire 51% of the Coulta Projects located in SA, totaling 1,957km². The implied cash equivalent on a 100% equity basis, provided the terms of the agreement were met, was $1.47M.</td>
<td>1,957</td>
<td>$1.47M</td>
<td>$750</td>
</tr>
<tr>
<td>Watson Projects, SA</td>
<td>4/01/2007: Uranium Equities Ltd entered into agreements to acquire 51% of the Watson Project located in SA, totaling 2,391km². The implied cash equivalent on a 100% equity basis, provided the terms of the agreement were met, was $0.98M.</td>
<td>2,391</td>
<td>$0.98M</td>
<td>$400</td>
</tr>
</tbody>
</table>
Table 2. Market Transactions Involving Australian Uranium Exploration Projects. Note the WA development ban on uranium deposits was overturned in November 2008. QLD Government policy prohibits uranium mining but does allow uranium exploration.

<table>
<thead>
<tr>
<th>Project</th>
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<th>Area (km²)</th>
<th>Purchase Price 100% Basis (A$)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Douglas Creek, Nth SA</td>
<td>24/11/2008: Minotaur Exploration Ltd entered into an option agreement with Rio Tinto Exploration for an initial Right To Explore by carrying out a $0.25M exploration spend. The tenement area totals 406km² for prospective base and precious metal mineralisation (possible Mt Isa / Olympic Dam style). Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.25M.</td>
<td>406</td>
<td>$0.25M</td>
<td>$620</td>
</tr>
<tr>
<td>Blackadder, NT</td>
<td>29/10/2008: Mithril Resources Ltd entered into a farm-in/JV agreement with Sammy Resources Pty Ltd to earn 80% with a $2.0M exploration spend over 5 years. The tenement area totals 1,358km² for prospective nickel and copper mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $2.5M.</td>
<td>1,358</td>
<td>$2.5M</td>
<td>$1,850</td>
</tr>
<tr>
<td>Windy Knob, WA</td>
<td>10/07/2008: Windy Knob Resources Ltd entered into a binding agreement to purchase 100% of EL51/1198 in consideration for 500,000 shares. The tenement area totals 162km² for prospective base metal (VMS) mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.04M.</td>
<td>162</td>
<td>$0.04</td>
<td>$250</td>
</tr>
<tr>
<td>Georgina Basin, NT</td>
<td>6/06/2008: JOGMEC entered into a farm-in/JV agreement with Mincor Resources Ltd to earn 25% with an initial $2.5M exploration spend over 2 years. The tenement area totals 9,000km² for prospective zinc-lead mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $8M.</td>
<td>9,000</td>
<td>$8.0M</td>
<td>$900</td>
</tr>
<tr>
<td>Reward (McArthur River), NT</td>
<td>9/07/2008: Rox Resources Ltd entered into an acquisition option agreement (100%) with North Mining Ltd for an initial exploration spend over 2 years and option payment. The tenement area totals 379km² for prospective base metal (SEDEX) mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.3M.</td>
<td>379</td>
<td>$0.4M</td>
<td>$800</td>
</tr>
<tr>
<td>Avalon, Lennard Shelf, WA</td>
<td>11/09/2007: Rox Resources Ltd entered into a farm-in/JV agreement with Avalon Minerals Ltd to earn 60% with issued shares ($0.3M) and an exploration spend of $2.0M over 4 years. The tenement area totals 2,594km² for prospective zinc-lead mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $3.8M.</td>
<td>2,594</td>
<td>$3.8M</td>
<td>$1,500</td>
</tr>
</tbody>
</table>
Table 3  Market Transactions Involving Australian Phosphate Exploration Projects.

<table>
<thead>
<tr>
<th>Project</th>
<th>Transaction Details</th>
<th>Area (km²)</th>
<th>Purchase Price 100% Basis (A$)</th>
<th>Implied Value/km² (A$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mt Isa, QLD</td>
<td>10/11/2009: Resource Kings Pte Ltd entered into a farm-in/JV agreement with GBM Resources Ltd to earn 90% for $0.635M in shares. The tenement area totals 513.6km² for prospective phosphate mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.706M.</td>
<td>513.6</td>
<td>$0.706M</td>
<td>$1,375</td>
</tr>
<tr>
<td>Barr Creek, NT</td>
<td>6/03/2009: Uramet Mineral Ltd announced the completed sale of Barr Creek tenements to Legend International Holdings for $0.75M. The tenement area totals 512km² for prospective phosphate mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.75M.</td>
<td>512</td>
<td>$0.75M</td>
<td>$1,500</td>
</tr>
<tr>
<td>West Isa, QLD</td>
<td>20/10/2008: Dragon Energy Ltd entered into a farm-in/JV agreement with MM Mining Pty Ltd &amp; Summit Resources Ltd to earn 100% with an initial $1.5M spend of exploration and cash. The agreement covers phosphate rights only. The tenement area totals 3,396km² for prospective phosphate mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $1.5M.</td>
<td>3,396</td>
<td>$1.5M</td>
<td>$440</td>
</tr>
<tr>
<td>Murphy Project, NT</td>
<td>11/08/2008: WCP Resources Ltd entered into a farm-in/JV agreement with Bondi Mining Ltd to earn 70% with a $1.5M exploration spend. The tenement area totals 2,650km² for prospective phosphate plus uranium mineralisation. WCP can earn their interest in all phosphorous minerals apart from any phosphorous minerals directly associated with a uranium deposit. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $2.14M.</td>
<td>2,650</td>
<td>$2.14M</td>
<td>$800</td>
</tr>
<tr>
<td>Kurundi, NT</td>
<td>17/06/2008: Northern Uranium Ltd entered into a farm-in/JV agreement with Washington Resources Ltd to earn 60% with an initial $0.25M exploration spend. The tenement area totals 1,597km² for prospective Georgina Basin phosphate mineralisation. Assuming the terms of the agreement were met the implied cash equivalent on a 100% equity basis is $0.42M.</td>
<td>1,597</td>
<td>$0.42M</td>
<td>$260</td>
</tr>
</tbody>
</table>
7. MITTIEBAH AREA, NORTHERN TERRITORY PROJECT

7.1 Project Analysis - Selection of Valuation Method
The Mittiebah Project consists of four granted contiguous tenements (EL26311, EL26312, EL2314 and EL26701) covering 5,803km² of the central eastern Northern Territory, close to the border with Queensland (Figure 4). The project is located approximately 230km east of Tenant Creek, 60 km east of the Tablelands Highway and 150km north of the Barkly Highway. The Mittiebah Project can be classified as an ‘Exploration Area’ mineral asset. Ravensgate has elected to apply the Comparable Transaction Method (phosphate) and a Notional Assessment (base metals, uranium, iron) to value the Mittiebah project after consideration of the various valuation methods outlined in Section 6.1. To date a Mineral Resource reportable under the guidelines of the JORC Code (JORC, 2004) has not been identified nor has recently significant on-ground exploration expenditure been carried out. Projects within the Australis group were acquired as part of the purchase of CopperCo Ltd assets in June 2009.

7.2 Summary Geology and Prospectivity
The geology of the Mittiebah project area is dominated by basin fill sediments of the Cambrian to Mid Ordovician Georgina Basin. The Cambrian and Early Ordovician rocks are predominantly marine carbonate rocks with minor sandstone and siltstone, and the Middle Cambrian rocks are mostly siltstone and sandstone. In the north east of the project area the margin of the Georgina Basin onlaps onto sandstone, siltstones and shales of the Proterozoic South Nicholson Basin. In the southern part of the project area lies a basin high known as the Alexandria-Wonarah Basement high, a Mid Cambrian shallow marine platform, on which all the known phosphate deposits in the region are located. Much of the western part of the project area is overlain by recent cover rocks and alluvial material.

7.2.1 Phosphate
The Mittiebah project area is considered to be prospective for shallow phosphate deposits due to the following:

- The margin of the Georgina Basin lies within the eastern part of the project area (most known major Queensland phosphate deposits within the Georgina Basin lie within 10 km of the basin margin);
- The Georgina basin margin has a complex geometry (embayments within the basin margin occur close to some known Queensland rock phosphate deposits);
- Mid Cambrian shallow marine clastic carbonate facies assemblages are mapped and outcrop in the eastern part of the project (most notably the Wonarah Formation);
- The southern margin of the project area lies within 15 km of Phosphate Australia’s Buchanan Dam, Alroy, and Alexandria phosphate prospects (where historical drilling has intercepted potentially economic grades of phosphate);
- Phosphatic beds have been intercepted by wide spaced historic drilling, although of low tenor and width;
- Gravity and magnetic suggest areas suggest that there may be some basement highs within parts of the Georgina Basin that may have been favourable for phosphate deposition;
- Drilling by previous workers targeting phosphate was very widely spaced and there is space and target areas for substantial deposits to remain undiscovered (ie the Wonarah deposit covers an area of 25 km by 4 km and the Alexandria deposit covers an area of 25km by 1km);
- Base Metals.
The tenement area is moderately prospective for base metals within the Proterozoic rocks in the east of the project area and where geophysics indicates these rocks form the basement below the Georgina Basin Sediments. In the north and west of the project area previous workers have identified several major faults within the Proterozoic basement that have potential to have played an important role in localisation of Sedex or Mt Isa style base metal mineralisation.

In particular BHP carried a GEOTEM survey in the north of the project area targeting basement Sedex mineralisation and have identified several low order anomalies that may warrant follow up. However these targets are under substantial cover (likely to be >100m) which will make exploration challenging and expensive. Of note is that no major base metal deposits have currently been identified within the South Nicholson Group Proterozoic rocks, so this downgrades these targets. These target zones are summarised in Figure 4 and Table 4.

7.2.2 Iron and Manganese

The Proterozoic South Nicholson Basin rocks in the east of the project area are prospective for sedimentary oolitic ironstone deposits. These same rocks host the Constance Range sedimentary iron deposits across the border in Queensland within the Train Range Ironstone Member. In addition there may also be potential for Manganese deposits within these rocks. Further work is required to identify if prospective horizons occur in the project area.

7.2.3 Uranium

Projects tenements are ranked with a low prospectivity for significant, near surface uranium mineralisation. The ranking of low prospectivity reflects geophysical review for anomalous uranium areas over surfical rocks, lack of historical exploration success and examination of geological stratigraphy and understanding.

7.2.4 Diamonds

The project area has been extensively explored for diamonds in the 1980’s as part of larger regional programs carried out by several companies. A number of micro-diamonds have been recovered from bulk sampling programs, however no significant kimberlite pipes or prospective diatreme targets appear to have been identified. It may be worthwhile re-examining the potential of the area, however of note is that De Beers held tenements covering most of the project area in 2002-2003, they carried out a review and decided to relinquish their tenements.
Figure 4  Mittiebah Project Area Geology. Georgina Basin outline shown by black and white line. Phosphate targets shown as purple dots. Green dots are historic IMC Development corporation drill holes.
7.3 Project Analysis - Valuation

7.3.1 Phosphate

Ravensgate’s analysis of the phosphate-related market transactions indicates that the implied value of strategically located, greenfield exploration projects with potential for phosphate mineralisation generally lies in the intra-range $260/km² to $1,500/km², which relates to approximately $1.5M to $8.7M for the four granted tenements covering the Wonarah Rise phosphate targets (5,803km²). From this range a preferred value of $2.5M has been selected which recognises the good prospectivity for shallow phosphate mineralisation over 11 potential targets. While Ravensgate considers the phosphate exploration targets sufficiently prospective to warrant further exploration, we have elected to assign a preferred value towards the lower end of this range, reflecting the early stage of the exploration project over a particularly large tenement holding and confirmatory on-ground work required to outline phosphate mineralisation.

7.3.2 Base Metals, Uranium, Iron

Ravensgate has selected a preferred notional value of $0.05M for other mineral rights covering base metals, uranium and iron on a 100% basis. A deep base-metal geophysical target is noted by Cooper, 2010b on the western margin of EL26312 and also on EL26314 at a structural and magnetic/gravity anomaly. The low prospectivity ranking for uranium reflects the weak radiometric response observed for surface rocks and lack of identified potential for significant, near-surface uranium mineralisation. Cooper (2010b) also notes the possibility of hematitic siltstone to ironstones within outcropping South Nicholson Playford Sandstone on EL26311 as a possible iron target for further investigation.
17. REFERENCES AND PROVIDED FILES


http://www.wikipedia.org/


Khan, M, Ferenczi, PA, Ahmad, M, and Kruse, PD., 2007, Phosphate testing of waterbores and diamond drillcore in the Georgina, Wiso and Daly Basins, Northern Territory, NT Department of Primary Industry, Fisheries and Mines, Geological Survey Record 2007-03.


MIM Exploration, 1992, Combined 12 Month Report for 7878 Toby Creek and 7879 Toby Creek South, Open file QDEX report dated March 1992


### Glossary

**alluvial** Sand, clay and silt deposit – water transported.

**anomalous** A departure from the expected norm, generally geochemical or geophysical values higher or lower than the norm.

**anticline** An area of rocks that have been arched upwards in the form of a fold.

**auger** A corkscrew-shaped sampling tool.

**Archaean** A geologic eon before 2.5 billion years ago.

**assay** A procedure where the element composition of a rock soil or mineral sample is determined.

**BLEG** Bulk Leach Extractible Gold, a geochemical analysis tool used in the exploration for gold.

**Brownfields** Mineral exploration is termed Greenfields or Brownfields depending on the quantity and quality of previous exploration. Brownfields exploration is generally taken to refer to exploration close to existing mineralised deposits.

**clastic** Pertaining to sedimentary rocks composed primarily from fragments of pre-existing rocks or fossils.

**conformable** Description of rock strata where the layers are uninterrupted through time.

**conglomerate** A sedimentary rock consisting of rounded rock fragments greater than 2mm in size cemented together.

**costean** Exploration trench.

**deltaic deposits** A deposit of sediments formed at the mouth of a river where it enters a lake or the sea.

**diamond drilling** A method of obtaining a cylindrical core of rock by drilling with a diamond impregnated bit.

**fault** A fracture in rocks whereby rocks on one side have been moved relative to the rocks on the other.

**fluvial deposits** Applied to sand and gravel deposits laid down by streams or rivers.

**g/t** Grams per tonne.

**granite** A common type of intrusive, felsic, igneous rock.

**Greenfields** Mineral exploration is termed Greenfields or Brownfields depending on the quantity and quality of previous exploration. Greenfields exploration is generally taken to refer to exploration further away from known mineralisation and is more conceptual in nature compared to Brownfields exploration.

**hydrothermal** A term applied to hot aqueous solution having temperatures up to 400º C which may transport metals and minerals in solution.

**JORC** Joint Ore Reserves Committee (of the Australian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and the Minerals Council of Australia)

**lithology** A term pertaining to the general characteristics of rocks.

**lode** A vein or other tabular mineral deposit with distinct boundaries.

**mafic** A dark igneous rock composed dominantly of iron and magnesium minerals (such as basalt).

**metamorphic** A rock type which has been subjected to heat and pressure.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>metasediment</td>
<td>Metamorphosed sedimentary rock.</td>
</tr>
<tr>
<td>mineralisation</td>
<td>A geological concentration minerals or elements of prospective economic interest.</td>
</tr>
<tr>
<td>ore</td>
<td>A volume of rock containing components or minerals in a mode of occurrence which renders it valuable for mining.</td>
</tr>
<tr>
<td>orogen</td>
<td>The physical manifestation of orogenesis (the process of orogeny).</td>
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<tr>
<td>orogeny</td>
<td>A period of mountain building.</td>
</tr>
<tr>
<td>Palaeozoic</td>
<td>The era of geologic time that includes the Cambrian, Ordovician, Silurian, Devonian, Carboniferous, and Permian periods.</td>
</tr>
<tr>
<td>pluton</td>
<td>A large body of intrusive igneous rock.</td>
</tr>
<tr>
<td>pyrite</td>
<td>An iron sulphide mineral.</td>
</tr>
<tr>
<td>quartz</td>
<td>Mineral species composed of crystalline silica ($\text{SiO}_2$).</td>
</tr>
<tr>
<td>RAB drilling</td>
<td>A relatively inexpensive and less accurate drilling technique (compared to RC drilling) involving the collection of sample returned by compressed air from outside the drill rods.</td>
</tr>
<tr>
<td>radiometric</td>
<td>Geophysical technique measuring emission from radioactive isotopes.</td>
</tr>
<tr>
<td>RC drilling</td>
<td>Reverse Circulation drilling, whereby rock chips are recovered by airflow returning inside the drill rods, rather than outside, thereby returning more reliable samples.</td>
</tr>
<tr>
<td>schist</td>
<td>Medium grade metamorphic rock which contains more than 50% platy and elongated minerals.</td>
</tr>
<tr>
<td>sedimentary</td>
<td>Rocks formed by the deposition of particles carried by air, water or ice.</td>
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<tr>
<td>sedimentation</td>
<td>The accumulation of sediment.</td>
</tr>
<tr>
<td>shale</td>
<td>Fine grained sedimentary rock with well defined bedding planes.</td>
</tr>
<tr>
<td>tectonic</td>
<td>Forces or movements resulting in the formation of geologic structural features.</td>
</tr>
<tr>
<td>ultramafic</td>
<td>Dark to very dark coloured igneous rocks composed mainly of mafic minerals.</td>
</tr>
<tr>
<td>unconformity</td>
<td>Description of rock strata where the layers are interrupted, discontinuous.</td>
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