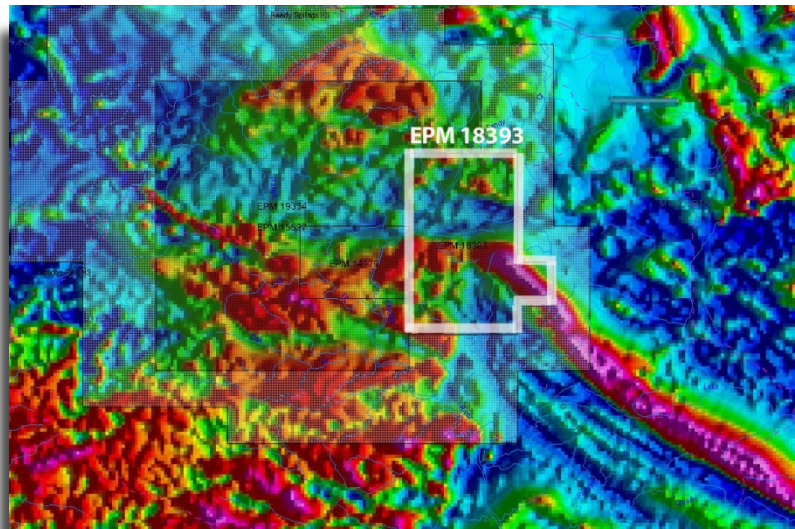


**White Mountain Project:  
Northeast Queensland, Australia  
Competent Persons Report (CPR)**

**for:**

**Wishbone Gold Pty Ltd.  
and  
Shore Capital & Corporate Limited**



by

**Michael D. Campbell, P.G., P.H.  
and  
Jeffrey D. King, P.G.**

**I2M Associates, LLC  
Houston, Texas and Seattle, Washington  
July 10, 2012  
Version 1.9**

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## Section 1.0 CPR Executive Summary

A Competent Persons Report (CPR) has been prepared for Wishbone Gold Pty Ltd. (WBG) and Shore Capital and Corporate Limited, London, by I2M Associates (I2M) dated July 10, 2012, on the White Mountain tenement located in Northeast Queensland, Australia. The key elements of I2M's assessment are:

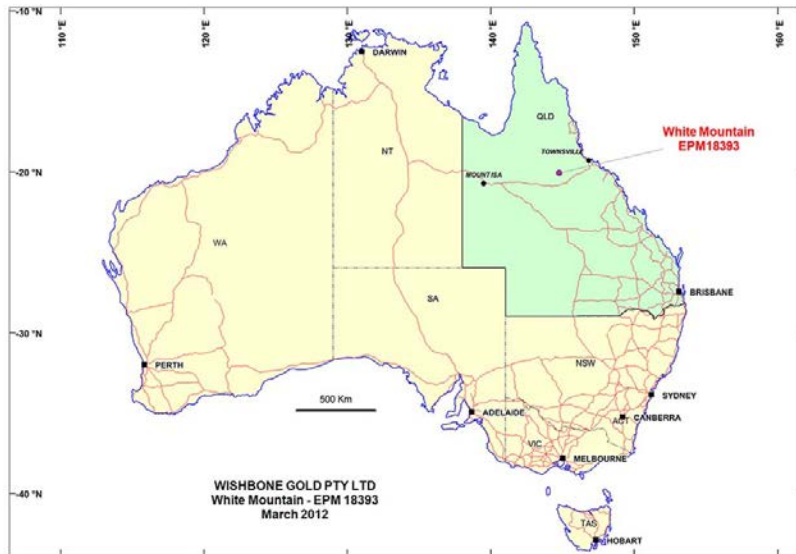
- I2M Associates, LLC confirms that exploration on the subject tenement will benefit from the data produced over more than 40 years of exploration within and around the tenement, and will assist the ensuing exploration in designating priority areas that were not investigated in any detail previously.
- I2M concludes that the area in and around the White Mountain tenement has been explored for decades, but many sites within the tenement remain under-investigated and untested. In particular, the conspicuous magnetic anomaly and highly fractured rocks at the surface north of the terminus of the anomaly have only received superficial investigation to date.
- I2M concludes that the White Mountain tenement is a high-quality mining property on the basis of the number and characteristics of the geological, geochemical, and geophysical anomalies that remain to be investigated, and on the broad range of metals (including gold, silver, lead, copper, zinc, nickel, antimony, and molybdenum) that have been reported in the subject tenement, confirm that the geological setting and structure are suitable for potentially economic deposits.
- I2M concludes that the historical mineralization reported at the Granite Castle deposit on the western boundary of the White Mountain tenement has recently been drilled by others to confirm significant gold and silver in grades and tonnage of potential economic significance.
- I2M concludes that the Thalanga and West 45 mines to the southeast, the Kidston mine to the north and the Welcome deposit near Mingela, Queensland are primary analogues for potential mineralization occurring on the White Mountain tenement.
- I2M recommends priority consideration be given to the numerous shear zones present in the western areas of the tenement that are often associated with shear zones and sulphide mineralization that trend into the property from the Granite Castle deposits located adjacent to the subject EPM.
- I2M also recommends priority consideration be given to the area associated with a major magnetic anomaly present in the central and western areas of the property suggesting precious and base-metal potential similar to that occurring at Thalanga and West 45 Mines, and at the Welcome deposit, where obvious surface manifestations were not recognized before significant mineralization was discovered during drilling at depth.

- I2M concludes that the tenement merits aggressive funding for exploration covering the numerous areas of shows of lode-gold and polymetallic mineralization that remain to be followed up by field work emphasizing ground geophysics and subsequent drilling.
- I2M agrees with the Wishbone Gold management that having an experienced consultant such as their current consultant, Terra Search Pty Ltd., who has specific previous experience in and around the subject tenement, will benefit the current exploration program.
- I2M confirms that this Competent Persons Report is also considered to be JORC-compliant as the asset is located in Australia. Competent Persons Certifications are provided in Section 23.0 of this CPR.
- I2M confirms that there has been no material change in conditions, assumptions, or technical facts since I2M's meetings and site visit in Queensland during the week of March 26, 2012.

## Section 2.0 Project Summary

The objective of I2M Associates, LLC (I2M) in this report is to evaluate the available historical technical information, combined with a review of current exploration and mining activities in the general area of the White Mountain tenement, and to assess the likelihood of one or more discoveries of potentially economic interest on the White Mountain tenement.

The White Mountain tenement (EPM #18393) is held by Wishbone Gold Pty Ltd. (WBG), a Queensland company, owned by Wishbone Gold plc, which was incorporated in Gibraltar on October 28, 2009. The tenement is located west southwest of Townsville, Queensland some 300 km via the Flinders Highway, improved Homestead roads, and tracks (see Figures 1 and 2). The tenement is accessed at various locations from the northern side of the main highway and covers an area of about 4,800 hectares (about 18.5 square miles).



**Figure 1 – General Location of the White Mountain Tenement**  
(from Terra Search, 2012)

Previous discoveries in the Thalanga area, about 60 km southeast of the White Mountain tenement, and at the Kidston mine some 140 km to the north (Furnell, *et al.*, 1995), and others have been made by the application of standard exploration techniques, such as surface reconnaissance, geological mapping, outcrop and soil sampling, and various methods of ground geophysics, followed by bedrock drilling and coring. With the recent advances in geophysics, especially airborne and ground magnetics systems, complemented by new satellite imagery and

combined with new and revised models of mineralization, the management of WBG elected to acquire and explore the White Mountain tenement area.

The subject tenement is located in an area of east-west trending gold and other metal deposits. Although this area has been explored over the past 40 years, and held even recently by Carpentaria Gold Pty Ltd. (Carpentaria) (see Brewster, 2007). It should be noted here that Carpentaria Gold Pty Ltd. is not related to Carpentaria Exploration Ltd.

While Carpentaria Gold has employed standard exploration methods successfully in focusing on quartz vein- and breccia-related mineralization (such as at Mount Wright and at the Welcome deposit), the existence of a major magnetic anomaly within the tenement now allows the WBG management to conduct a more focused exploration program than previous programs. This can be accomplished by using the new methods and revised models of mineralization that are now available on other types of gold occurrences in multi-metal sulphide deposits while investigating the areas of interest within the subject tenement.

Because the Queensland government's DEEDI\* database makes available exploration information collected by both major and junior mining companies since the 1950s, this will allow WBG management and their consultants to use all the previous exploration data to target the most prospective areas, which includes the data on the historical mines located within and around the subject tenement, and to follow up on several key leads recommended in the those reports by developing exploration programs in the prospective areas.

WBG management, combined with the technical support of Terra Search Pty Ltd (Terra Search) and other consultants, appears to be able to provide the necessary financial and technical resources to mount an extensive exploration program within the area with the ultimate goal of discovering significant deposits of gold, silver and/or other metals of economic interest.

\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au)).



**Figure 2**  
**Geographical Location of the White Mountain Tenement**  
(Google Earth Map)

Note: For expanded views of the figures contained herein, see Section 24.  
Also, Figures 5, 6A, and 19 have been linked to larger versions (use left click online).

### **Section 3.0 Introduction**

Wishbone Gold Pty Ltd.(WBG) engaged I2M Associates, LLC via agreement dated November 9, 2011 to provide an independent assessment and review of the current technical information and of the merit of future exploration and development plans for the White Mountain tenement located in Northeast Queensland, (see Figure 1). This Competent Persons Report is to be used by WBG management as an independent assessment of the exploration potential of the subject tenement and, if I2M's preliminary assessment is favorable, as part of a potential future listing on the London Stock Exchange's Alternative Investment Market (AIM).

This Competent Persons Report utilizes an extended form beyond that suggested in the AIM guidance documents of Part One and Part Two, especially Appendix 1 and 2. The treatment of the various subjects within the stipulated headings will by nature involve some duplication. This is to facilitate reader understanding and familiarity with the subjects treated. To further improve clarity, we have included a list of standard abbreviations (Appendix I), and a glossary of technical terms (Appendix II) as suggested in the AIM guidance documents.

### 3.1 Location of Property

EPM# 18393 was granted in 2011 to WBG and was named the White Mountain tenement after the general geographic location. Its northern boundary is located some 10 km southwest of the Reedy Springs Homestead and its eastern boundary is about 15 km west of the Cargoon Homestead. Its western boundary is about 15 km east of the Camden Park Homestead (see Figures 3, 6A and 6C). The small settlement Pentland exists some 87 km southeast of the subject tenement. The tenement spans some 7 km east-to-west, and almost 9 km north-to-south. It should be noted that tenement boundaries plotted in all figures in this report are approximate only.

### 3.2 Scope of Work

This report has been prepared based on our review of the available internal documents from WBG management and on information provided for our review by their principal consultant, Terra Search Pty Ltd., located in Townsville, Queensland. Additional information has been obtained from various Queensland governmental agencies, from the available geoscience literature, and from the files of I2M Associates, LLC in Houston, Texas, and Seattle, Washington.

For this report, I2M personnel carried out the following tasks:

- Discussions with Terra Search personnel, Townsville, Qld. on March 26 and 28, 2012 regarding their input to date, with special emphasis on their anticipated exploration plans,
- Site visit to the White Mountain tenement north of Pentland, Qld. on March 27, 2012,
- Discussions with senior personnel of the Department of Environment and Resource Management (DERM\*), Townsville, Queensland on March 28, 2012 regarding potential environmental issues should the White Mountain property be developed as a mining operation,
- Visit to the James Cook University library on March 29, 2012 to search for research reports focusing on the general area,
- Independent review of historical reports on previous exploration from the 1950s to date concerning the White Mountain EPM area and environs,

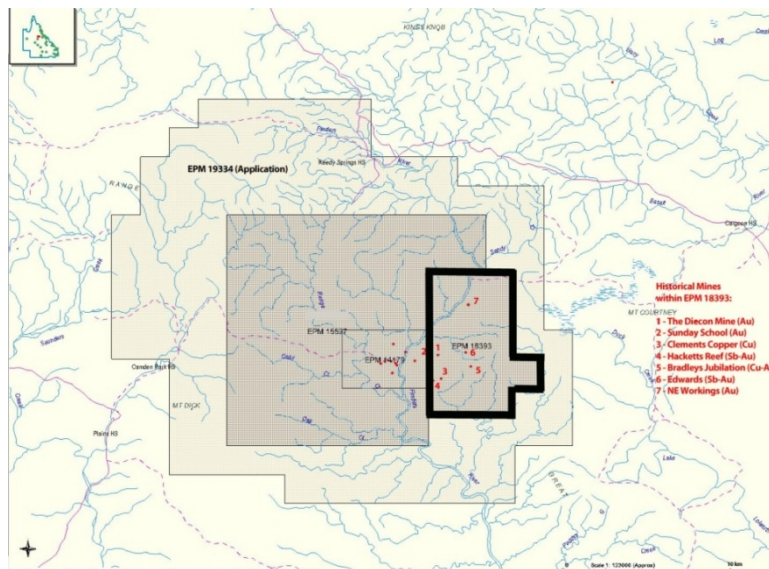
\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.derm.qld.gov.au](http://www.derm.qld.gov.au)).

- Independent geological assessment of the reported mineralized zones in and around the EPM in context with other similar deposits nearby that have been studied by others in some detail, and
- Independent assessment of the basis for pursuing additional exploration at the White Mountain tenement.

### 3.3 White Mountain Tenement

An application for the White Mountain tenement was lodged November 18, 2009 and was subsequently granted for the period May 5, 2011 to May 4, 2016. The general location of the tenement (EPM# 18393) is shown in Figures 1 and 2. Figure 3 shows the location of the tenement and those in the surrounding area. The regulatory status of the tenements shown in Figure 3 is either “granted” (medium-gray shade) or “application” status (shown in light yellow).

The tenement boundaries were confirmed by I2M as of March 5, 2012 with the DEEDI\* database (see citations). Additional information is provided on other companies with tenements either granted or in application stage surrounding the White Mountain tenement in Section 16.0 - Adjacent Properties (Tenements).



**Figure 3 – White Mountain & Surrounding Tenements**

Source: QDEX Tenement Database (As of March 5, 2012)

Note: Also see Tables 3 and 4 later in this report for identification of the company holdings surrounding the Tenement.  
(Left click to expand view.)

\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au)).

### 3.4 Units

The Metric System is the primary system of measure and length used in this report and is generally expressed in kilometers (km), meters (m), and centimeters (cm); volume is expressed as cubic meters (m<sup>3</sup>); mass is expressed as metric tonnes (t); area as hectares (ha); laboratory analyses are reported as elements or are converted to oxide percent in parts per million (ppm). Grams per tonne (g/t) is an equivalent unit to ppm. One tonne is the equivalent of 2,204.6 lbs. A list of standard technical abbreviations is provided in Appendix I. Monetary units are treated as Australian Dollars. Mining and mineral acronyms in this report conform to mineral industry-accepted usage. The reader is also directed to the glossary of commonly used terms in the mining field: [www.maden.hacettepe.edu.tr/dmmrt/index.html](http://www.maden.hacettepe.edu.tr/dmmrt/index.html), and to Appendix II for a glossary of report-related technical terms.

## Section 4.0 Reliance on Other Experts

The authors of this report have relied on the information made available by the management and consultants of the WBG and on the technical literature and company reports made available online by personnel of the Geological Survey of Queensland and from the I2M library. Queensland exploration reports were recovered using an Internet document-management system called QDEX (Queensland Digital EXploration Reports system), which contains thousands of company reports, associated figures, tables, maps, and geophysical information from the 1950s to 2011 on mineral exploration and development projects in Queensland. The reports consulted have been cited in this report and are listed in Tables 3 and 4, and in Section 22.0 - References.

The I2M personnel selected for this project include: Michael D. Campbell, P.G., P.H., Vice President and Chief Geologist, I2M Associates, LLC, Houston, Texas, Jeffrey D. King, P.G., President and Senior Project Manager, Seattle, Washington, and supported by Tom Sutton, Ph.D. P.G., M. David Campbell, P.G., and Bruce Handley, P.G. Their CV's are included in Section 25.0 - Appendix VIII.

During the week of March 26, 2012, I2M personnel (Mr. Campbell) met in Townsville, Queensland with Mr. Richard Poulden, Chairman of WBG, to discuss the status of the project.

On March 27, 2012, I2M personnel, in the company of Mr. Poulden and Dr. Simon Beams, Chief Geologist of Terra Search, conducted a site visit of the White Mountain tenement by helicopter and on the ground, with special emphasis on the local geology of the historical mine workings in the subject tenement and discussed WBG management’s future exploration plans (see Figure 4 and Appendix VI). On March 28, 2012, I2M personnel met with Simon Beams, Ph.D., Principal Geologist, and the staff of Terra Search for a de-briefing on the field investigations and to discuss the status of the forthcoming White Mountain exploration project.

On March 28, 2012, Mr. Poulden and I2M personnel visited with senior personnel of DERM in Townsville to discuss environmental matters that may impact present and future exploration and mining operations on the White Mountain tenement. Final briefings were held with Terra Search personnel, Mr. Poulden of WBG, and Mr. Campbell of I2M to discuss future exploration activities.

Terra Search provided I2M personnel with copies of the technical reports and some of the associated literature on past exploration on the White Mountain tenement. Input was also subsequently received from the WBG management regarding current land status (see Sections 5.2 and 5.3). I2M personnel also visited James Cook University on March 29, 2012 to consult the library for any recent, relevant geological reports focusing on the area of interest.



**Figure 4 – Site Visit Personnel on the White Mountain Tenement  
in the Historical Diecon Mine Workings**  
(left to right: Dr. Beams, Mr. Campbell, and Mr. Poulden)

## Section 5.0 Property Description and Location

### 5.1 General Description

The White Mountain tenement (EPM #18393) is part of the high western slopes of the Great Dividing Range of the White Mountains and associated ranges located some 300 km via the Flinders Highway west-southwest of Townsville, Queensland (see Figures 1 and 2). The tenement is accessed by road at various locations from the north side of the highway and covers an area of 4,800 hectares (about 18.5 square miles) and lies within the Hughenden 1:250,000 and the White Mountain (7857) 1:100,000 maps.

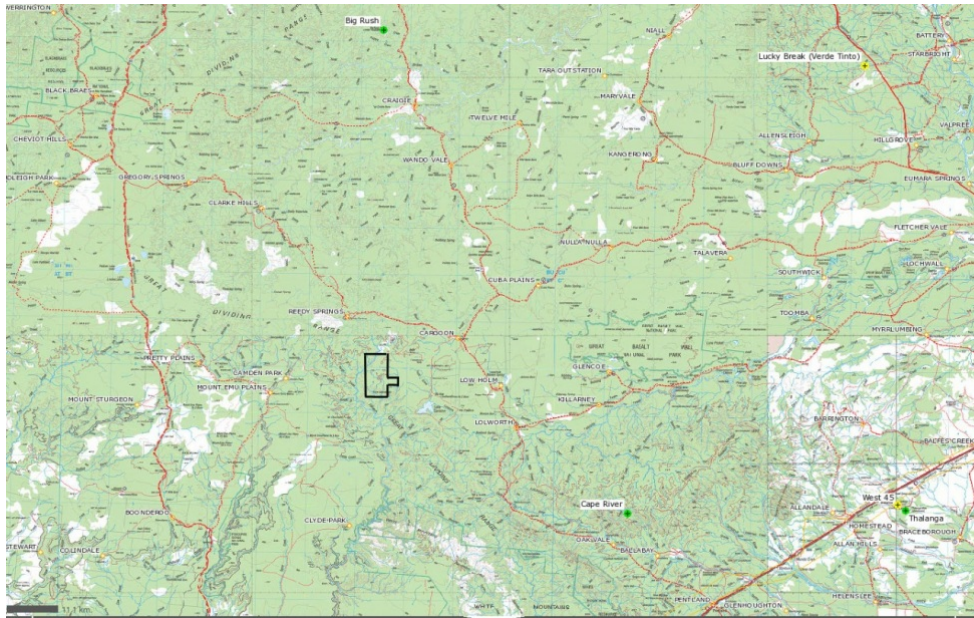
The area exhibits small conical peaks and mesas to an elevation of about 850 m above sea level. Most the local area exhibits a dense pattern of dissected ridges generally no more than 100 m above the valley floors. The ridge crests and streams are generally oriented easterly or to the north.

The Flinders River travels through the EPM and reaches Hughenden where the river turns to the west and eventually flows into the Gulf of Carpentaria to the north. Rolling hills are dissected by the Flinders River to the west of the tenement, becoming higher hills in the east with the highest elevation of one hill at 770 m.

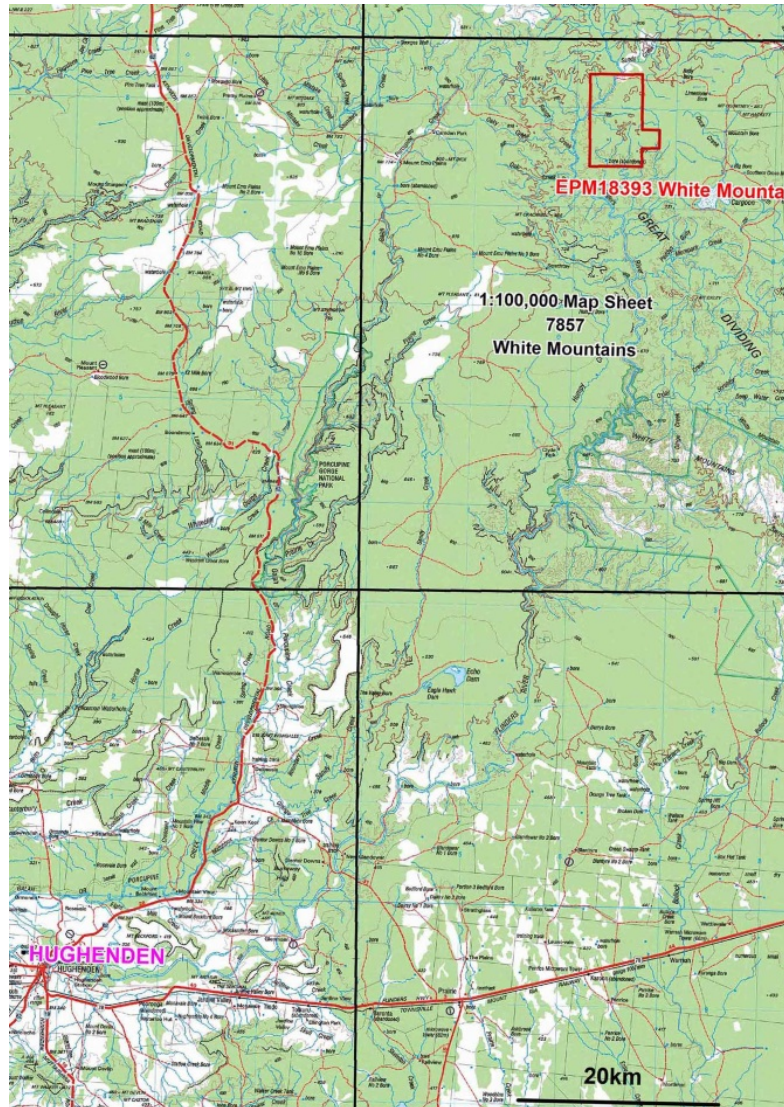


**Figure 5 – Aerial View of the White Mountain Area**  
(Google Earth Map) Left click to expand view.

For an expanded view of ground conditions illustrated in Figure 5, and see Section 24 and Section 25, Appendix VI for some of the field photos taken during the visit to the tenement in March, 2012. Station tracks and tracks created by earlier exploration traffic provide good access throughout most of the tenement during the field season, from April to November, depending upon when the “wet” season begins and ends each year. Road washouts are common in the area from monsoonal rains, especially when traveling in areas of steep topography where drainage merges into adjacent valley floors (see Figure 6A-B-C).

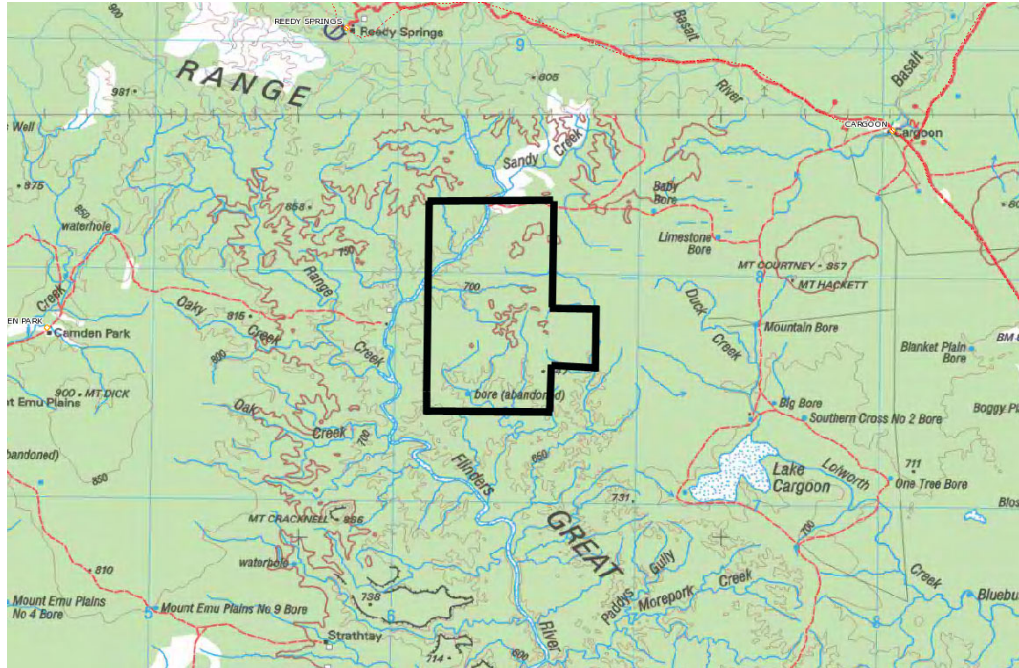


**Figure 6A - Regional Topography Showing the White Mountain Tenement and Historical Mines in the Region and Infrastructure** (See expanded view-left click)



**Figure 6B - Regional Topographical Map**  
(From Terra Search)

Figures 6A and 6B also show the subject EPM's proximity to the Flinders Highway to the southeast and the location of the surrounding homesteads. Figure 6A shows the mining projects known in the general area, which includes the Thalanga-West 45 mines (Berry, *et al.*, 1992; Hermann and Hill, 2001; Paulick, *et al.*, 2001); the Cape River mine (Shelton and O'Rourke, 1983), the Big Rush mine (Robertson, 1997); Lucky Break (Verde Tinto) mine; and beyond the map to the north, the Kidston mine (see Hannes and Dalgarno, 1967; Baker and Andrew, 1991; and Furnell, *et al.*, 1995).



**Figure 6C – Local Topography with Homesteads, Improved Roads, Tracks, and Streams**

## 5.2 Property Ownership and Financial Obligations

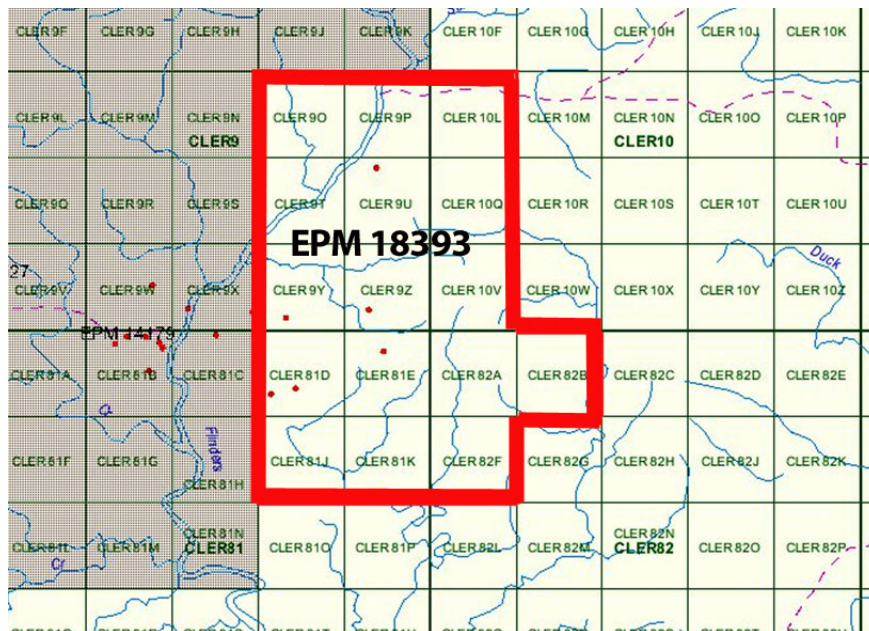
The Wishbone Gold Pty Ltd is domiciled in Queensland, Australia and holds all relevant rights to the White Mountain tenement. The financial obligations of holding the White Mountain tenement include yearly rentals and a commitment to a minimum yearly expenditure for exploration in the area held. The White Mountain EPM currently holds 16 sub blocks within the White Mountain 1:100,000 map sheet, described in Table 1. Homesteads are also listed.

**Table 1  
White Mountain EPM Holdings**

SHEET NAME	SHEET REFERENCE	BLOCK	SUB BLOCKS	DATE GRANTED	HOLDER
White Mountain	7857	CLER	16	May 5, 2011	Wishbone Gold Pty Ltd.

Station Holders listed for Cargoon, Reddy Springs, and Camden Park Homesteads.  
(see Appendix III for land access contact information)

The locations of the sub blocks within the White Mountain tenement are illustrated in Figure 7. The red dots are historical prospect sites to be discussed later in this report.



**Figure 7 - Locations of Sub Blocks within White Mountain Tenement  
with Historical Prospect Sites (red dots)**  
(from Terra Search Documents)

We have included our estimates of the likely rentals fees in Table 2. It is the responsibility of the EPM holder to check the current rental rate and to pay the rentals before the indicated due date. The anticipated increase in the annual rental rates through 2016 have been estimated at \$6.30 per sub block per year and are incorporated in Table 2.

**Table 2  
Rentals for White Mountain EPM Sub Blocks Held\***

YEAR OF PROJECT	COST PER SUB-BLOCK	NUMBER OF SUB-BLOCKS	TOTAL COST(AU\$)
Year 2012	127.05**	16 (4,800 ha)	2,032.80
Year 2013	133.35**	8 (2,400 ha)	1,066.80
Year 2014	139.65**	4 (1,200 ha)	558.60
Year 2015	145.95**	2 (600 ha)	291.90
Year 2016	152.25**	1 (300 ha)	<u>152.25</u>
Total:			\$4,102.35

\* Based on Tenure Rental Current Yearly Rates – 2012 for EPMs at \$127.05 per sub-block (~300 ha)

\*\* Based on 2012 Rate Sheet provided by Terra Search

As indicated in Table 2, the EPM must be reduced in size by sub block periodically, as required by the Queensland Department of Employment, Economic Development and Innovation (DEEDI)\*, according to Section 139 of the Queensland Mining Resources Act of 1989 (MRA). For the subject tenement, no relinquishment is required until 2013.

Unless otherwise specified by the Minister, the area of the tenement must be reduced in the way and to the extent decided by the Minister when the tenement was granted or is renewed. Section 139 of the MRA provides that the area of an EPM must be reduced by 50% at the end of the first two years after its grant, and by 50% of the remainder at the end of each subsequent year.

We understand, however, that if WBG management wishes to retain sub blocks and not relinquish blocks at the scheduled time, WBG can apply to the minister for a ‘variation of relinquishment’. This must be supported with reasonable justification and/or evidence (e.g. extreme weather event, company restructure, discovery of significant mineralization, etc.). An application for variation of relinquishment is required to be made within three months before the relinquishment is due. WBG must also make a submission to the Minister at least 20 business days prior to the date relinquishment is due to occur by identifying which sub-blocks of land WBG wishes to relinquish. If WBG fails to make the submission, the Minister will either make a determination of the sub-blocks to be relinquished, or, the Minister may cancel the exploration permit.

In addition to the rental payments, there is a minimum annual expenditure (MAE). An estimated MAE is required by the DME and is indicated in the EPM application by the applicant. This is based on the anticipated scope of work (and cost estimate), the latter becoming the MAE if approved by the Queensland Government. The subject tenement application was granted in 2011 with an estimated MAE of \$172,000.00 over a five-year program.

The Minister may require security to be paid for the EPM. Currently, the security amount is nil, but this is subject to change if the Minister determines that security is required to cover any damages caused by WBG. WBG will be required to pay security if they apply for a more secure form of tenure, and this amount will be at the Minister’s discretion.

\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au)).

Total minimum holding cost for the subject tenement for 5 years is:

Rentals: \$4,102.35 (Actual rentals would depend on relinquishment schedule and property held and would likely be somewhat higher)

MAE: \$172,000.00 (Based on 5-year exploration program)

Bonds: Nil (To be determined by the Minister).

Minimum: \$176,102.35\*

\*This does not include costs related to homestead access, road repairs, or negotiated costs involved in land usage.

### 5.3 Production Royalties & Agreements

In the event a mineral discovery is made on the subject tenement, and that it has been deemed suitable for mining (subject to the company's Mining Feasibility Study), a mining development license (MDL) will be required. A mining lease would then be required if mining operations are approved. Royalty and other agreements would be in place prior to mining operations.

#### 5.3.1 Royalty to be Paid

Under the *Mineral Resources Act 1989* (Qld) (Act), the holder of an Exploration Permit must pay, in respect of all commodities mined or purported to be mined, a royalty to the Minister. The royalty rate for each commodity is provided for at Schedule 4 to the *Mineral Resources Regulation 2003* (Qld), see QMRA, 1989. For example, the **Average Market Price**, for a prescribed commodity, means the average for a return period of the following price, converted to Australian dollars at the hedge settlement rate for each day of the return period:

- a) for cobalt, copper, lead, nickel or zinc: the spot price quoted on the London Metal Exchange;
- b) for gold: the p.m. "fix price" quoted on the London Bullion Market;
- c) for silver: the "fix price" quoted on the London Bullion Market.

**Reference Price 1**, for a prescribed commodity, means:

- a) for cobalt: \$25 for each pound; or

- b) for copper: \$3,600 for each tonne; or
- c) for gold: \$600 for each troy ounce; or
- d) for lead: \$1,100 for each tonne; or
- e) for nickel: \$12,500 for each tonne; or
- f) for silver: \$9 for each troy ounce; or
- g) for zinc: \$1,900 for each tonne.

**Reference Price 2**, for a Prescribed commodity, means:

- a) for cobalt: \$38 for each pound; or
- b) for copper: \$9,200 for each tonne; or
- c) for gold: \$890 for each troy ounce; or
- d) for lead: \$2,500 for each tonne; or
- e) for nickel: \$38,100 for each tonne; or
- f) for silver: \$16.50 for each troy ounce; or
- g) for zinc: \$4,400 for each tonne.

The royalty rate for a Prescribed commodity is:

- a) if the average market price for the commodity is equal to or lower than reference Price 1 for the commodity or 2.5% of the value of the prescribed commodity; or
- b) if the average market price for the commodity is higher than reference Price 1 for the commodity but lower than reference Price 2 for the commodity or the Prescribed Percentage of the value of the prescribed commodity; or
- c) if the average market price for the commodity is equal to or higher than reference Price 2 for the commodity or 5% of the value of the prescribed commodity.

The **Prescribed Percentage** is applied for price conditions described in b) above and is calculated by applying the following formula:

$$PP = 2.5\% + \left\{ \frac{PD}{RFD} \times 2.5\% \right\}$$

where:

**PP** = the prescribed percentage.

**PD** = the difference between the Average Market Price and Reference Price 1 for the prescribed commodity.

**RFD** = the difference between Reference Price 2 and Reference Price 1 for the prescribed commodity.

For the other two other cases (for a) and c) above), the royalty would be 2.5% and 5%, respectively, on the gold sold. As an example of the procedure, if the average market price for gold is \$1,600.00 for each ounce of gold sold, the royalty rate paid to the Queensland Government for the gold recovered for the quarter would meet the requirements of subsection c), above, given the average market price is higher than the Reference Price 1 for gold (\$600.00) and higher than Reference Price 2 for gold (\$890.00). The royalty rate would be 5% on the revenue gained by selling gold. This assumes that the gold is bullion grade produced by an approved refinery. For multi-metal production, the royalty calculation becomes more involved (see QDEEDI, 2012).

There are no other current royalties in effect involving any future production from the White Mountain EPM. This is not to imply that additional royalties may not be required at some time in the future by the Government or offered by WBM and/or accepted by a third-party at some time in the future.

### ***5.3.2 Agreements Concerning Land Access***

#### ***Land Access Code***

We understand that the Queensland Parliament has recently introduced a new Land Access Code that will form part of the conditions of exploration permits and mineral development licenses issued under the Act. The Code updates the existing Notice of Entry (NOE) and compensation provisions contained under the Act and aims to ensure consistency in the definitions of “compensatable effects” for which tenement holders

must compensate landowners. A breach of the Code may result in a pecuniary penalty, and can also potentially lead to forfeiture of a tenement. With the recent elections in Queensland, significant changes are likely in the next few years and these would likely be beneficial to the mining industry.

*Access / NOE Provisions under the Code*

Proposed activities, for which access to the land is required, are categorized as either a ‘preliminary activity’ or an ‘advanced activity.’ A ‘preliminary activity’ is an authorized activity “that will have no impact, or only a minor impact, on the business or land use activities of any owner or occupier of the land on which the activity is to be carried out”.

Some examples are provided below:

- walking the area;
- driving along an existing road or track;
- taking soil or water samples;
- drilling without constructing earthworks;
- geophysical surveying without site preparation; and
- aerial, electrical or environmental surveying.

Activities on land that is less than 100 ha or that is used for intensive farming or broad-acre agriculture, an activity that is carried out within 600 m of a school or an occupied residence, or that affects the lawful operation of an organic or bio-organic farming system, is considered a ‘preliminary activity’. All other activities are considered to be ‘advanced activities’.

NOE requirements under the Code provide that a tenement holder can enter to conduct preliminary activities by giving a written entry notice at least 10-days business days before entry, or in accordance with an existing agreement, such as a Compensation Agreement. However, for advanced activities, broad overview compensation must be determined first, and once that has occurred, an NOE may be given. If an agreement can’t be reached, a negotiation notice must be given to the land owner to commence negotiating the entry of the tenement holder on the land. An agreement remains to be

worked out with the Homestead owners with land holdings within the White Mountain EPM (see Table 1 and Appendix III for Homestead names).

### ***5.3.3 Aboriginal Cultural Heritage***

The Aboriginal Cultural Heritage Act (ACH) of 2003 came into effect on April 16, 2004. This legislation provides for the recognition, protection, and conservation of Aboriginal cultural heritage. Tenement holders have a duty of care to protect Aboriginal cultural heritage when carrying out exploration and any development activities undertaken on the subject tenement, and to meet with any Aboriginal party within the area, if any, to satisfy its duty of care in accordance with the criteria set out in Sections 34 and 35 of the ACH Act (see QDERM, 2012). We understand that there are native title claims within the subject area of current interest. Additional investigations are recommended regarding these matters at the appropriate time.

## **5.4 Permitting**

At present, there are no known active Mining Development Licenses (MDL) currently held within or near the subject EPM (see Section 3.3 – White Mountain Tenement). A permit is required to drill test wells; coring and logging are considered part of the drilling program. Drilling of the test holes also require a Class 3 driller with all the appropriate certificates for permission to drill in the Wishbone II area. Other permitting requirements include yearly reports on the exploration program to the Queensland Department of Energy and Water Supply (DEWS\*).

At some point in the exploration program, assuming results are favorable, a Mineral Development License (MDL) will be required to permit a mining venture to proceed in the event that minerals of economic significance are discovered on the tenement. The MDL is designed to allow time to conduct various permitting requirements, one of which will be the confirmation of a Native Title Agreement, if applicable. Others include agreements on water-use rights, railway agreements (if possible), and others focusing on the construction of facilities or infrastructure, and with the Homesteads' surface rights within the tenement area, see Appendix III.

\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au)).

## 5.5 Environmental Issues

The White Mountain EPM is not currently subject to any known environmental study. All work carried out by Terra Search or other consultants to WBG is to be in accordance with the Code of Practice, as outlined in the Queensland Department of Environment and Resource Management (DERM\*) “Schedule of General Exclusions and Conditions for Exploration Permits.” WBG management anticipates that the proposed exploration methods will have minimal impact on the environment. Initial traversing will be done on foot and light four-wheel-drive vehicles, and where possible vehicles are to use existing tracks. In areas of no tracks, vehicle traversing is to be designed to cause minimal soil erosion or damage to existing vegetation. Any earthworks necessary for drilling programs are to be rehabilitated at completion of the program, if required. A truck-mounted drilling rig will be the only significant large item of equipment that will be used on site. Minor site preparation will be required to maintain personnel safety. All drill sites are to be rehabilitated, including:

- all top soil preserved,
- all drill holes, including open hole, capped at ground level,
- drill sumps, where used, are to be backfilled, and
- if a drill site is to impact a water course, the drill-hole site is to be designed to avoid disturbance.

We understand that WBG has access to a number of rehabilitation environmental consulting experts. WBG management and their consultants have arranged that should the need arise they would be called upon to assist WBG with any reasonable operations on the subject EPM.

A mining project is prescribed under section 151 of the *Environmental Protection Act 1994* as either a level 1 mining project or a level 2 mining project, depending on the risk of environmental harm. Mining activities that are part of a mining project are authorized under an Environmental Authority (for mining activities). A mining project is prescribed under section 151 of the *Environmental Protection Act 1994* as either a level 1 mining project or a level 2 mining project, depending on the risk of environmental harm. Mining activities that are part of a mining project are authorized under an Environmental Authority (for mining activities).

\* Note: The Department name may change due to recent changes in Queensland Government (see: [www.derm.qld.gov.au](http://www.derm.qld.gov.au)).

For a new mining project, an applicant must apply concurrently for an Environmental Authority (for mining activities) under the *Environmental Protection Act 1994* and a tenement mining lease (after an MDL has been approved) under the *Mineral Resources Act 1989*.

Following a legislative review, the Queensland Government amended the *Environmental Protection Act 1994* and the Environmental Protection Regulation 2008. These changes came into effect in December, 2011.

The main changes relating to level 2 Environmental Authorities (mining activities for a mining area of less than 10 hectares) are:

- the annual fee for an environmental authority is no longer required to be submitted with the application for a new environmental authority.
- the annual fee for an environmental authority is payable on the first anniversary after granting of at least one mining tenement related to the environmental authority.
- where an environmental authority has been amended to form part of an amalgamated environmental authority - and the application is received on or after March 1, 2011, but before November 2, 2012 - all annual fees and late fees paid for the extinguished environmental authority will be refunded back to January 1, 2009. Where annual fees and late fees have not been paid for the extinguished environmental authority, outstanding invoices for the above period will be cancelled. For additional information, see QDERM, 2012).

As indicated previously, with the recent elections in Queensland, significant changes are likely in the next few years and these would likely be beneficial to the mining industry.

## **Section 6.0 Accessibility, Climate, Local Resources, and Physiography**

### **6.1 Topography, Elevation, Vegetation, and Fauna**

The topography and associated elevation in the general area of the subject tenement are illustrated in Figures 6A, 6B, and 6C, along with the boundaries of the subject tenement. The region's main towns are Charters Towers to the east some 155 km by direct flight (some 180 km by track and highway). The small settlement of Pentland is about 85 km to the south of the White

Mountain tenement. Another small settlement, Hughenden, lies some 132 km to the west of Pentland along the Flinders Highway.

The subject tenement lies within the Flinders River Drainage Basins and in the Einasleigh Uplands bioregion. Based on information provided by the Australian Government (see Section 23.0 - References), the undulating hills and ranges of the bioregion are dominated by woodlands of Georgetown box (*Eucalyptus microneura*) with areas of narrow-leaved ironbark (*Eucalyptus crebra*) and broad-leaved ironbark (*Eucalyptus shirleyi*). Small woodland areas of Reid River box (*Eucalyptus brownii*), Molloy red box (*Eucalyptus leptophleba*) and Cullen's ironbark (*Eucalyptus cullenii*) occur on the surrounding slopes and lower areas. The basalt soil in the central and southern areas of the bioregion support ironbark (*Eucalyptus* spp.) woodlands and mountain coolibah (*E. orgadophila*) open woodlands. River red gums (*Eucalyptus camaldulensis*) occur along large water courses. Refer to Cumming (1992); Galloway *et al* (1970); Nelder & Clarkson (1995); Perry *et al* (1964); and (Sattler & Williams, 1999) for additional information.

Endemic flora includes the cycad (*Cycas couttsiana*) and a number of dry rainforests species such as *Atalaya calcicola* and *Alectryon tropicus*.

About 62 flora species are listed as rare and threatened, of which the *Plectranthus minutus* and the *Tylophora rupicola* are considered endangered. For a list of rare and threatened flora and vegetation descriptions of the bioregion refer to Sattler & Williams (1999).

The bioregion contains more species of rock wallaby (*Petrogale* spp.) than anywhere else in Australia. The springs and spring fed wetland systems provide significant water bird breeding and feeding areas and a refuge for fauna such as the freshwater crocodile (*Crocodylus johnstoni*) (Sattler & Williams, 1999).

About 38 fauna species are listed as rare and threatened, of which the western quoll (*Dasyurus geoffroii geoffroii*) is thought to be extinct in Queensland but apparently survives in the southwestern area of Western Australia. The skinks (*Lerista vittata* and *Lerista cinerea*) are

considered to be vulnerable. For a list of rare and threatened fauna and fauna surveys refer to Sattler & Williams (1999).

Some bird species have had losses or marked reduction in numbers, particularly the star finch (*Neochimia ruficauda*) and Gouldian finch (*Erythrura gouldiae*). Many birds have benefited from human activity in the region including the brown quail (*Coturnix ypsilophora*), peaceful dove (*Geopelia striata*), pheasant coucal (*Centropus phasianus*), singing bushlark (*Mirafra javanica*) and Richard's pipit (*Antus novaeseelandiae*) (Woinarski, *et. al.*, in prep.).

## **6.2 Accessibility to Properties**

The subject area is located approximately 300 km southwest by road from Townsville. Access to the tenement is possible from the Flinders Highway at Pentland with permission from the Cargoon Homestead Station holder(s), see Section 5.3.2, and Appendix III. The area experiences a monsoonal climate with heavy rainfall during the wet season on soils desiccated during the warm, dry months and not only produces severe gully and sheet erosion, but also results in ground-water recharge with the excess discharging as surface run off via streams and rivers. Such conditions can block tracks and often require repair to permit field traffic.

## **6.3 Local Resources**

One large, constructed tank (pond) is present along the eastern boundary of the subject tenement. Ground-water resources are available from water bores (windmills) in areas underlain by thick alluvium and from fractures and joints in the bedrock below shallow soils and alluvial sediments. In areas where granite and other igneous and metamorphic rocks are present in the subsurface, ground-water supplies would be available, especially near dry creeks where major fractures or joints are likely to be present. Lower meadows surrounded by hills consisting of igneous and metamorphic rocks serve as collection areas to recharge shallow ground water. The depth to the water table in such areas will need to be monitored because the volume of ground water available within the fracture systems may not be large, although sufficient supplies can be available under certain circumstances, see Larsson, I., M. D. Campbell, *et al.*, (1984).

The Flinders River runs most of the year with billabongs developing during low rainfall periods but these may dry up during droughts. No livestock was observed on the tenement during the I2M's site visit during the week of March 26, 2012.

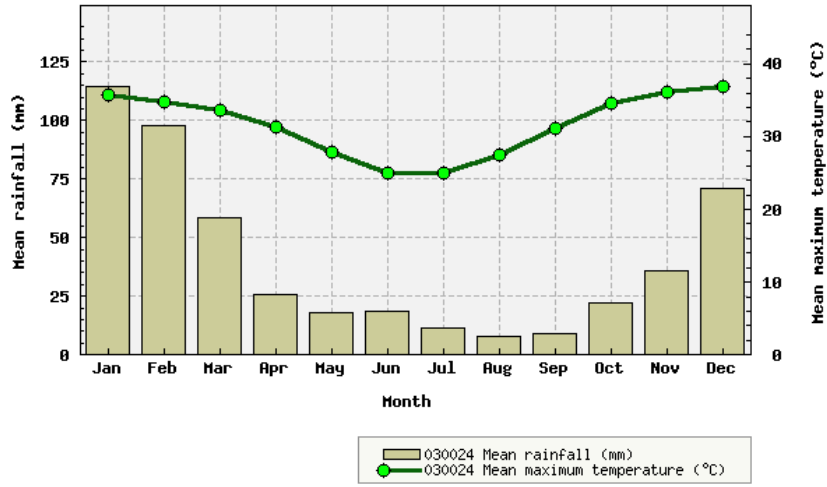
The nearest railway is the main Mt. Isa-Townsville Railway located approximately 85 km south of the subject tenement parallel to Flinders Highway near Pentland, Qld.

#### **6.4 Climate and Seasonal Operations**

Hannan (2007) reports that the nearest readily available center for climatic data is the Hughenden Post Office located about 100 km to the southwest of the EPM. Rainfall measurements at Hughenden from 1884-2004 (120 years) indicate an average annual rainfall of 491.3 mm/year. The average for the two wettest months, January and February, was 106.3 mm per month and for the driest month, August was 7.9 mm. Rainfall through the wet season (Dec-Mar) averaged 342.0 mm and through the rest of the year was 149.2 mm, indicating there is no absolute dry season. Temperature measurements over 92.6 years indicate an average maximum of 31.6° C and a minimum of 16.6° C. The means for January are 35.8° C (max.) and 22.5° C (min.) and for July are 25.0° C and 8.9° C. Mean relative humidity extremes were 65% (Feb) and 43% (Oct) (see Figures 8, 9, and 10 for typical conditions).

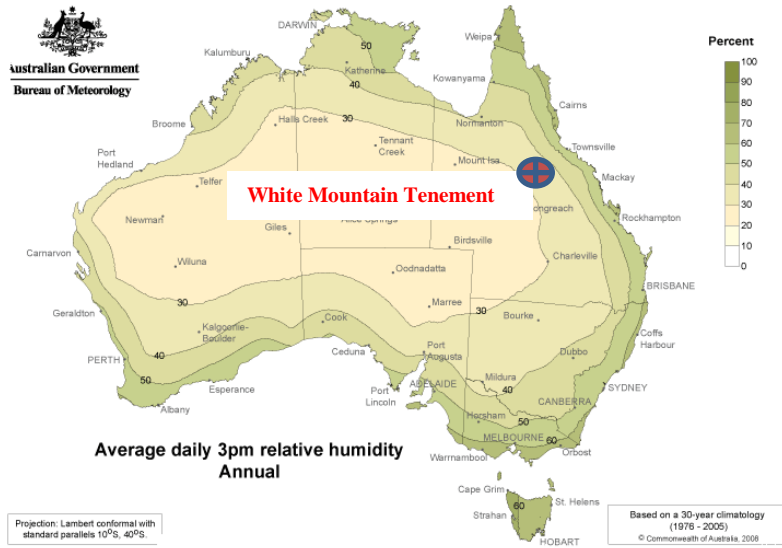
Based on data from Australian Bureau of Meteorology (2012). Recent and prevailing weather conditions in Hughenden are available at:[http://www.bom.gov.au/climate/averages/tables/cw\\_030024.shtml](http://www.bom.gov.au/climate/averages/tables/cw_030024.shtml).

Location: 030024 HUGHENDEN POST OFFICE



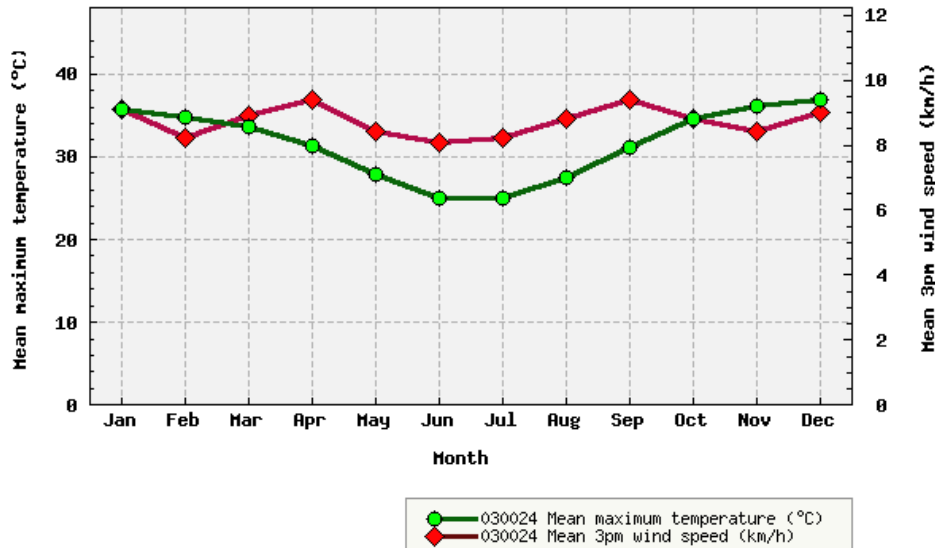
Created on Tue 3 Apr 2012 06:24 AM EST

**Figure 8 - Mean Maximum Monthly Temperatures and Rainfall**



**Figure 9 - Average Daily Relative Humidity (@ 3:00 PM)**

Location: 030024 HUGHENDEN POST OFFICE



Created on Tue 3 Apr 2012 06:05 AM EST

**Figure 10 - Mean Maximum Monthly Temperature and Mean Wind Speed @ 3:00 PM**

## 6.5 Available Infrastructure

As discussed in Sections 6.2 - Accessibility to Properties and 6.3 - Local Resources, supporting infrastructure is available in Charters Towers about 180 km by road to the east via the Pentland track and the Flinders Highway (or about 155 km via direct flight). The Mt. Isa - Townsville Railway parallels Flinders Highway heading east to Charters Towers and Townsville and west to Cloncurry and Mt. Isa. This railroad carries mined ore and concentrates from the Mt. Isa Mines, and more recently from mines in the Cloncurry area to Townsville.

For field programs, electric power can be connected by a single line from either Cargoon or the other homesteads. The nearest airstrip suitable for light aircraft is at Camden Park Homestead. There are no telephone lines in the area and all homesteads use satellite telephones. Hughenden is the administrative center for Flinders Shire, in which the subject EPM is located. It has a population of a few thousand or less, and overnight accommodations and a collection of stores for supplies. It also has petrol stations, a hospital, a police station and a bank or two at last count. The support of the

Queensland Government for the development of a Queensland-based precious metal, base metal, and iron ore industry could result in a major improvement over the next few decades in the supporting infrastructure.

Significant factors impacting the development of the industry will be road and rail transport, and port infrastructure and capacity, and the availability of water for processing and associated mining needs. Reports are that the Mt. Isa-Townsville Railway System is nearing capacity, and any additional transport needs would likely be met by special agreements and cooperation with the Queensland Government and current transporters. Rail support would not be needed for gold and silver production, but may be required to transport base-metal concentrates in the event such commodities are discovered and produced on the subject tenement.

## **Section 7.0 History**

### **7.1 Previous Exploration Results**

Terra Search, WBG management's principal consultant, collected information from QDEX, the online source of previous mining and exploration activities in Queensland since the 1950s. Terra Search presented exploration narratives for the previous methods used (see Appendix IV).

We have identified the companies that have been active in the general area within the past few decades. The first group consisted of the early miners of the 1800s and early to mid-1900s. They are responsible for identifying areas that remain areas of interest to present exploration companies. These efforts were based on surface sampling and drilling to limited depths (see Appendix IV).

With the price of gold at historically high levels, many prospects are being revisited. This is a situation currently shared with many mining districts that have hosted major gold ore bodies. The Charters Towers example suggests that many historically active sites in surrounding areas (where minor, shallow gold and silver production occurred) may become primary targets in geological settings conducive for the discovery of major ore bodies at depth. Those sites already known

(i.e., rediscovered), such as at the Granite Castle deposit immediately west of the subject tenement, and at some distance away, the Thalanga and West 45 Mines, and at the newly discovered Welcome deposit west of Mingela, have been investigated in some detail. Their significance will be discussed below and later in this report.

Other companies have held tenements within the current White Mountain tenement, (see Table 3), and those companies have been keyed to their respective reports:

**Table 3**  
**Historical Activities within White Mountain Tenement**

<b>EPM / ATP</b>	<b>HOLDER</b>	<b>REPORT DATE</b>	<b>COMPANY REPORT</b>
214	North Broken Hill LTD	1963	1214
728	Carpentaria Gold	1971	1518
728	Uranium Consolidated	1971	3494
983	International Nickel	1971	4049
		1972	4430
		1974	4748
2461	Loloma Limited	1981	9269
3402	Chevron Exploration	1983	12704
		1984	13671
4319	Conatus Pty Ltd	1986	16615
		1987	16885
		1987	17408
		1988	17466
		1988	18133
		1989	19989
		1989	20056
7680	CRA Exploration Pty Ltd	1989	20868
		1992	23927
9352	Walhalla Mining	1993	25382
		1994	25523
14170	Giralia Resources NL	2007	45512
14170	Carpentaria Exploration	2008	50422

After reviewing these reports, we observed that only minimal efforts were made with limited sampling, superficial at best, especially when compared to the exploration efforts made by the mining companies around the periphery of Charters Towers some 156 km to the east of the subject tenement.

## **7.2 Historical Company Exploration**

John (1985) indicates that gold was discovered in the Charters Towers area in 1871. Various reports have been prepared by the Geological Survey of Queensland geologists on these historical mines and prospects in the district. We have reviewed a number of the company reports, spanning a period of over four decades, that focused on areas in and around the White Mountain EPM, and have investigated some of the more significant results as revealed in the historical reports filed with the Queensland Government, (see Table 4).

## **7.3 Regional Exploration**

As part of the White Mountain EPM's application, Terra Search personnel prepared a brief history of the activities in the immediate vicinity of the White Mountain tenement and of the region to the west. We have reviewed the documents listed in Tables 3 and 4 and summarized selected histories as examples of the significance of the exploration conducted over the past 40 years. Some of the documents cover the activities within the subject tenement.

Gold was discovered in the Mount Emu Goldfield in 1909 at the Diecon prospect. Mining at the Granite Castle vein (reef), the largest producer in the field, commenced in 1910. Hand-picked, high-grade gold ore was shipped to Charters Towers for treatment. All the workings were on narrow quartz veins, generally less than one-meter wide. A treatment plant was erected in 1913, but performance was poor as the gold was only partially free-milling. During World War II, shafts and underground workings at the Granite Castle mine were extended to 30 m below surface and hand-picked ore sent to Chillagoe, Queensland for treatment. Total recorded production from the Mount Emu field was 2,400 ounces from 1,900 tonnes of ore (Robinson, 1981).

**Table 4  
Regional Exploration Activities**

<b>EPM / ATP</b>	<b>HOLDER</b>	<b>REPORT DATE</b>	<b>COMPANY REPORT</b>
2223	AGIP Australia	1980	7968
		1980	8424
		1981	8752
		1982	9926
		1982	10460
		1982	11297
		1982	11788
3340	Central Coast Exploration	1983	12050
		1983	12546
		1984	13106
		1985	14008
4073	Billiton Australia	1986	15691
		1987	16240
4702	BP Minerals	1988	17617
		1988	18033
		1988	18448
		1988	19469
4917	Pan Australian Mining	1989	19541
		1989	19710
		1989	20712
5812	Billiton Australia	1990	21663
7660	CRA	1992	23927
9352	Walhalla Mining	1994	25523
10469	Mt. Leyshon/Normandy Ltd	1996	27636
9409	MPI Gold	1996	28219
9313	Alphadale Pty Ltd	1997	29617
10175	Mt. Isa Mines	2001	32800

*North Broken Hill Limited*

Modern exploration began in 1962 when North Broken Hill Limited (NBH) was granted ATP# 214M over the Mt Emu Goldfield. NBH's interest was prompted by a suggestion that the Granite Castle prospect, located west of the Flinders River, was a potentially important gold mine lying idle (Lissiman, 1963). Investigations showed that the vein width was narrow and NBH relinquished the area after one year. Since then a dozen companies have carried out work within the general area generating some 50 exploration reports that are now on open file in the QDEX database. NBH was followed in 1970 by Uranium Consolidated NL, who carried out drainage sampling at a density of 10 samples per sq. km and analyzed for copper, nickel, lead, and zinc. Only a few low-order anomalous areas were found and the area was relinquished.

### International Nickel Australia Limited

ATP# 983M was granted to International Nickel Australia Limited (INCO) in 1971. Reconnaissance stream sediment samples collected at a sample density of about 5 per sq. km were analyzed for copper, nickel, lead, and zinc. Anomalous samples were followed up by soil and rock- chip sampling, and resulted in the discovery of a gossan outcrop which INCO named the Bradley's Jubilation prospect (also known as the Brady's Reward prospect). The gossan consisted of a 60 m long lens of metamorphosed quartz-rich arenite in an inlier of the Cape River Metamorphics Complex within the Big Bore Granodiorite.

Chip samples from the gossan assayed up to 1.5% nickel and 1.2% copper. One diamond core hole was drilled to a total depth of 133.5 m beneath the gossan. Chalcopyrite veinlets were observed from 96.0 to 101.5 m down hole but assayed less than 0.05% copper (Williams, 1974). INCO thereupon surrendered the tenement in 1974 without further investigations.

### AGIP Australia Pty Ltd

AGIP Australia Pty Ltd (AGIP) was granted ATP# 2223M in October 1979 to explore for hydrothermal vein-type uranium mineralization in the Cape River Metamorphics Complex over a large area. A helicopter radiometric survey indicated that the potential for uranium mineralization was low. AGIP then changed focus to the gold mineralization in the district and carried out percussion drilling on the Sarah Houston prospect near Pentland and the Mount Clearview prospect 50 km northwest of Pentland, south of the subject EPM. Results were disappointing and the area was relinquished at the end of 1982.

### Houston Oil and Minerals

In 1980 Houston Oil and Minerals (HOM) was granted 8 ATPs in the Cape River area north of Pentland, one of which covered ground within the subject EPM. A helicopter-supported reconnaissance stream sediment survey detected a number of anomalies including elevated gold in the vicinity of the Mount Emu Goldfield (which includes the western part of the subject EPM) and a float sample assaying 0.12% copper and 40 ppm molybdenum in the southern part of present EPM# 14170 (just south of the subject EPM). HOM relinquished the areas at the end of 1982. No drilling was conducted.

### Loloma Limited

Loloma Limited examined the Mount Emu Goldfield in 1980 and proposed a 14-hole percussion drilling program at the Granite Castle prospect and nearby prospects west of Flinders River (and west of the subject EPM), but relinquished their tenement without carrying out the program.

### Central Coast Exploration NL

Central Coast Exploration NL (CCE) was granted ATP# 3340M in July 1982. Initial focus was on an adamellite intrusion near an area known as Gypsy Pocket, located just south of the subject tenement where CCE found a narrow vein containing molybdenite (up to 432 ppm molybdenum in a chip sample) and chalcopyrite. Further field work indicated that only weakly anomalous copper-molybdenum mineralization occurred within an area of porphyry copper-style alteration. The ATP expired in 1985 and was not renewed. No drilling was conducted.

### Chevron Exploration Corporation

Chevron Exploration Corporation (Chevron) explored the area for porphyry copper, skarn and stockwork mineralization related to intrusives, as well as volcanogenic massive sulphides associated with extrusives. An aeromagnetic survey was carried out and some anomalies followed up without success. Chevron withdrew in 1984 without suggestion of anomalous magnetic anomalies.

### Conatus Pty Ltd

In 1986 Conatus Pty Ltd (Conatus) covered the Mount Emu Goldfield with ATP# 4319M. More than 100 percussion holes were drilled at the Granite Castle prospect (located west of Flinders River). Metallurgical test work on the drill cuttings showed that the gold mineralization was very refractory, with column leach recoveries as low as 26% after 63 days. This suggests that the gold formed within arsenopyrite or other minerals and consequently was not free milling. The tenement was relinquished in September 1989.

### Pan Australian Mining Limited

Pan Australian Mining Limited (PanAust) explored the area now covered by the southern part of the subject EPM (as part of an older EPM# 14470) from 1987 to 1989, using stream sediment sampling with rock chip follow-up. Their targets were epithermal bulk tonnage gold deposits and/or narrow high-grade quartz vein gold deposits. Anomalous gold samples were traced to geological features but were deemed by PanAust to be of little economic significance. No drilling was conducted.

### CRA Exploration Pty Limited

CRA Exploration Pty Limited (CRA) briefly held the area during 1991. A literature review and compilation of previous geochemical and airborne geophysical was partially completed but no field work was conducted before CRA relinquished their tenement in 1992.

### Walhalla Mining NL

EPM# 9352 covering the Mount Emu Goldfield was granted to Walhalla Mining NL (Walhalla) in April, 1993. Walhalla followed up the Conatus drilling at Granite Castle with an additional 73 reverse-circulation (RC) holes totaling 4,495 m, including 886 m of diamond core in the RC holes. An additional 10 diamond core holes were drilled for a total of 553 m. Combining their data with the previous Conatus drilling generated a JORC inferred resource of 825,000 tonnes @ 4.9 g/t gold; 79.3 g/t silver; 0.95% lead; and 1.4% zinc, using a cut-off grade of 1 g/t gold.

### MPI Gold Pty Ltd

In June 1993, MPI Gold Pty Ltd (MPI) was granted EPM# 9409 which partially covered an area just south of the subject EPM. The target was Charters Towers-style shear-zone hosted gold mineralization at the contacts between the Cape River Metamorphics Complex and various intrusives. Surface sampling returned only two samples with values >1ppb gold. Under a joint-venture agreement with MPI, Placer Gold NL carried out an airborne magnetic and radiometric survey in 1994. Ground follow-up was discouraging and the tenement was surrendered in July 1996 apparently not recognizing the significance of their magnetic survey and the anomaly identified later by Giralia Resources and Carpentaria Exploration personnel.

### *Giralia Resources-Carpentaria Exploration*

No further work has been reported between 1996 and 2004, when Giralia was granted EPM# 14170. Giralia commissioned a compilation and reinterpretation of existing geophysical data within EPM# 14170 during 2006. Image processing of reduced-to-pole (“RTP”) data highlighted a strong feature trending southeast from the Bradley’s Jubilation prospect located on the subject tenement. This magnetic high has been interpreted as suggesting that a skarn deposit may be present along the contact between the Cape River Metamorphics Complex and the Fat Hen Creek Complex. The mineralization at Bradley’s Jubilation occurs on a north-northeast-trending structure that appears to cut off the magnetic high (Brewster, 2008). Giralia farmed out their EPM to Carpentaria Exploration Ltd. to use in their quest to go public on the Australian Stock Exchange (to be discussed later). Giralia received the EPM back from Carpentaria Exploration shortly thereafter, with no further work being conducted on the EPM.

#### **7.4 Relevant Exploration and Mine Geology**

Substantial exploration has been conducted west of the Flinders River, especially in the area of the Granite Castle area (see Mantle Mining Corporation Limited, 2012; and Berkman and Saunders, 1994). Extensive drilling was carried out during the late 1980s by Conatus to develop a relatively small, inferred resource base for development by open-pit methods. A feasibility study was to be undertaken to evaluate the ore and mining costs. However, aside from the shallow, oxidized gold mineralization, most of the gold was determined to occur within arsenopyrite and other minerals in solution-solution series. This would require roasting (oxidizing the reduced ore) and then heap leaching with cyanide or other agents to recover the gold dore.

The current operations in the general area around the subject EPM have been reviewed. The most significant are the Granite Castle activities currently underway by Mantle Mining on holdings adjacent to the western boundary of the White Mountain tenement, the Thalanga and West 45 mines located about 115 km east-southeast from the subject EPM and the Welcome Deposit now under development by Resolute Mining Limited located approximately 8 km west of Mingela. The Kidston Mine, now dormant, is located about 150 km north of the subject tenement. The

deposit was well studied and provides important information on potential mineralization on the subject tenement (see Furnell, *et al.*, 1995).

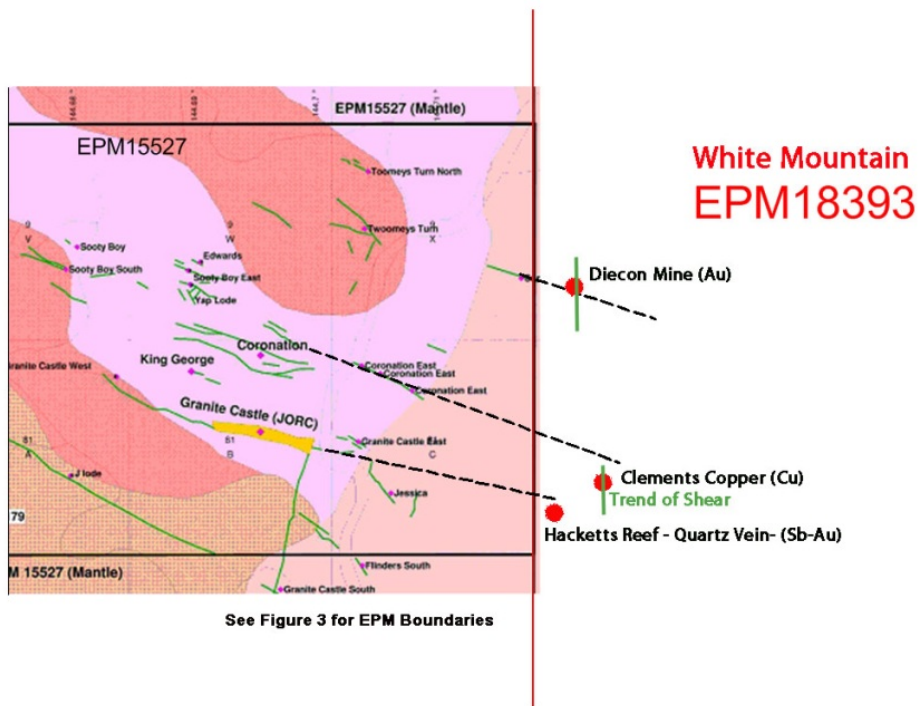
#### ***7.4.1 Granite Castle Deposits***

According to public announcements by Mantle Mining Corporation Limited (Mantle), the Granite Castle mineralized trends have been tested over a strike length of 900 m and partially to a depth of 300 m (see Section 22.0 References). All holes confirmed the continuity of the mineralized shear. A further 12 mineralized shear zones of this type have been reported near the Granite Castle deposit. Additional details of these are given in the Independent Geological Report prepared for Mantle. The nearby historical workings are very shallow but show that the gold zones are similar in style to Granite Castle and all require further testing.

These deposits are greisen-hosted, shear-emplaced, gold deposits with accompanying silver, lead, and zinc. Individual lodes are quite continuous and up to 10 m in width - but usually average less than 3 m, and can extend for over 1200 m. These lodes have been historically classified as simple magmatic ore deposits emplaced in shears within the granitic rocks, and structurally controlled by the increased permeability within the shears.

The significance of the historical workings and recent exploration activities on the property adjacent to the White Mountain tenement is that the recognized shear zones in granite appear to be trending into the subject EPM, especially in the southwest areas of the subject tenement (see Figure 11A). This indicates the shear zones that occur in the subject property are primary targets for follow-up exploration.

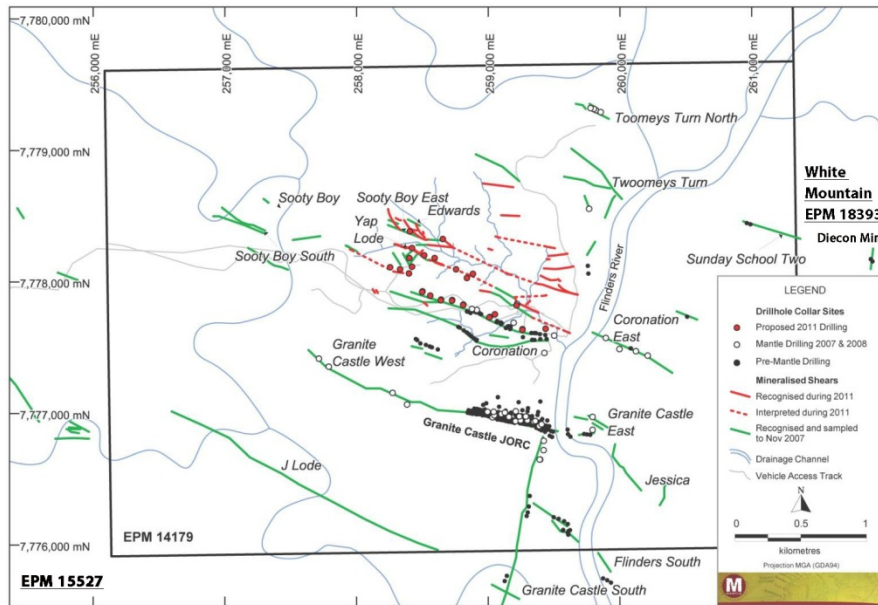
More than 200 RC holes and 27 diamond holes were drilled in the Granite Castle area and nearby quartz veins between 1988 and 1994 (see Figure 11B). An Inferred Resource according an independent geological report engaged by Mantle management indicates that it complies with the current JORC standard for reporting resource estimates, and has been calculated at three ore-grade cut-offs. Based on recent information from the company, Mantle's Granite Castle project area contains recognized and interpreted mineralized shear zones based on the historic drilling and laboratory data. Mantle plans to drill additional holes during a 2012 program.



**Figure 11A - Generalized Trends entering EPM 18393 from the West.**  
(After Mantle Mining Corporate Website)

The company claims that the Granite Castle property hosts a JORC-compliant resource of 79,000 ozs of gold and 1.5 million ozs of silver located wholly within a 600 m portion of a single, mineralized shear zone within the Granite Castle property (see Table 5). The suggested target below the resource identified to date is projected to be about 350,000 tonnes amounting to more than one million ozs gold and 21 million ozs silver or, assuming current precious metal prices, more than US \$2 billion in place should such mineralization be identified during drilling.

A Mantle drilling program is scheduled for late 2012. The objective of the drilling program is to delineate additional areas with potential to contain sufficient resources to justify a formal feasibility study for subsequent development and production.



**Figure 11B – Drilling Locations and Generalized Trends on Adjacent Property.**  
(After Mantle Mining Corporate Website ASX Announcement)

**Table 5**  
**Mantle Mining’s Granite Castle Gold & Silver Project**

Granite Castle Gold and Silver Resource Estimate @ 0.2 g/t Au lower cut-off						
Class	Tonnes	Au g/t	Au ozs	Ag g/t	Ag ozs	
Measured	122,614	3.9	15,727	53.3	209,941	
Indicated	264,021	3.4	29,198	67.6	574,182	
Inferred	460,443	2.3	34,375	50.4	746,680	
<b>Total</b>	<b>847,078</b>	<b>2.9</b>	<b>79,301</b>	<b>56.2</b>	<b>1,530,803</b>	

Granite Castle Gold and Silver Exploration Target			
Target	Tonnes	Au g/t	Ag g/t
Below JORC Resource	300,000 – 400,000	2.5 - 3.5	55 - 70
<b>Total</b>	<b>300,000 – 400,000</b>	<b>2.5 - 3.5</b>	<b>55 - 70</b>

Notes: Statements in this report relating to the Granite Castle Gold and Silver Mineral Resource are based on a report provided to the Mantle Mining Company by Hellman and Schofield Pty Ltd, dated 16th May 2008 and first released to the ASX by Mantle on 28th May 2008: “The information in this report that relates to Mineral Resources is based on information compiled by Dr. William Yeo, a full time employee of Hellman and Schofield Pty Ltd. Dr. Yeo is a Member of the Australasian Institute of Mining and Metallurgy and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a Competent Person as defined in the 2004 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Dr. Yeo consents to the inclusion of the matters based on his information in the form and context in which it appears in this report.” The report also covered mineralized structures below the resource and quantified a contained exploration potential (Exploration Target) within those structures. Note that the potential quantity and grade of the Exploration Target is conceptual in nature, that there has been insufficient exploration to define a Mineral Resource, and that it is uncertain if further exploration will result in the determination of a Mineral Resource. For further information, see Mantle Mining’s corporate website: <http://www.mantlemining.com/files/announcements/1031927.pdf>

The type of mineralization and associated trends of the mineralization reported on the Mantle property adjacent to the White Mountain tenement where similar mineralization has been previously reported in the historical records, suggest that the subject EPM offers favorable

conditions for significant mineralization of not only gold and silver, but also for other metals as well. Although the Mantle property to west reported lead and zinc in addition to the gold and silver, the White Mountain tenement also appears to offer multi-metal targets involving sulfide mineralization including antimony, copper, nickel, molybdenum, lead, zinc, and other metals.

#### 7.4.2 *Thalanga-West 45 Mines*

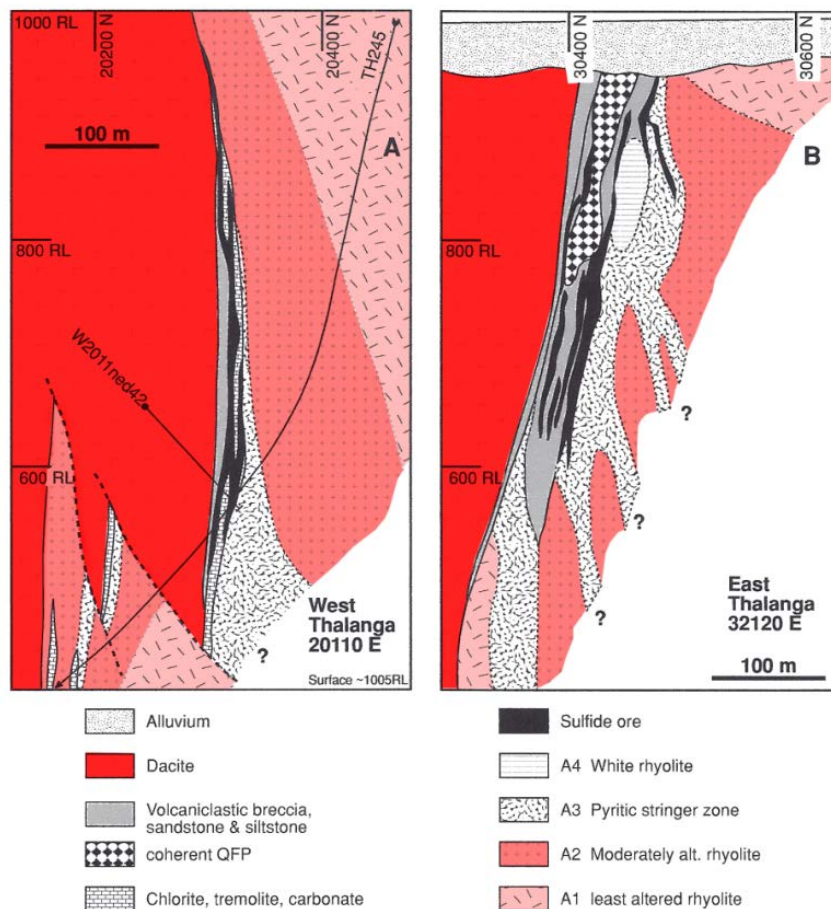
Other types of mineralization aside from gold lodes in quartz veins are also candidates for occurring on the White Mountain tenement. The Thalanga massive sulfide deposit is one of the types of mineralization that may be present in the eastern areas of the subject EPM. This is located in the Cambro-Ordovician Mount Windsor Volcanics (see Figure 6A). The Thalanga Mine is located at the foot of the eastern end of the Thalanga Range. The range is a low, northwest-trending ridge of the Mount Windsor Formation volcanics surrounded by semi-consolidated Tertiary alluvial sediments known as the Campaspe Beds, which cover the uneven basement surface to a depth of up to 100 m. Surface exposure in the vicinity of the deposit is poor, and most of the geologic interpretation is based on observations from drilling and mine development. The conductive nature of the Campaspe Beds has been an impediment to the application of electrical geophysical exploration techniques in the area (Paulick, *et al.*, 2001).

Of interest to any exploration on the White Mountain tenement are the number of dikes of coarse quartz-feldspar porphyry (locally termed the quartz-eye unit) that have intruded the Thalanga mine area as well as the eastern areas of the White Mountain tenement. The general consensus is that the porphyry was extruded directly on the sea floor, capping parts of the massive sulfide of the Thalanga deposit. Quench fragmentation around the edge of the extruded porphyry built up an apron of quartz crystal-rich volcanoclastic materials, particularly around East Thalanga. The Thalanga hydrothermal system remained active after the emplacement of the quartz porphyry, resulting in the deposition of sulfides in the clastic facies of the quartz porphyry. In places, this material reaches ore grade (Herrmann and Hill, 2001).

Drilling activities in the Thalanga area, as in the early days of exploration in the Charters Towers area (Kreuzer, 2005), were conducted on a blind basis, that is, there were no surface indications of mineralization in the area drilled. In the former, a comprehensive geological basis was helpful

in drilling mineralized trends (see Figure 12). This figure illustrates two important features. The first is that drilling for a blind target (targets without local surface indications) may be a high-risk activity, but such action can have favorable results, as in Figure 12A.

The second feature is that mineralization can go unrecognized for years because it is covered by younger sediments, as illustrated in Figure 12B, below. Blinded by country rock at the surface (A) and by alluvium (B) illustrated in Figure 12, drilling to test the subsurface contacts - when at least some gold occurrences are evident at the surface, and to test the bedrock below alluvium - when scattered anomalies are reported from alluvial deposits, has become a new approach to investigating such conditions.



**Figure 12A and B – Blind Drilling at the Thalanga Mines Area**  
 (from Paulick, *et al.*, 2001)

The West 45 mineralization, located a few kilometers to the northwest of the Thalanga Mine near the Flinders Highway, is hosted within clastic facies of the quartz-feldspar porphyry (locally called quartz-eye) situated near the top of the Mount Windsor Formation.

There are three sub-vertical, strata-bound, semi-massive sulfide lenses that lie 5 to 25 meters beneath the dacite-quartz eye contact. Maximum thickness and grade within the sulfide lenses occur at their intersection with footwall pyritic stringer zones. The footwall feeder zone, which forms an envelope of strong sericite-pyrite alteration trending northeast and dipping steeply to the north, cuts across both the Mount Windsor Formation rhyolites and the quartz-eye volcanoclastics. Within this envelope, subeconomic base-metal sulfide and pyrite veins dipping steeply northwest and southeast form a series of discontinuous shoots (Miller, *et al.*, 2001).

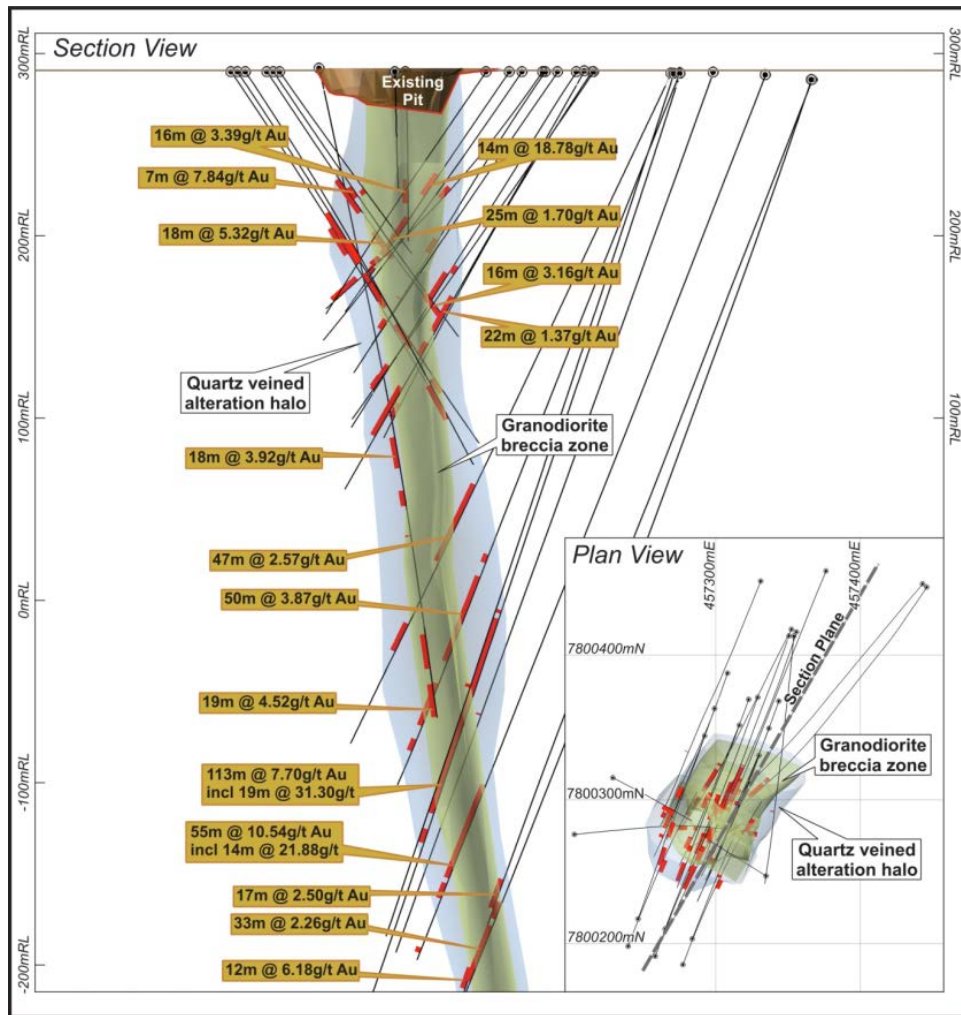
In general, the Thalanga and West 45 deposits are volcanic-hosted polymetallic massive sulfide deposits. Outcropping gossans (usually dark brown or orange soils containing oxidized iron minerals) north of the deposit led to its discovery in 1975. Nearby deposits were essentially blind targets, many were discovered by serendipity. Production at Thalanga commenced in May 1989 with open-pit mining of oxidized supergene ore from the Central ore body, to a depth of 70 m below surface, and progressed in February 1991 to underground production of primary sulfide ore via two declines accessing the West and East Thalanga ore bodies

The total resource at Thalanga was estimated to be 5.75 million tons (Mt) at average grades of 1.8 percent copper, 2.5 percent lead, 8.2 percent zinc, 69 g/t silver, and 0.5 g/t gold. To 1993, production totaled 202,000 tonnes of zinc, 45,000 tonnes of lead, and 90,000 tonnes of copper with significant credits of silver and gold.

#### **7.4.3 The Welcome Discovery**

The history of the recent discovery of the Welcome deposit by Carpentaria Gold Pty Ltd (Carpentaria) for Resolute Mining Limited is similar to the redevelopment activities under way in and around other deposits and historical mining prospects in the Mingela area and elsewhere in Queensland (see Figure 2).

The objective of the Welcome project was to assess its potential by first expanding and deepening of the old Welcome open pit, and then developing underground operations, which would provide a substantial cost benefit over open-pit operations. Mineralization was observed to be associated with zones of heavily altered granodiorite with quartz veining, principally occurring on the hanging wall and footwall of shear zones and associated faults within a breccia pipe. The ore body remains open down plunge with the deepest reported intersection of 53 m @ 2.02 g/t gold from a depth below 475 m (1,425 feet), see Figure 13.



**Figure 13 - Cross Section of Drilling Results by Resolute Mining Ltd. at the Welcome Deposit**  
 (from [Resolute Mining Ltd.](#))

Resolute Mines, Ltd. (2011) reports that the Welcome Breccia prospect produced some “exceptional first pass diamond drill intercepts” including 18 m @ 3.92g/t gold from 215 m, 19 m @ 4.52g/t from 359 m, 113 m @ 7.7g/t gold from 316 m and 50 m @ 3.87g/t gold from 298



The Neoproterozoic Cape River Metamorphics Complex (Pc) consists of schist, gneiss and quartzite and forms a belt some 100 km long trending northwest from Pentland to the subject tenement. The original shale, siltstone and sandstone have been metamorphosed. Calcareous and dolomitic sediments and possibly mafic volcanics were the probable precursors of the scattered outcrops of amphibolite, tremolite schist and gneiss, marble and pyroxene hornfels that occur in the lower part of the Cape River Complex. The dominant biotite gneiss is poorly exposed and deeply weathered. It is typically strongly foliated, comprised of fine to medium grained biotite, feldspar and quartz with minor amounts of garnet, sillimanite, tourmaline and epidote. The gneiss has a well-developed banding defined by biotite-rich and biotite-poor layers. The banding is folded into tight isoclinal folds with sub-horizontal fold axes. The gneisses grade laterally into coarse felsic granitic bands of migmatite, interlayered with finer mafic-rich bands.

The unit grades up to a strongly foliated gneissic syntectonic granite, the product of migmatization. The contact with the underlying Cape River Metamorphics is ill-defined but faulted in places. Both these units were subsequently intruded by granitoids and volcanics of the Reedy Springs and Lolworth Batholiths in the Late Silurian to Early Devonian (Withnall, *et al.*, 1994).

The Cambrian Fat Hen Complex (COgf) forms the basement of the area and consists of migmatites grading upwards into the ortho-gneisses. These rocks were probably once clay-poor pelitic sediments and were metamorphosed into schists and gneisses with amphibolite, quartzite and lesser marble, hornfels and greywacke.

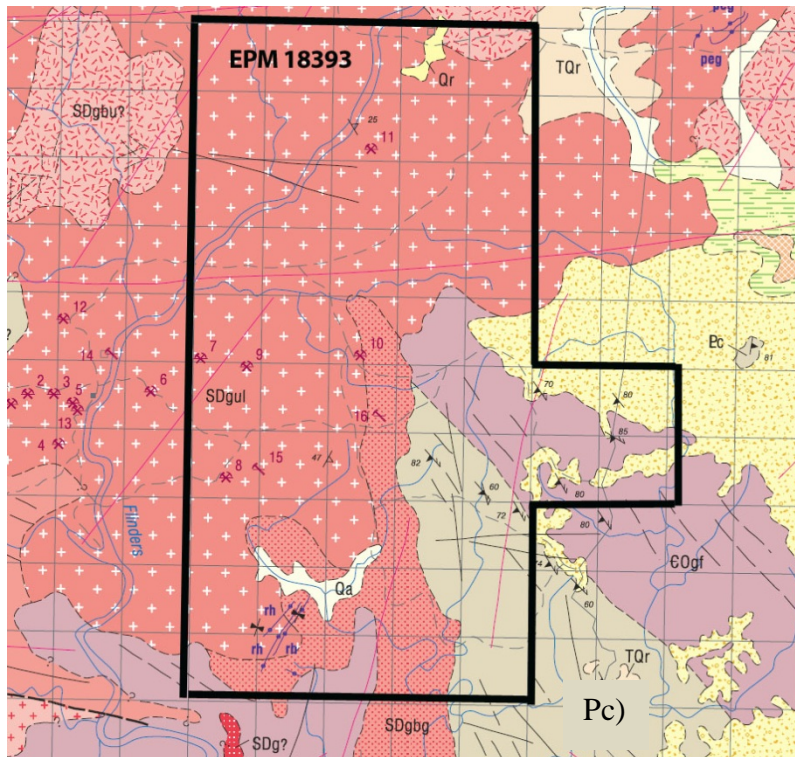
## 8.2 Local Geology

In the center of the subject EPM an intrusion of an Ordovician–Silurian granitoid which hosts a trend of deposits, namely The Diecon Mine (gold); Edwards prospect (antimony) and Northeast Workings (gold), see Figure 15 – mines in red, and Figure 3 for mine identifications.

These deposits lie along strike in a general east-west direction. Also, a granite (SDgul) is in contact with another granite (SDgbg), along which mineralization has been reported, see Figure

15. These granites host numerous small gold deposits as well as small copper and antimony occurrences. Whether these occurrences have deeper extensions, only exploration can determine.

An assemblage of Cape River Metamorphics, of Neoproterozoic-Cambrian age (Pc) is also in contact with a younger granite (COgf), see Figure 15. The rocks of the metamorphics consist of mica schist, quartzite, quartz-feldspar-biotite gneiss, hornblende schist, cordierite, andalusite and staurolite hornfels, chlorite schist, and marble. The granite appears to be highly magnetic along a trend near the contact with the Cape River Metamorphics. This will be discussed later in this report.



**Figure 15 - Local Geology- White Mountain Tenement and Surrounding Areas**  
(Geologic Units Described in Appendix V – Scale: 1,000 m grid)

## Section 9.0 Deposit Types

The subject tenement is centered over a highly favorable area of the Lolworth region and, as mentioned previously, includes several polymetallic historic mines and advanced prospects for gold, silver, copper, lead, antimony, nickel, and molybdenum, which have received intermittent exploration over the past 40 years.

Major historical production to date (see Figures 11A & B) is as follows:

- 1) The Diecon Mine (from 1910 to 1916) which produced 68 tonnes of ore for 17,400 g (or 614 oz) gold ~@ 255.9 g/t,
- 2) Edwards Mine (1915) which produced 310 tonnes of antimony ore,
- 3) Little Wonder Mine was worked from 1913 to 1915 and produced 17 tonnes of ore for 669 g (or 24 oz) gold ~@29.4 g/t,
- 4) Sunday School Mine was worked in 1914 and produced 5 tonnes of ore for 268 g (or about 10 oz) gold ~@53.6 g/t.
- 5) Bradley's Jubilation and Clements Copper were copper prospects, and the Northeast Workings was a gold prospect.

To the west of the tenement across the Flinders River, several other prospects have been mined during the early 20<sup>th</sup> century. Conatus Pty Ltd. drilled the Granite Castle prospect in the late 1980s and developed a gold resource base, and additional work has been conducted by the current holder Mantle Mining (EPM# 14179), see Figure 3 and 15. See Appendix VII for a classification of the hosts for gold deposits in the area.

## **Section 10.0 Mineralization**

### **10.1 Type of Mineralization**

Based on our review of the information, much of the previous exploration in the Lolworth Region has been focused primarily on known gold and base metal prospects. Previous rock-chip sampling of the gossan outcrop at the Bradley's Jubilation prospect returned up to 1.5% nickel and 1.2% copper. The gossan is hosted by amphibolites, calc-silicate rocks and metasediments of the Cambro-Ordovician Cape River Metamorphics, close to the margin of the Siluro-Devonian Fat Hen Creek Complex. Mineralization is interpreted by Carpentaria Exploration to be a possible analogue of skarn style nickel sulphide mineralization at the Avebury deposit in western Tasmania (Keays, R., *et al.*, 2009).

The area also has the potential to host mesothermal (Ravenswood style) precious metal mineralization and associated sub volcanic breccia complex mineralization (Mt Leyshon-, Mt

Wright-style deposits) (A-Izzeddin, *et al.*, 1995; James, 1997). The primary gold model applied for the subject area is the classic Charters Towers-style multiple mesothermal quartz sulphide lodes filling fissures within phases of the Cape River Metamorphics (symbol Pc), the Fat Hen Creek complex (COgf), the Big Bore Granodiorite (SDgbg), and/or the Upland Granodiorite (SDgul), see Figure 15 and Appendix V. The Kidston deposit located 150 km to the north may also represent an analogue for use in exploring breccia-related mineralization on the White Mountain EPM, (see Furnell, *et al.*, 1995; Baker and Andrew, 1991; and Hannes and Dalgarno, 1967).

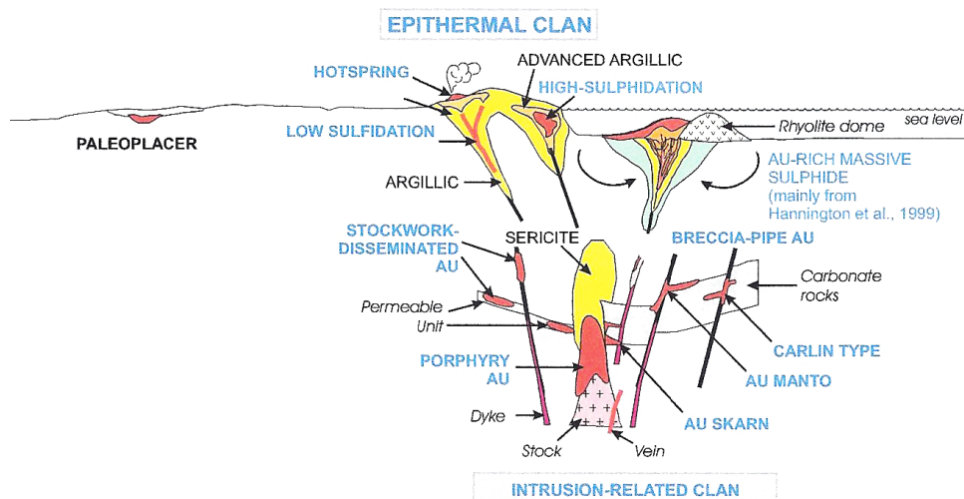
A second style of mineralization targeted is the hydrothermally altered pipe of greisen affinity found at the Mount Leyshon deposit. Table 6 presents the typical style of mineralization for several of the gold occurrences currently known in the general area. The gold distribution is usually not uniform within quartz-vein type of mineralization. Gold is usually fine-grained, mostly less than one millimeter, and microscopy shows gold is primarily late-stage, although this can vary from region to region.

**Table 6**  
**Style of Mineralization in the General Area**  
 (after Angus, 1996)

MINERALISATION STYLE	DEPOSIT / PROSPECT
Shallow vein associated with porphyry dykes	Upper Cape Mt Remarkable
Disseminations in porphyry dyke	Mt Remarkable Mt Specimen
Pegmatitic quartz veins and greisen pipes	Lolworth diggings
Quartz veins with greisen selvages	Mt Emu
Quartz veins	Mt Remarkable Mt Clearview Brilliant Brumby Chinaman's Prospect Scrubby Shear
Mo/Cu veins associated with shallow intrusive	Gypsy Pocket Bore area
Cu/Pb/Zn veins in intrusive roof	Oxley Creek
Breccia Pipe	Dead Man's Revenge Nipple Prospect
Brecciated sediments	Bullock Paddock Bore
Gossan over chalcopyrite-bearing shear in amphibolitic gneiss	Bradley's Jubilation

Gold particles are located along grain boundaries, with some contained within sulphide grains, predominantly arsenopyrite, which indicates the gold is not free-milling and will require roasting to oxidize the ore in preparation for recovery by some form and process involving cyanide, the most effective and least costly agent currently known for such processes.

The mineralization currently known in the western area of the subject EPM is also part of the Charters Towers-type, comprising mesothermal narrow veins of quartz containing gold and sulphide minerals including galena, sphalerite and pyrite. The veins are usually less than one meter thick, but have strike lengths of from several hundred meters up to two kilometers. There will likely be a shallow oxidized zone where the gold may be free-milling underlain by a reduced zone (unoxidized) of sulphides containing gold and other metals. Roberts, *et al.*, (2007) summarizes the relationships in Figure 16 below.



**Figure 16 – Epithermal and Intrusion-Related Gold Mineralization**

(Robert, *et al.*, 2007)

## 10.2 Trends of Mineralization

The White Mountain tenement is located within the western outcrops of igneous and metamorphic rocks of the Lolworth Province. This province consists of probable Silurian Reedy Springs Batholith and Proterozoic-Cambrian Cape River Metamorphic basement and Cambro-Ordovician sedimentary volcanic and metamorphic rocks that were intruded by Silurian

granitoids (Metals, 1986 and more recently Withnall, *et al.*, 1994). The province is overlain by marine shelf and continental sedimentary rocks of Devonian-Carboniferous age, which have also undergone metamorphism to a relatively high rank. The Lolworth Province generally trends east-west to southeast, contrasting strongly with the surrounding provinces. To the north, a north-to-northeast trend controls the rocks of the Hodgkinson and Broken River Provinces and Thomson Fold Belt to the south, and a north to northwest general trend within the New England Fold Belt to the east and southeast (Wyatt, *et al.*, 1970, Levington, 1981).

The Ravenswood-Lolworth Province has been previously mapped and examined by various geologists of the Commonwealth and State Governments in joint parties (Wyatt, *et al.*, 1970; Wyatt, *et al.*, 1971). These are set out in the 1:250,000 map sheets of the Charters Towers area and explained in detail in Wyatt, *et al.*, 1970, and Wyatt, *et al.*, 1971. Of particular note is the White Mountain Sheet (7857), which was published in 1998, based on field work conducted through 1994. This map revised the relationships of the igneous rocks in the subject EPM, which clarified earlier assessments of Vine, *et al.*, 1974 by the work of Withnall, *et al.*, 1994.

The oldest rocks in the area belong to the Charters Towers Metamorphic unit, which crop out to the north and west of Charters Towers as the roof pendants in the Lolworth Granodiorite Batholith (John, 1985). These metamorphic units have been estimated to be Cambro-Ordovician in age (John, 1985).

All of the above units were intruded by the Lolworth Granodiorite Batholith (Hamilton, 1987). The intrusion of this complex was accompanied by a major orogeny which destroyed the existing sedimentary basin and produced a structural high which controlled later sedimentary deposition. The intrusion of the complex continued into the early Devonian (Hamilton, 1987).

The project area is mainly incorporated in the Reedy Springs Batholith, the largest element in the Lolworth section of the Complex. The Lolworth Batholith and Ravenswood Batholith to the east were intruded during Siluro-Ordovician time (Wyatt, *et al.*, 1970). Rb-Sr dating has given a 481 million year-isochron (Middle Ordovician) for the first phase and around 420 million years ago (Late Silurian) for the second phase (Metals, 1986). Several attempts have been made to classify

the rocks of the complex with Clarke (1969) subdividing it into separate phases and recognizing eight distinct subunits of the Batholith (John, 1985 and later by Withnall, *et al.*, 1994 for the area with and around the subject EPM).

The earliest and most widespread phase is the main granodiorite. The Upland Granodiorite has been identified as a slightly later phase. Several phases of granite and adamellite which are later than the granodiorite have been named by Withnall, *et al.*, 1994. Late acid phase, as distinct from the main granodiorite phase, has been identified during the drilling by INCO (on the 1:250,000 geological map: Charters Towers (Wyatt, *et al.*, 1970, Wyatt, *et al.*, 1971), and the White Mountain Sheet 7857 (Withnall, *et al.*, 1994), the latter of which have been recognized in the drilling on the subject tenement (EPM# 18393), see Berkman and Saunders, 1994.

Some of the biotite and hornblende granodiorites of the first phase are foliated, suggesting a possible Middle Ordovician age for a major deformation event, which, particularly west of Charters Towers, affected the Cape River Beds (present in the subject tenement), Mt. Windsor Volcanics (involved in the Thalanga-West 45 mines), and the Charters Towers mines (John, 1985). The major tectonic episode appears to have been the Siluro-Devonian orogeny which is expressed as a regional upwarp with granitic and early Paleozoic rocks occupying the axial region. Drag folds suggest slight overturning to the northwest with north-easterly oriented fold axes. Attitudes of the late Paleozoic rocks reveal more localized areas of disturbance, the orientation of flow banding being the most obvious structural guide for the younger folding (Dalgarno, 1967). Jointing and cleavage are developed in the Kirk River and Cape River Beds, and although there is evidence of folding in the Devonian sequences, induration and jointing are not as pronounced as in the older rocks (Dalgarno, 1967).

The significance of the above discussions on regional trends and geological setting is to evaluate whether the rocks were receptive to mineralizing solutions and their potential for mineralization of economic importance, especially if certain characteristics are present that are similar to major mineralization nearby, such as the Granite Castle deposits (see Section 7.4.1), or in the general area, such as the historical Cape River and Big Rush mines (see Figure 6A), and the Thalanga and West 45 mines (see Section 7.4.2), and Welcome deposits (see Section 7.4.3). This also

includes the Charters Towers' deposits, among others more distant, such as the Kidston Mine and others (see Section 11.4 - Risks Involved).

## Section 11.0 Exploration

### 11.1 Previous Surveys and Investigations

Until the 1980s, limited prospecting had been undertaken on many of the old workings around the Lolworth region, with the bulk of the work being centered on the historical workings of the Diecon Mine area, Bradley's Jubilation, Edwards prospect, Clements Copper prospect, and the Northeast Workings, among many others west of the Flinders River on the adjacent EPM, see Berkman and Saunders, 1994; Switzer, 2006; Lissiman, 1963. Historical activities have been summarized in Section 7.0.

### 11.2 Current Concepts

During the past decade, there has been renewed emphasis in northeast Queensland containing orogenic gold deposits (e.g., Robert, *et al.*, 1997 and 2007), with emphasis on intrusion-related gold deposits. Sillitoe (1991) grouped these deposits into five distinct classes:

- Class 1:** Stockworks and disseminated ores in porphyritic and nonporphyritic intrusions; (e.g., representative deposits: Lepanto, OK Tedi, and the Zortman-Landusky, Salave, Gilt Edge, Kori Kollo deposits as representatives of the latter type of intrusion);
- Class 2:** Skarns and replacement ores; (e.g., Fortitude, McCoy, Nickel Plate, Red Dome in skarn deposits and Barney's Canyon, Ketz River, Yanicocha deposits in carbonate rocks in replacement ores);
- Class 3:** Stockworks, disseminated ores, and replacement bodies in country rocks adjacent to intrusions (e.g., Porgera, Muruntau, Mount Morgan, Quesnel River deposits);
- Class 4:** Breccia pipes in country rocks (e.g., Montana Tunnels-Golden Sunlight, Kidston, and Chadbourne deposits, and Mount Wright and the Welcome Deposits, NE Qld.); and

**Class 5:** Mesothermal and low-sulfide, epithermal veins in intrusions and country rocks (e.g., Charters Towers, Jiaodong Peninsula, Majara, and Ravenswood and Christian Kruck Deposits, NE Qld.).

The classes obviously reflect many different types of gold deposits that indicate a relatively local zonation within and surrounding a contributing pluton. There is little debate that most of these gold deposits are genetically associated with a well-defined igneous body and intrusive event (age similarity) and are, therefore, properly classified as intrusion-related deposits (Sillitoe and Thompson, 1998). However, Class 5 of intrusion-related gold vein deposits may have many characteristics identical to orogenic gold deposits. Of the five geochemical associations that they identify within this class of vein-type deposits, only the deposits with the gold-tellurium-lead-zinc-copper (e.g., Charters Towers) and gold-arsenic-bismuth-antimony associations have features resembling, and possibly confused with, orogenic gold deposits, which if used as an exploration guide can result in wasted exploration funds over the life of the project.

If Class 4 of breccia pipes in country rock (in an intrusive/volcanic setting) is added to the guides for exploring in the White Mountain area, the potential for economic mineralization is significantly increased. Because the White Mountain tenement has anomalous magnetic lows in the area, in addition to the strong magnetic trend that may also be prospective for skarn mineralization, the chances for success in locating significant mineralization would be improved substantially.

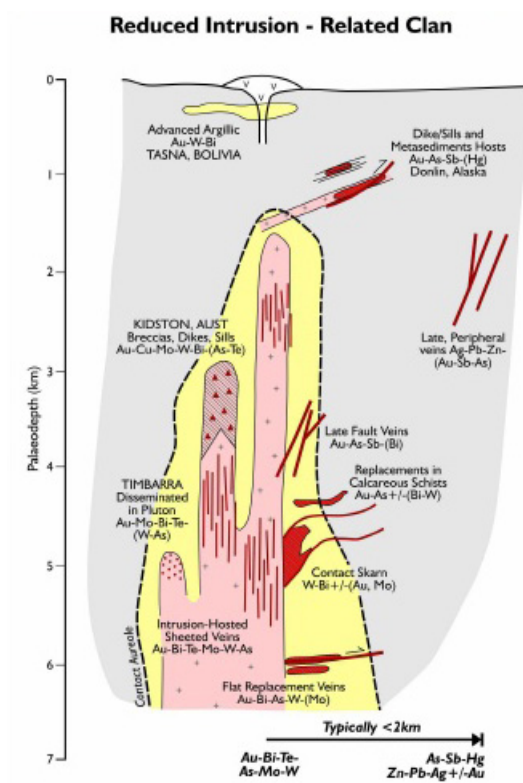
### **11.3 Distinction from Orogenic Gold Deposits**

In perhaps the clearest refinement of their defining characteristics, Lang *et al.* (2000), utilizing the studies of Sillitoe (1991) and others have summarized the major characteristics of intrusion-related gold deposits, illustrated in Figures 17 and 18.

According to Sillitoe, intrusion-related gold mineralization has the following characteristics:

- 1) Metaluminous, subalkalic intrusions of intermediate to felsic composition, that spans the boundary between ilmenite and magnetite series;

- 2) CO<sub>2</sub>-bearing hydrothermal fluids;
- 3) A metal assemblage that variably includes gold with anomalous bismuth, tungsten, arsenic, molybdenum, tellurium, and/or antimony, and typically has non-economic base-metal concentrations;
- 4) Comparatively restricted zones of hydrothermal alteration within granitoids; and
- 5) A continental tectonic setting well inboard of inferred or recognized convergent plate boundaries.



**Figure 17 – Modeling of Intrusion-Related Gold Mineralization**  
 (Robert, *et al.*, 2007)

As an example of the complexity involved, the deposits of the Pine Creek, Tanami, and Telfer Districts in the Northern Territory are not actually hosted in the associated granitoids but in the associated country rock. In addition, the Charters Towers goldfield has been described as both an epithermal to shallow magmatic-hydrothermal deposit and as being of orogenic origin, but the latter was excluded on the basis of the higher salinity and relatively higher pressures and greater

depths (relative to epithermal deposits) inferred from ore-stage fluid inclusions (Goldfarb *et al.*, 2005; and Kreuzer, 2003).

Mapping and petrological research, reported by Towsey (2005) indicates that the mineralized system is very large, over 40 km across in the Charters Towers region, which is just a small section of the Lolworth region. According to Kreuzer (2003), a number of samples from the Charters Towers mines and the Rishton-Hadleigh Castle mines were isotope dated and found to be the same age within an indistinguishable range, indicating synchronous formation of auriferous veins dated at 404-408 million years ago (Late Silurian to Early Devonian geological age).

Kreuzer (2003) has also made a number of additional conclusions on the mineralization in the District that relate directly or indirectly to potential mineralization in the Lolworth region and subject tenement as well. These are:

- Nitrogen isotope data indicates that the granitoid-hosted gold mineralization is derived from deep-seated, granitic plutons or metamorphics, and has risen through the crust to its present position uncontaminated by near-surface ground water, although some hydrothermal involvement would be expected around the periphery of the granitic batholiths.
- Fluid inclusion studies on vein samples from the mines in the Charters Towers area using petrography, microthermometry and laser Raman spectroscopy indicate that formation pressures of the gold-bearing veins are equivalent to depths of 5 to 14 km. Mineralogical studies on gangue rock, alteration and metamorphic minerals support this range. The preferred depth range of formation is 5 km  $\pm$  2 km. (This is supported by Peters and Golding, 1989).
- Oxygen and hydrogen isotope fractionation data indicate a formation temperature ranging from 170° C to 360° C with a preferred value of 310° C. This temperature range is supported by studies of fluid inclusions, textures and wall-rock alteration mineralogy (also see Peters and Golding, 1989).
- The low-permeability intrusions of the Lolworth batholith restricted and focused the ascending fluids rising from deep in the Earth's crust. Sudden fault rupturing focused the fluid flow into the active lode structures, precipitating gold and base metals by fluid mixing and subsequent chemical and pressure changes to the fluid.

- Geological and geophysical data indicate that the Charters Towers mineralization was not subjected to further significant deformation after the gold mineralization formed.
- The host structures in the Charters Towers area are characterized by vertical continuity to at least 1.3 km based on company drilling and previous mine workings (Towsey, 2005; and Reid, 1917),
- The veins are located on the margins of gravity lows that coincide with distinct intrusions or complex igneous bodies. (Towsey, 2005; and Kreuzer, 2003).
- The deposits are hosted by country rock comprising mainly oxidized I-type granites, granodiorites and tonalities. I-type granites are derived by re-melting of original igneous rock. (Kreuzer, 2003, Peters, 1987; and Towsey, 2005).

In studies on wall-rock alteration by Kreuzer (2003), and by Corbett and Leach (1995), indicate that the fluid was slightly acidic to near neutral (pH 5-6). They apparently agree that the oxidizing fluids have produced the red “hematite” alteration, destroying magnetite where it is in contact with the fluids and creating local magnetic lows. This creates a geophysical signature for exploration, of demagnetized areas adjacent to gravity lows (Towsey, 2005).

The current exposure of the Lolworth Batholith is at its roof zone, meaning that there is a high probability that most of the gold-bearing system is intact (and has not been eroded away and dispersed); also see Towsey (2005) and Hutton, *et al.*, (1997).

Studies by Dowling and Morrison (1989) and by Kreuzer (2003), and reported by Towsey (2005) of quartz veins from over 200 gold mines in North Queensland indicate that the Charters Towers gold-bearing veins, and by analogy those of Mt. Emu and the subject area, are typical of granitic rather than sub-volcanic hosts. There is a consensus by those reporting that the potential for additional gold-bearing veins of economic significance to be discovered away from the gold deposits in the immediate Charters Towers area, which suggests that the outlying areas may contain undiscovered deposits of economic interest.

Exploratory drilling in the Charters Towers area has mainly been at approximately 50 m spacing on section lines approximately 200 m apart. Earlier drilling targeted known vein systems that had been outlined by surface outcrop mapping, previous mine plans, costeaning, and drilling to

intersect previous shafts and prospecting pits. Holes were spaced at intervals of 100 m to 500 m apart where the vein system was confidently expected (Towsey, 2005).

#### 11.4 Risks Involved

It is important to emphasize that lodes of the major centers of gold mineralization, such as at Charters Towers, have been mined down dip for more than 900 meters vertically. Drilling has intersected mineralization grading over 20 g/t gold at depths of over 1,200 meters. Although the host rocks for the mineralization have different, local names when compared to those in the subject area (separated by 155 km), the date of mineralization is the same. Exploring for deep zones is cash-intensive and of high risk (see Morrison, *et al.*, 2004; and Snowden, *et al.*, 2002), but the rewards can be profitable, as confirmed by the number of companies that are currently active in the Charters Towers area and elsewhere in Queensland. This is usually confirmed by the number of technical publications that provide exploration guidance for the Charters Towers area appearing over the past 10 to 15 years, such as: Peters, 1987a and b; Peters and Golding, 1989; Hutton, *et al.*, 1997; Kreuzer, 2003 and 2005; Towsey, *et al.*, 2002; Towsey, *et al.*, 2004; among others cited previously.

The degree of geological risk involved in any particular project depends to a large extent on the caliber and quantity of applicable publications that are available to guide exploration. Although the White Mountain tenement is located in a relatively remote area of Queensland, this improves the odds of discovering significant gold and other metals because the area has not been investigated to any degree. The number of such publications by year is substantial: Black and Richards, 1972; Clark, 1974; Graf, 1977; Cox, 1981; Levington, 1981; Berge, 1986; Eingaudi, 1987; Dowling and Morrison, 1989; Mulholland, 1990; Wood, *et al.*, 1990; Beams and Jenkins, 1995; Beams, 1995; Dong, *et al.*, 1995; Orr, 1995; Lang, 1997; Robert, *et al.*, 1997; Harvey, 1998; Perkins and Kennedy, 1998; Wall, 2000; Goldfarb, *et al.*, 2001; Large, *et al.*, 2001; Hart, *et al.*, 2002; Orr and Orr, 2004; Dominy and Johansen, 2005; Dominy and Petersen, 2005; Goldfarb, *et al.*, 2005; Hart, 2005; Pearce, *et al.*, 2006; Robert, *et al.*, 2007; Taylor, 2007; Anon, 2008; Lam, 2010; and Allan, *et al.*, 2011, among others in addition to those cited previously.

## **Section 12.0 Drilling Activities**

The exploration program at the White Mountain EPM is still at a relatively early stage. No drilling has been conducted on the EPM to date by the current tenement holder, WBG. Drilling has been conducted in the 1980s by INCO on the Bradley's Jubilation site. After drilling one hole to a depth of about 135 m, INCO surrendered the property although favorable targets remained. About two km to the north of Bradleys Jubilation, within an area of rhyolite, and near the contact of the rhyolite with a sandstone-grit sequence, gold is associated with an easterly trending zone of brecciation (which forms the crest of a hill), which is about 750 m long and about 200 m wide, according to Berkman and Saunders, 1994. This area has not been further evaluated to date.

In other areas of the tenement, the Diecon Mine area was drilled by Loloma Mining after dump and rock-chip samples indicated anomalous gold, silver, copper, and lead. Two reverse-circulation (RC) holes were drilled to depths of 58 and 49 meters but produced only minor gold values (0.04 g/t). The Clements Copper (and gold) prospect showed rock-chip samples of 2.4 g/t gold and 256 g/t silver. One RC hole was drilled to a depth of 40 m but produced a maximum gold value of 0.04 g/t. The Edward prospect showed shallow workings of antimony within a northwesterly trending quartz vein. One RC hole was drilled which showed a maximum assay of 0.4 g/t gold over a one-meter interval. The drilling depths have typically been less than 150 m.

## **Section 13.0 Sampling Method and Approach**

The exploration program on the White Mountain EPM is still at a relatively early stage. No sampling has been conducted on the EPM to date by the current EPM holder. Analyses and other data produced from earlier exploration programs or mining should be considered as of historical interest only. Any mining production records from the White Mountain mine or other workings in the area are likely to be accurate and reliable only to a limited extent since there is no current way to confirm such reporting on the methods of sample preparation employed at the time, or on the quality of the laboratory or methods employed to determine gold content, or on the security and veracity of the sampling results reported in the historical records.

## Section 14.0 Sample Preparation, Analyses, and Security

As indicated in Section 13.0 above, the exploration program on the White Mountain tenement is still at a relatively early stage. No sampling or drilling has been conducted on the EPM to date by the current EPM holder. Analyses and other data produced from earlier programs or mining should be considered as of historical interest only. Mining production records from the White Mountain mine or other workings in the area are likely to be accurate and reliable only to a limited extent since there is no current way to confirm such reporting on the methods of sample preparation employed at the time, or on the quality of the laboratory or methods employed to determine gold content, or on the security and veracity of the sampling results reported in the historical records.

## Section 15.0 Sample Data Verification

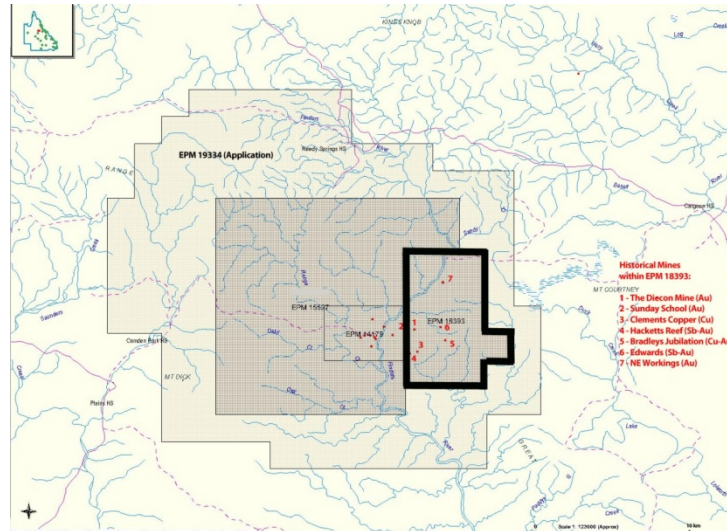
As indicated in Section 14.0 above, the exploration program on the White Mountain EPM is still at a relatively early stage. No sampling or drilling has been conducted on the tenement to date by the EPM holder. Analyses and other data produced from earlier programs or mining should be considered as of historical interest only. Mining production records from the White Mountain mine or other workings in the area are likely to be accurate and reliable only to a limited extent since there is no current way to confirm such reporting.

## Section 16.0 Adjacent Properties (Tenements)

Five tenements (EPMs) are immediately adjacent to and surround the White Mountain EPM. One of these EPMs is in the Application stage, see Table 7 and Figure 18.

**Table 7**  
**Current Tenements Adjacent to White Mountain EPM\***  
 (See Figure 18 for Locations \* As of March 6, 2012)

RELATIVE TO WHITE MOUNTAIN	EPM#	HOLDER	STATUS*	INITIAL DATE	SUB BLOCKS
East, South, & North	19334	Mantle Mining Corporation Ltd.	Application	15 Aug, 2011	100
West & North	15527	Mantle Mining Corporation Ltd.	Granted	30 Nov., 2007	54
Central West	14179	Zulu Gold Mining Pty Ltd.	Granted	25 Nov., 2004	6



**Figure 18 - EPMs Adjacent to and around White Mountain Tenement,  
 with Selected Historical Mining Prospects shown in red.**  
 (Left click to expand view.)

## Section 17.0 Mineral Processing and Metallurgical Testing

No metallurgical testing on mineralization has been conducted on the White Mountain EPM because exploration is still at a relatively early stage. The metallurgy on gold samples from workings adjacent to the west indicates the gold is refractory and is associated with arsenopyrite, which will require subsequent processing to free the gold (see Berkman and Saunders, 1994). The size of the deposit would have to be large in order to justify the high processing costs of refractory gold.

## Section 18.0 Mineral Resource and Mineral Reserve Estimates

The exploration program on the White Mountain tenement is still at a relatively early stage. No mineral resource and mineral reserve estimates can be conducted until significant mineralization has been encountered, drilled and cored.

## **Section 19.0 Other Relevant Data and Information**

There are no other relevant data or information that the authors are aware of that should be included in this report. I2M has endeavored to locate and review all relevant and appropriate documents as listed in Section 22 - References that would provide information on the relative exploration potential of the subject tenement, but we do not assert that we have considered all such information that may be in existence. Therefore, we reserve the right to revise or alter our opinions should new information become available that could materially impact our views on the subject tenement.

## **Section 20.0 Interpretations and Conclusions**

After reviewing the historical mining and mineral exploration activities and associated company reports dealing with the known mineralization within and to the west of the tenement area, we have concluded that the White Mountain tenement has substantial potential for mineralization of potential economic importance. Although many past company exploration programs were superficial and inconclusive in nature, a few of the companies did conduct detailed surface sampling, some of which produced favorable results, but they were not followed up. In some areas, drilling was conducted on the subject tenement, but not to any comprehensive extent although merited by strong geological and geophysical evidence. The lack of sufficient funding was the likely reason for not following up many of these prospects.

By the late 1990s, with advanced airborne and ground magnetics and IP surveying (and associated software for data modeling), exploration conducted at a more sophisticated level could well result in more effective targeting of sites for drilling than in previous efforts. INCO located a gossan of some 60 m in length that assayed 1.5% nickel and 1.2% copper but only drilled one hole before relinquishing the tenement. In 2004, Giralia Resources engaged a reinterpretation of existing geophysical data that produced a previously unknown strong magnetic anomaly east of the Bradley's Jubilation prospect that trended toward the southeast. By combining additional drilling with further geological and structural interpretations associated with the known mineralization and new magnetic anomaly, the chances of discovering a significant ore body would be clearly improved.

With improved commodity prices bringing better funding to exploration programs allow numerous opportunities to evaluate mineral properties in greater detail and at greater depths than before and thereby increases the likelihood of discovering new deposits that have been overlooked in the past. The case histories of the mines and earlier exploration discussed in this report provides clear evidence that a concerted effort and commitment to provide the appropriate funding for exploration are appropriate steps to be taken by WBG management.

Based on our review of the information available, the White Mountain tenement is an example of where previous exploration programs have not explored the property in sufficient detail to determine its potential, leaving a number of exploration leads for the WBG management to now pursue.

Several key geological elements are present in the White Mountain tenement:

- 1) the numerous shows of polymetallic mineralization and widespread surface geochemical anomalies that remain to be followed up, and
- 2) the presence of mineralized shear zones north of the new magnetic anomaly with several known intersecting mineralized faults and veins that remain to be followed up.

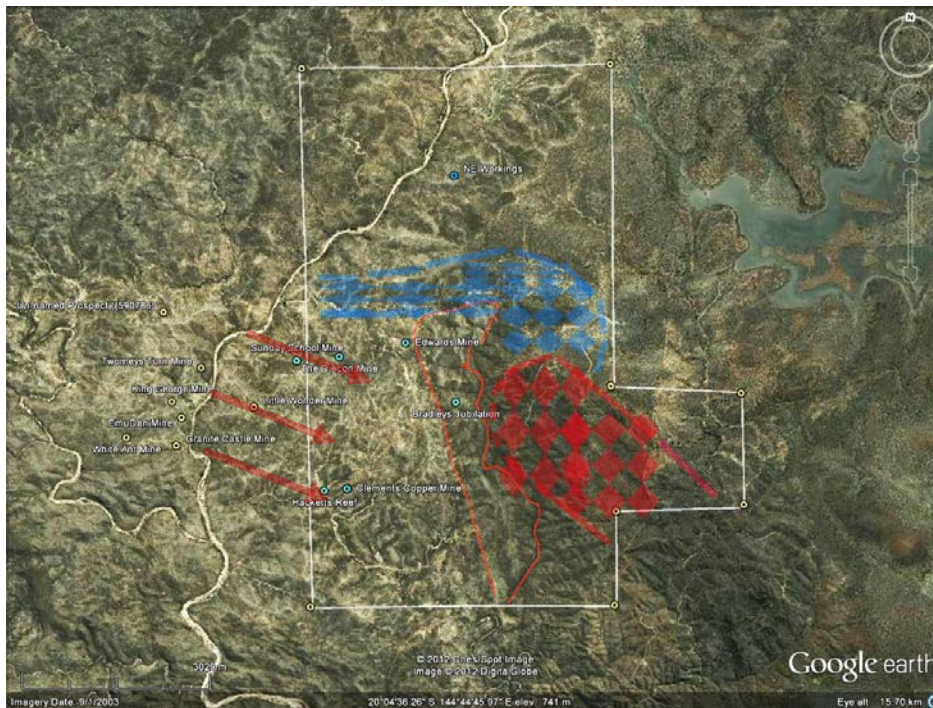
### **20.1 The White Mountain Trends**

There are numerous prospects on the subject property. The first task would be to prioritize the most favorable prospects for more detailed geological examination in the office and in the field. These areas would be targeted for field surveys followed by airborne and/ ground magnetics, IP surveys or other geophysical surveys. The number of legitimate prospects and their possible extensions suggest the existence of significant mineralization at depth.

### **20.2 Target Areas**

Four preliminary target areas selected on the basis of aerial photo interpretations, historical mine proximity, and airborne magnetics within the EPM have been designated by I2M as obvious areas of special interest in Figure 19.

The initial target areas are the quartz-vein systems within the Upland Granodiorite mined in historical workings on the tenement, although these, and numerous other small mines in the tenement immediately adjacent to the subject EPM, have been evaluated in passing by many companies over the years. Before these are evaluated once again, all available information on the previous mining and later exploration should be assembled and evaluated in detail to avoid duplicating efforts made by previous companies. Should work on and around these workings produce evidence that follow-up drilling is justified then funds should be made available to pursue the new leads with drilling deeper into the anomalous, mineralized intervals mined earlier. The trend of the shear zones in the adjacent property is illustrated by the red arrows in Figure 19.



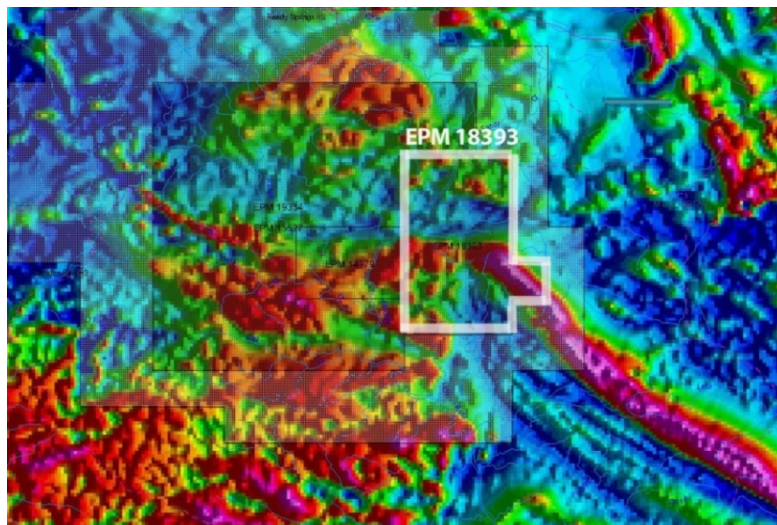
**Figure 19 - Areas of Interest: White Mountain Historical Mine Sites and Geological Units of Special Interest** (Left click to expanded view online).

New research by So, *et al.*, (2005), indicates that thin, vertical quartz veins, some carrying significant gold and other metals are known to extend to depths exceeding 1,000 m in the Muguk Mine, Korea, especially within shear zones of granitic/granodioritic rocks. Other investigations by Baker, *et al.*, (2006), suggests that at the Pajingo Mine area, located 185 km southeast of the subject EPM, the textural and chemical zonation of pyrite may be useful in exploring proximity

within epithermal gold in quartz veins. These works, and others (Bobis, *et al.*, 1995 for example), should be raising the interest of the industry to re-evaluate gold prospects in thin quartz veins that may prove to be more extensive than previous considered.

The second area of interest, outlined in a red in Figure 19, appears to be a granitic unit involved in mineralization occurring at the Edward prospect and at Bradley’s Jubilation workings (also shown in Figure 19, use expanded view); both prospects produced a variety of ore-related minerals that included gold, nickel, antimony, molybdenum, and other anomalous metals. The presence of such metals indicates that conditions were present for major mineralization at depth. These historical mining operations quite likely only tested the upper intervals of what could be a series of mineralized zones at depth. This would be consistent with the history of many other recent mines in northeast Queensland.

The third area shown by a red diamond pattern in Figure 19 is over a trend of an especially strong magnetic high in the form of a ridge emanating from the southeast of the subject tenement. This obviously is caused by iron-rich magnetic minerals within the Cape River Metamorphics Complex, which is in fault contact with the Fat Hen Creek Complex that contain various rock types that have also been heavily altered into a range of metamorphic rocks and associated minerals (see Figure 20).



**Figure 20 – 1998 Magnetics Map for White Mountain Tenement and Environs.**  
(Source: QDEX)

The contact between these two units represents a significant target of possible skarn-type and nearby multi-metal sulfide mineralization. If in fault contact then they are most likely the host structures for hydrothermal fluids carrying a range of metals.

In support of the presence of magnetite in the subject unit, in an area to the south of the subject tenement, along the eastern boundary of the Cape Rive Complex, Shelton and O'Rourke (1983) reported a large quartz body occupying a ridge close to a contact of an adamellite (within the Fat Hen Creek Complex) with the Cape River Metamorphics Complex. The fractured quartz showed strong specular hematite (with goethitic and jarositic staining). Iridescent pyrite (and chalcopyrite?) was reported with boxwork fabric suggesting original molybdenite. This is significant because the hematite may also contain magnetite, and associated metals that could be the source of the strong magnetic anomaly within the subject tenement.

The reports of gold, antimony, nickel, silver and lead, zinc, molybdenum, and copper in the area indicate a magmatic association for the mineralization along the numerous shear zones in the vicinity. The magnetic low areas (shown in blue) adjacent to the magnetic high area are prime candidates for drilling sites for sulphide mineralization (see Figure 19).

As mentioned earlier, Hannan (2007) indicates that the area exhibits a nickel-bearing gossan on the north end of the magnetic anomaly. North of the Bradley's Jubilation prospect, there is a north-northeast-trending series of structures apparent on the Google map (Figure 21). This intersection of two features is considered to be a possible locus of economic mineralization.

Locating where, and if, this mineralization has accumulated in bodies of economic interest is the primary goal of the exploration to be conducted on this tenement. Ground reconnaissance for locating altered ground, surface geophysics involving magnetics and various forms of induced polarization (IP) should, from our vantage point, lead future exploration programs. On the basis that the magnetics map (see Figure 20) was made available by the Queensland Government in 1998, only a few of the many companies exploring this area over the years had the benefit of the map, if in fact they were aware of its availability after it was produced by Giralia Resources and released via QDEX (Angus, 1996).

The fourth type of target is designated in a blue pattern in Figure 19 (and in Figure 21). This area appears to exhibit shear zones and associated faulting that would be available to serve as avenues for migrating mineralization. A low-altitude examination of the aerial photo at the northern end of the magnetic anomaly also indicates numerous joints and faulting (see Figure 21).

The adjacent area to the north of the faulted zone exhibits an especially low magnetic area which runs east-west through the area, and which is typical of sites of multi-metal sulfide mineralization (see Figure 20). Follow-up geophysics and drilling are merited in this area.



**Figure 21 - Joints and Faulting at the Northern Terminus of the Magnetic Anomaly.**  
(After Google Map – Lineaments Emphasized)

Giralia Resources held a tenement in the subject area during the mid-2000s and apparently didn't have the funds to conduct extensive exploration, although Brewster (2007) of Carpentaria Exploration, in farming in the tenement from Giralia, considered the magnetics map in its exploration program. In fact, Carpentaria Exploration promoted and extolled the virtues of their tenement (part of which overlapped the magnetic ridge) in a formal independent geologists (IG) report that was included in a prospectus for the initial public offering (IPO) of Carpentaria Exploration Limited in going public on the Australian Stock Exchange (ASX) in 2007. However, Carpentaria Exploration soon returned the property to Giralia Resources to pursue other projects in New South Wales and South Australia, etc. without conducting further exploration (see Anon,

2008). It should be emphasized that Carpentaria Gold Pty Ltd. is not related to Carpentaria Exploration Ltd., which is an ASX-listed public company.

The White Mountain tenement is highly prospective and warrants further exploration for vein-style and multi-metal stockwork-hosted and massive sulphide deposits. This is based on the view that:

- 1) earlier exploration has resulted in demonstrating that gold of mineable grades is in the system, which serves to increase the likelihood of discovering economic mineralized zones at depth during future exploration programs,
- 2) underexplored areas involving a strong magnetic ridge and the areas around such anomaly are quality targets for exploration, and
- 3) exploration methods employing recently developed geological models of mineralization and new geophysical tools have not yet be applied in the priority areas of the subject tenement.

## **Section 21.0 Recommendations**

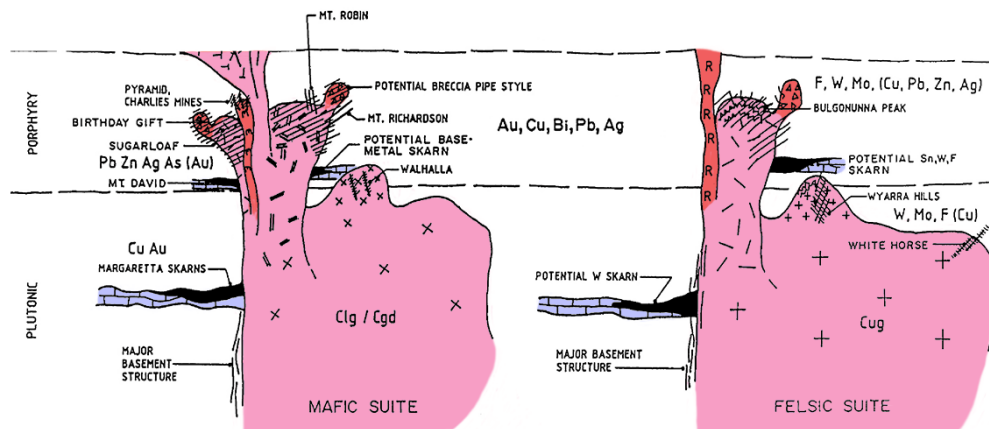
### **21.1 Exploration Strategy**

The general exploration strategy that should be applied is to use all available data and information from the historical record in the formation of WBG exploration plans. Areas within the subject tenement should be assigned priorities and then systematically pursued while appropriately documenting the resulting data and information for possible use in nearby areas.

We recommend following this same procedure together with the models developed by Beams (1995), see Figure 22 and his subsequent reports cited in Section 22 - References.

We also recommend that:

- 1) surface geochemical surveys are limited to particular target areas identified after the reports of previous company activities have been re-examined in detail and the target areas prioritized. Any altered zones encountered should be investigated geologically in detail with XRF detectors (such as the Niton) with internal GPS or equivalent,



**Figure 22 - Primary Models of Mineralization for the White Mountain EPM**  
(Beams, 1995)

- 2) ground geophysics should be applied over priority areas of the tenement. Ground EM surveys, including Lamontagne's UTEM and Crone's Pulse EM surveys should be applied in the search for moderately to strongly conductive assemblages of massive sulfides. The depth penetration of these surveys varies between 200 and 400 meters, depending on the size and concentration of the sulfides involved in breccia pipes or shear zones, and
- 3) reverse circulation and diamond coring of appropriate targets should then be conducted and then followed up by borehole geophysics (either downhole EM or IP) to further target either mineralized intersections or near-hole geophysical anomalies. This makes full use of drilling beyond obtaining core samples. Investigating the White Mountain prospects may require a number drill sites along the trends to test for possible blind targets.

Also, the exploration expertise by the WBG principal consultant, Terra Search, provides WBG with a competitive advantage in exploration. Terra Search, a fully independent, privately-owned mineral exploration services company led by well-known senior personnel, has operated throughout Australia since 1987. Terra Search personnel operate out of offices in Townsville with a field depot in Charters Towers, which is within a few hours' drive to the subject EPM. Terra Search has the equipment and demonstrated technical expertise to manage the exploration program. Field crews are experienced in working in the more remote areas of northern Queensland.

Since Charters Towers is a hub for exploration in the general area, commonly needed equipment, supplies, and emergency assistance is about 180 km from the subject tenement, by way of the paved Flinders Highway and Homestead roads (or about 155 km by direct flight). Improved tracks access the tenement area. Smaller communities, such as Pentland and Hughenden, offering basic needs are located along the main highway as well. Other needs are generally met in Townsville located further northeast along the Flinders Highway at a distance of about 115 km from Charters Towers, Queensland.

## **21.2 Development Strategy**

The target of the exploration is to identify and develop gold and base-metal deposits of sufficient size and ore grade to be of economic interest to the WBG Management. The typical gold deposits in Canada and elsewhere in the world have been classified by tonnage and gold grade based on moderately high gold prices (Dubé and Gosselin, 2006). Now, smaller deposits are being considered for development because the price of gold is high and is expected to remain so for decades.

Based on our experience in exploration and development of gold prospects, we encourage WBG management to provide sufficient funds for the appropriate field work, followed by geophysical surveys and, should they produce favorable target zones, to drill all priority areas identified within the White Mountain tenement to depths that may be deeper than has previously been considered in past exploration programs.

We have prepared an estimated budget for the first two years of the exploration program on the subject tenement (see Table 8). Geophysical surveys would be conducted during the first and second years of the program, and drilling would be anticipated during Year 3 of the program. This budget is more aggressive than the annual expenditures proposed in the EPM application documents on the basis that two field teams and other functions could be performing concurrent field tasks on separate priority areas within the subject tenement. This would allow exploration to move along at a faster pace than with only one field team. Coordination of historical data with new data will become an important data-keeping function of the WBG technical management personnel and their consultants.

Access roads will likely need to be constructed in unexplored areas; field camps will need to be stocked with supplies and water at strategic points in the various priority areas, not only to provide support to the field crews, but also to provide the appropriate support for any emergencies that may occur in the field. Handheld-radio units, GPS and locator beacons should be standard equipment for the field crews.

**Table 8**  
**Recommended 2-Year Program Costs: White Mountain EPM Exploration**

TASK CATEGORY	YEAR 1	YEAR 2
Geological Reconnaissance and Mapping	\$25,000.	\$70,000.
Geophysics (Air & Ground Magnetics & IP)	35,000.	100,000.
Preliminary Drilling Planning	-	-
Geological Supervision & Yearly Report	50,000.	65,000.
Drilling & Field Supplies	-	-
Laboratory & Assays	30,000.	35,000.
Backhoe & Bulldozer & Roadwork	<u>25,000.</u>	<u>10,000.</u>
SubTotal:	\$165,000.	\$280,000.
Contingency @ 10%	<u>16,500.</u>	<u>28,000.</u>
<b>Total:</b>	<b>\$181,500.</b>	<b>\$308,000.</b>

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## Section 23.0 Certificates of Competent Persons

**Michael D. Campbell, P.G., P.H.**  
**Vice President and Chief Geologist/Hydrogeologist**  
**I2M Associates, LLC**

I, Michael D. Campbell, do hereby certify that:

1. I am Vice President and Chief Geologist/Hydrogeologist in the firm of I2M Associates, LLC, based in Seattle, Washington and residing at 1810 Elmen Street, Houston, Texas 77019, see: <http://www.i2massociates.com/michael-d-campbell-pg-ph-curriculum-vitae>
2. I graduated with a Bachelor of Arts in Geology in 1966 from The Ohio State University in Columbus, Ohio, and with a Master of Arts in Geology from Rice University in Houston, Texas in 1976 and have practiced my profession continuously since 1966.
3. I have worked as a geologist and hydrogeologist for my full working career. After graduation, I worked for Continental Oil Company (Australia), Sydney, N.S.W., as Staff Geologist/Hydrogeologist, Minerals and Mining Division (from 1966 to 1969). I was responsible for conducting, coordinating, and implementing prospect evaluations, mapping and sampling programs, well-site operations, and ground-water supply investigations in various parts of Australia, Micronesia (Caroline Islands) and the South Pacific (Coral Sea) for exploration on: phosphate (NW Queensland, west of Mt. Isa, and Northern Territory, phosphate discovery was made in Alroy Station area), potash (Carnarvon Basin), sulfur, coal, precious and base metals, and uranium. Joint-venture programs with Japanese and Korean companies required extensive travel between Australia and Japan and Southeast Asia. I also investigated uranium prospects on the Nullibar Plains of South Australia. I was granted Resident Status in Australia from 1966 to 1969 to work on phosphate and other minerals in Queensland, the Northern Territory and on potash in Western Australia and elsewhere in South East Asia.

After completing the assignment, I was transferred back to the U.S. to work on Conoco's uranium projects in the western U.S. In 1970, I joined Teton Exploration, Div. of United Nuclear Corporation in Casper, Wyoming and served as District Geologist for uranium exploration. From 1972 to the present, I have worked for various engineering and environmental companies involved in natural resource development and mining and on managing and executing environmental projects for industry. In the early 1980s, I served as a senior consultant to an international venture to explore for, acquire, and development gold and silver properties in the U.S. One such property was permitted and placed into production. An especially high-quality gold dore was produced over a three-year period.

4. I am a licensed Professional Geologist in: Texas, Washington (and as a Professional Hydrogeologist), Alaska, Mississippi, and Wyoming, and I hold national certifications by the American Institute of Professional Geologists and American Institute of Hydrology. I am a Registered Member of the Society for Mining, Metallurgy and Exploration (SME) - a member since 1975, a Fellow of the Society of Economic Geologists, a Fellow in the Geological Society of America, a founding member of the Energy Minerals Division (EMD) of American Association of Petroleum Geologists (AAPG) - currently serving as Chair of the EMD Uranium (Nuclear Minerals) Committee since 2004, and was elected as EMD President (Term: 2010-2011). I have been active in numerous other professional associations and societies, as time permitted over the years, such as the National Ground Water Association (AGWSE), and other professional societies. I have produced numerous presentations and publications (see resume for additional details, Section 25.0 – Appendix VIII).
5. I have read the definition of “Competent Person” as defined in the London Stock Exchange AIM Rules for Companies Guidance Notes for Mining, Oil & Gas Companies, June, 2009, and I certify that by reason of my education, affiliation with a number of relevant professional organizations, and by my past relevant work experience in Australia and elsewhere, I fulfil the requirements to be a “Competent Person” under the AIM Rules for Companies. This report has been prepared in essential compliance with the AIM Note (2009) Appendix 1 and 2.

Furthermore, the information in this report that relates to exploration results is based on information compiled by myself and others. I am a member in good standing of the above professional societies and associations and am a full-time employee of I2M Associates, LLC, based in Seattle and Houston.

I have sufficient experience relevant to the styles of mineralization and types of deposits under consideration and the activities which I qualify as a Competent Person as defined by the Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves. I fully consent to the inclusion of my name in this report and to the issuance of this report in the form and context in which it appears.

As of the date of this certificate, to the best of my knowledge, information and understanding, this technical report contains all the scientific and technical information that is required to be disclosed to make the technical report not misleading.

6. I made a personal inspection of the White Mountain tenement in Queensland during the week of March 26, 2012.

7. I have not had any prior involvement with the Wishbone Gold Pty Ltd. or other holdings by the company involved in this project. Therefore, I am independent of Wishbone Gold Pty Ltd. and any and all of its predecessors.
8. As of the date of this certificate, to the best of my knowledge, information and understanding, this CP Report contains all the scientific and technical information that is required to be disclosed to make this document not misleading.
9. I consent to the filing of this CP Report with any stock exchange and other regulatory authorities and any publication by them for regulatory purposes, including electronic publication in the public company files or on their websites accessible by the public of this CP Report.

**Mr. Jeffrey D. King, P.G.**  
**President and Senior Project Manager**  
**I2M Associates, LLC**

I, Jeffrey D. King, do hereby certify that:

1. I am President and Senior Program Manager in the firm of I2M Associates, LLC, based in Seattle, Washington, and residing at 8424 E. Meadow Lake Drive, Seattle (Snohomish), WA 98290. See: <http://i2massociates.com/jeffrey-d-king-pg>
2. I graduated with a Bachelor of Arts in Geology in 1979 from Western Washington University in Bellingham, Washington and have practiced my profession continuously from that time.
3. I have worked as a geologist and/or project/operations manager for my full working career. In 1979, I joined Bethlehem Copper (later Cominco) of Vancouver, Canada as a Staff Geologist. I was responsible for conducting, and implementing prospect evaluations, mapping and sampling programs, and well-site operations in the North Cascades of Washington State and central/eastern Nevada. In 1980, I joined the consulting firm of Watts, Griffis and McQuat of Toronto (WGM), Canada as a Senior Exploration Geologist where I was responsible for field operations for WGM's national exploration program searching for rare-earth and other minerals. Also during that time I aided WGM's senior staff on large-scale property evaluations for multiple large clients. In 1982, I was engaged by MolyCorp to work on their regional exploration program for rare-earth minerals and in 1983 I was engaged by Campbell, Foss and Buchanan, Inc. to conduct gold exploration and mine development as well as gold-placer evaluations in the lower states and in Alaska. In 1984, I joined an international venture as Mine Manager at a gold/silver mine in east/central Nevada. In 1986, I was promoted to Vice President of Operations. Since 1988, I have been affiliated with M. D. Campbell and Associates, L.P. as a Senior Program Manager. In early 2010, I formed I2M Associates, LLC and currently serve as President and Senior Program Manager. I have completed numerous mine evaluation and environmental projects over more than 25 years.
4. I am a licensed Professional Geologist in Washington State and a Member of SME (Society for Mining, Metallurgy & Exploration) (see Resume for additional details, Section 25.0 – Appendix VIII).
5. I have read the definition of “Competent Person” as defined in the AIM Rules for Companies Guidance Notes for Mining, Oil & Gas Companies, and I certify that by reason of my education, affiliation with a number of relevant professional organizations, and by my past relevant work experience in Australia and elsewhere, I fulfil the requirements to be a “Competent Person” under the AIM Rules for Companies.

6. I was involved in the preparation and review of the contents and coverage of this CPR and hence serving as co-Author of this CPR.
7. I have not had any prior involvement with the Wishbone Gold Pty Ltd., the company involved in this project. Therefore, I am independent of the Wishbone Gold Pty Ltd. and any and all of its predecessors.
8. As of the date of this certificate, to the best of my knowledge, information and understanding, this CPR contains all the scientific and technical information that is required to be disclosed to make this CPR not misleading.
9. I consent to the filing of this CPR with any stock exchange and other regulatory Authorities and any publication by them for regulatory purposes, including electronic publication in the public company files or on their websites accessible by the public of the technical report.

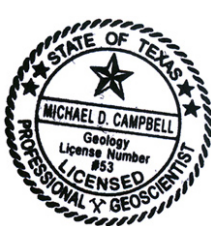
Signed in Houston, Texas this 10<sup>th</sup> day of July, 2012. We reserve the right to revise and update this CP Report in the future as new information becomes available or as we deem appropriate.

Sincerely,

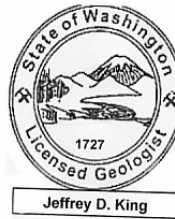
**I2M Associates, LLC**



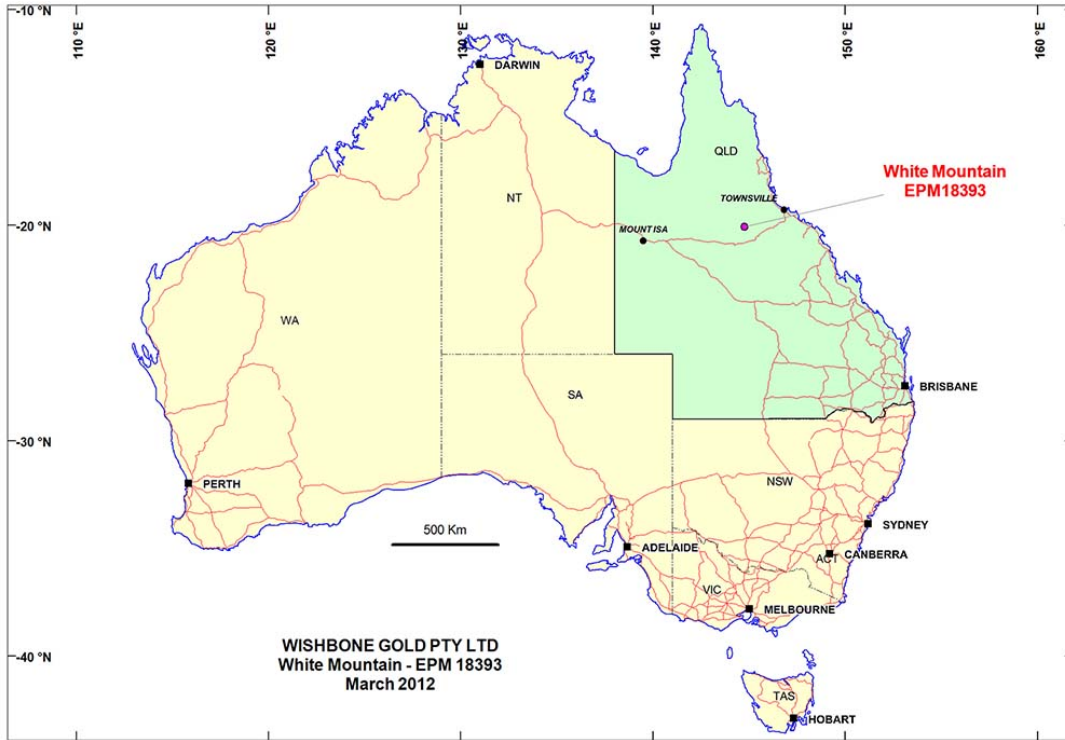
Michael D. Campbell, P.G., P.H.  
Vice President & Chief Geologist



Jeffrey D. King, P.G.  
President and Senior Program Manager



## **Section 24.0 Illustrations (Expanded Views)**



**Figure 1 – General Location of the White Mountain Tenement**  
(from Terra Search, 2012)



**Figure 2 - General Location of the White Mountain Tenement**  
(Google Earth Map) (Expanded View)

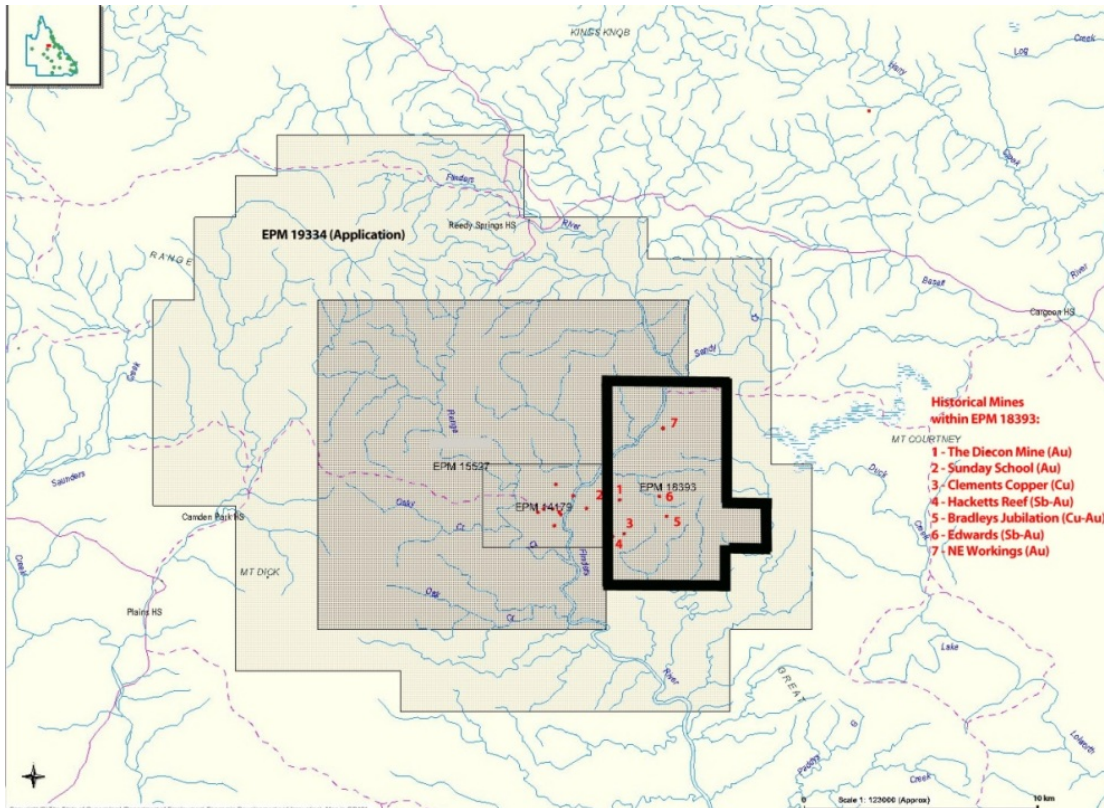


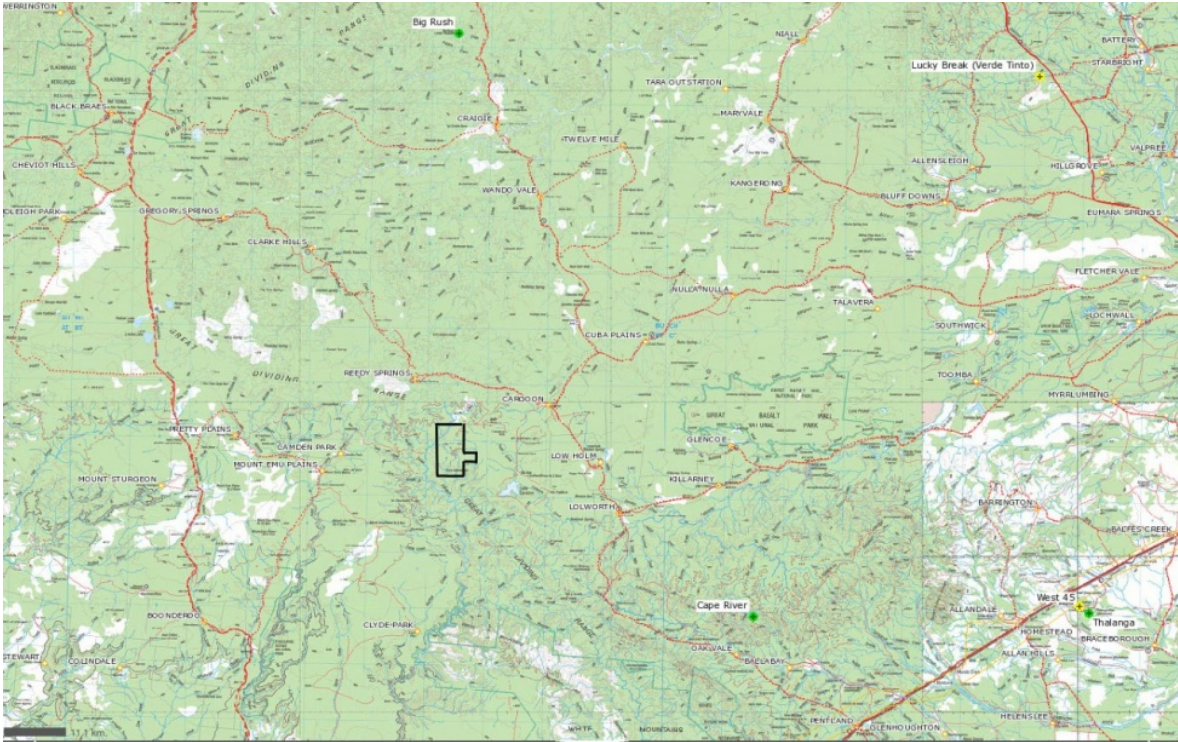
Figure 3 – White Mountain & Surrounding Tenements



**Figure 4 – Site Visit Personnel on the White Mountain Tenement  
in the Historical Diecon Mine Workings**  
(left to right: Dr. Beams, Mr. Campbell, and Mr. Poulden)



**Figure 5 – Aerial View of the White Mountain Area**  
(Google Map- Expanded View – Left Click Online)



**Figure 6A – Regional Topography Showing the White Mountain Tenement and Infrastructure** (See expanded view-left click)

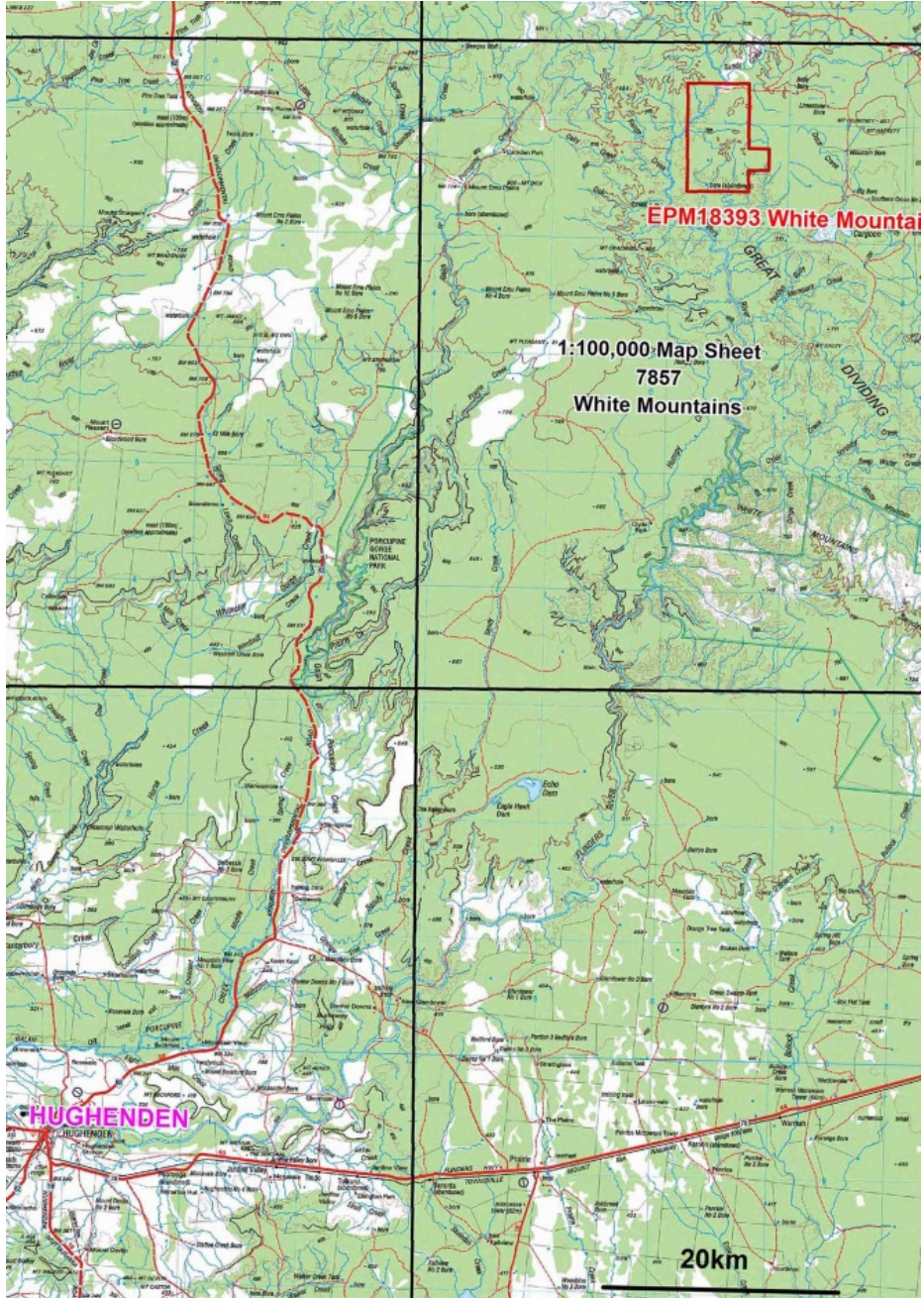


Figure 6B - Regional Topographical Map  
(From Terra Search)

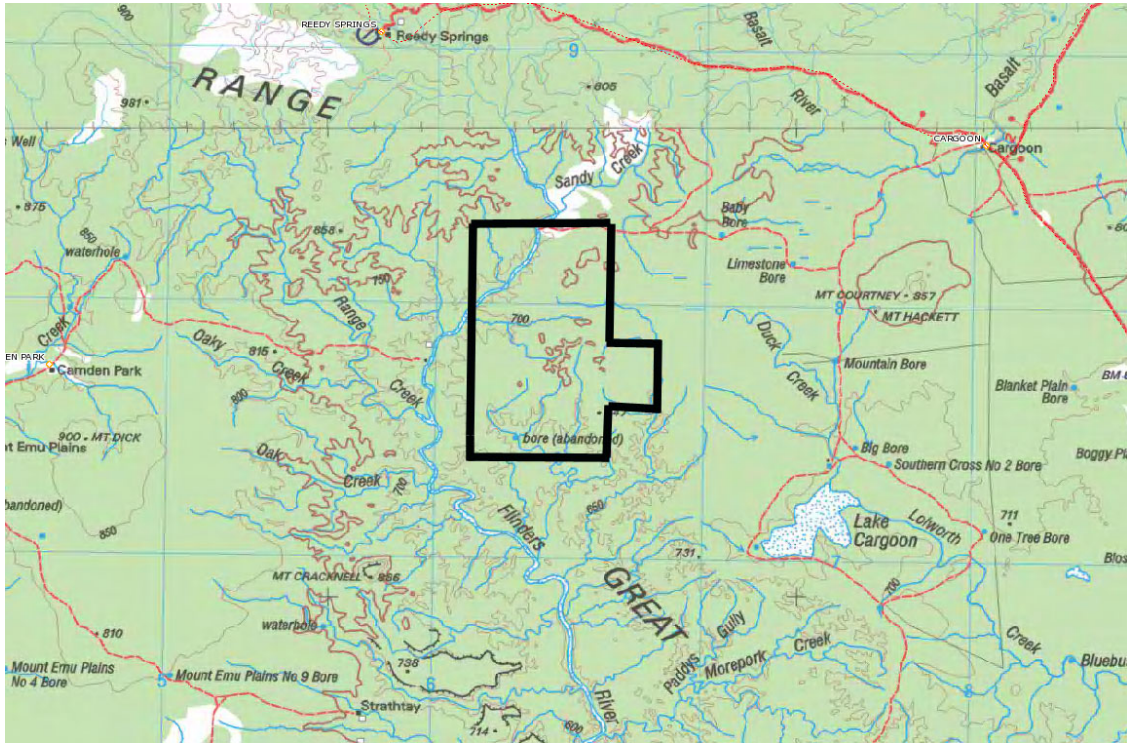
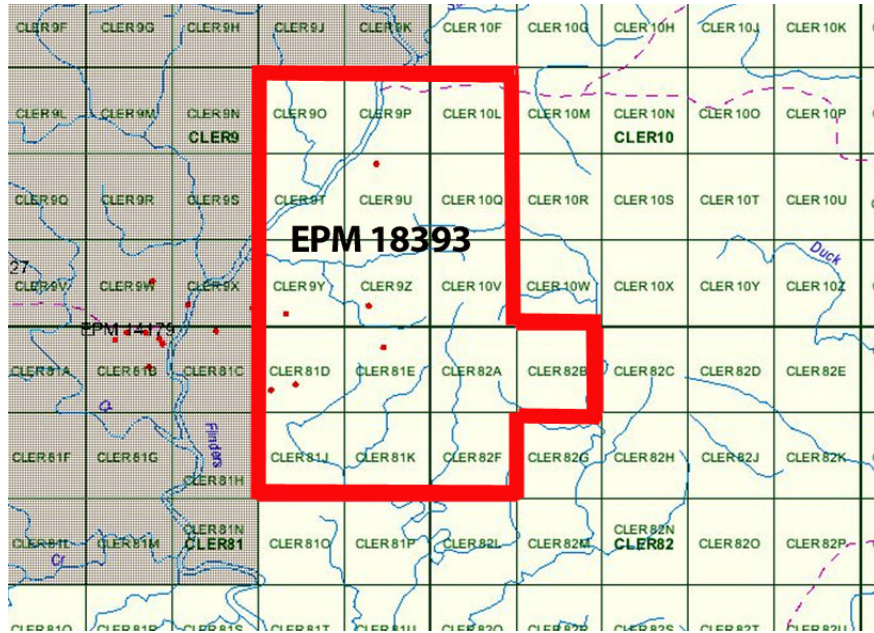
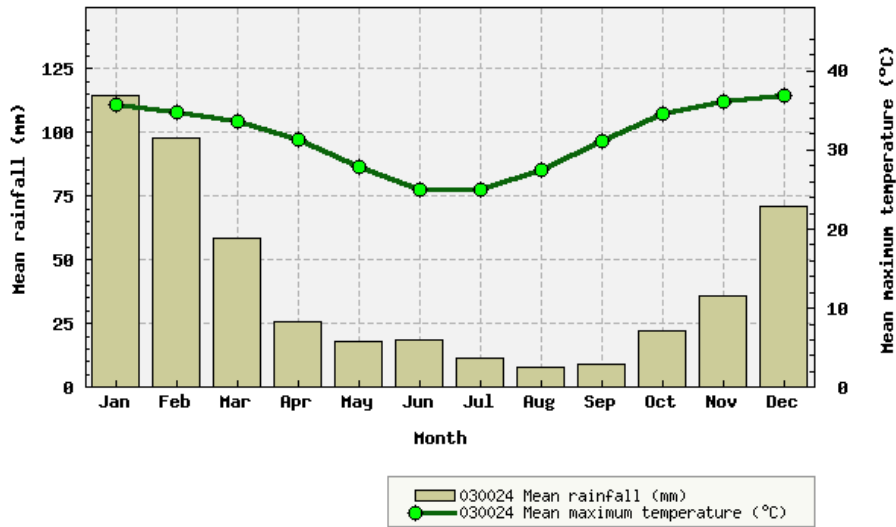


Figure 6C – Local Topography with Homesteads, Improved Roads, Tracks, and Streams



**Figure 7 - Locations of Sub Blocks within White Mountain Tenement**

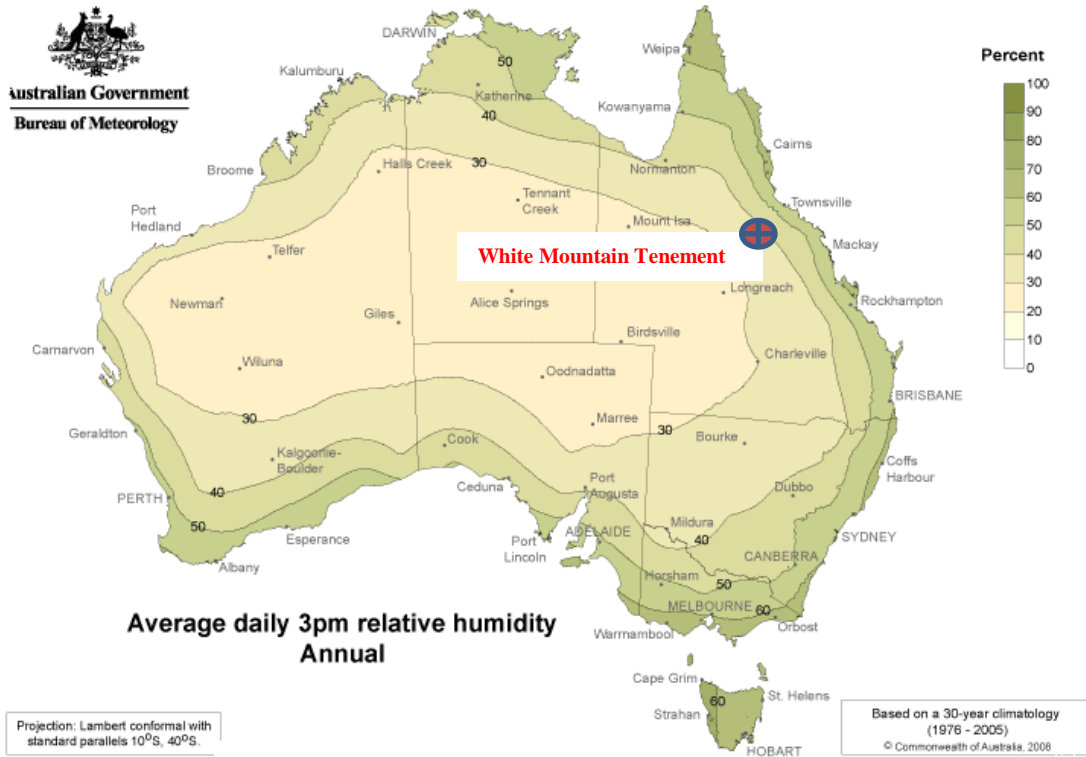
Location: 030024 HUGHENDEN POST OFFICE



Australian Government  
Bureau of Meteorology

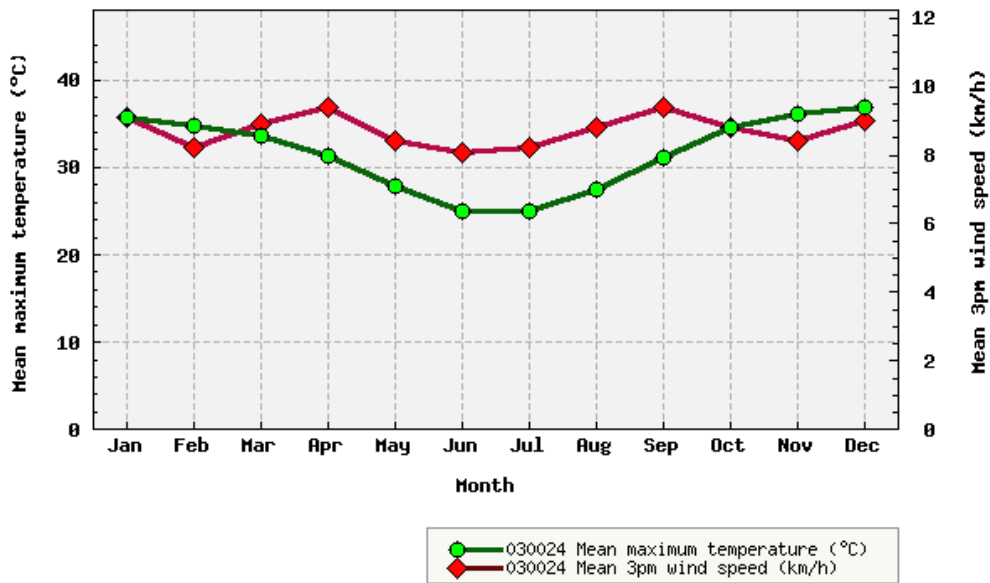
Created on Tue 3 Apr 2012 06:24 AM EST

Figure 8 - Mean Maximum Monthly Temperatures and Rainfall



**Figure 9 - Average Daily Relative Humidity (@ 3:00 PM)**

Location: 030024 HUGHENDEN POST OFFICE



Australian Government  
Bureau of Meteorology

Created on Tue 3 Apr 2012 06:05 AM EST

**Figure 10 - Mean Maximum Monthly Temperature  
(@ 3:00 PM) and Mean Daily Solar Exposure**

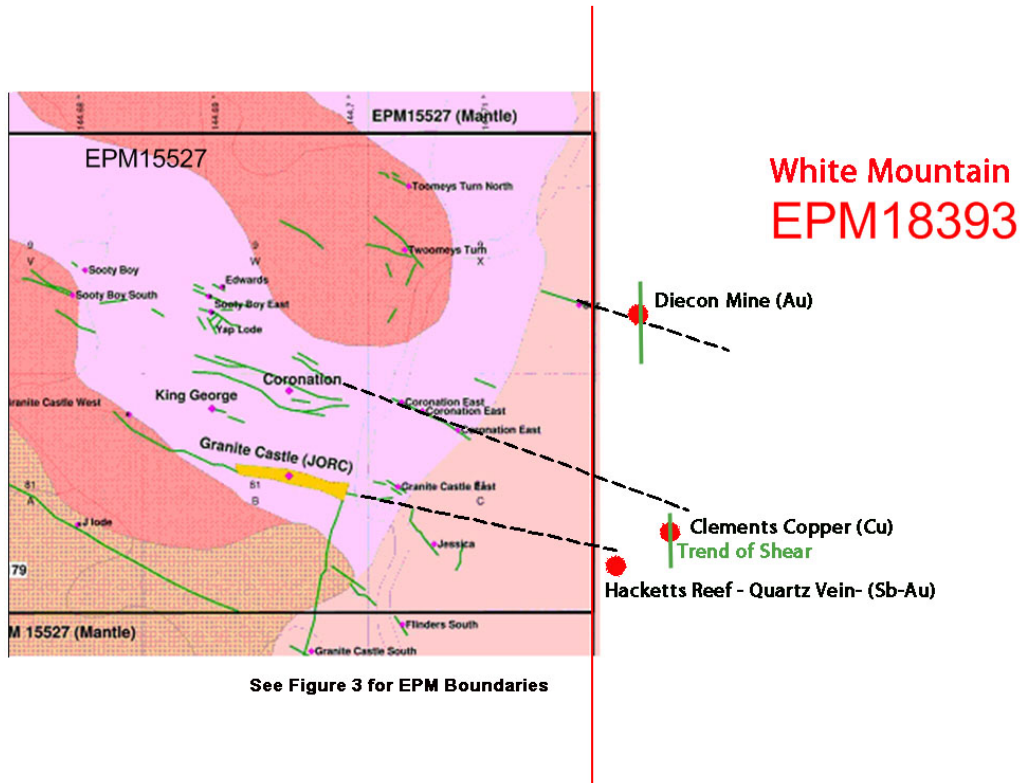
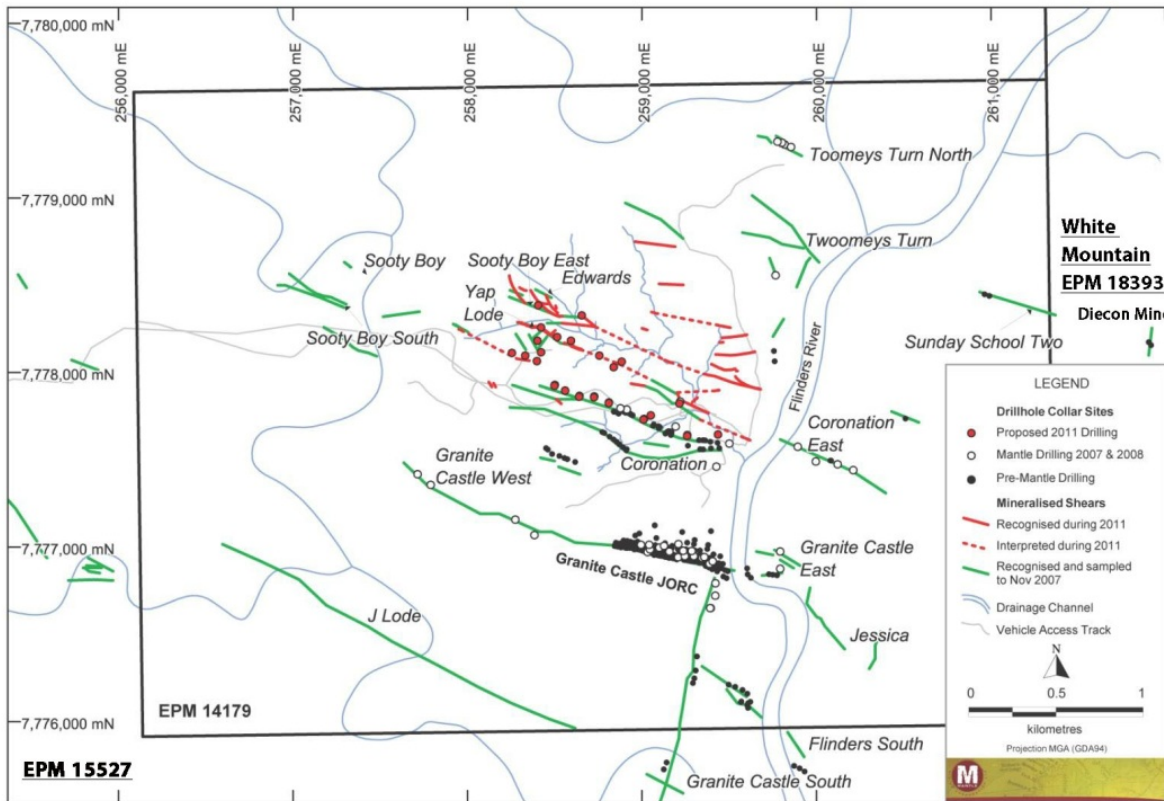
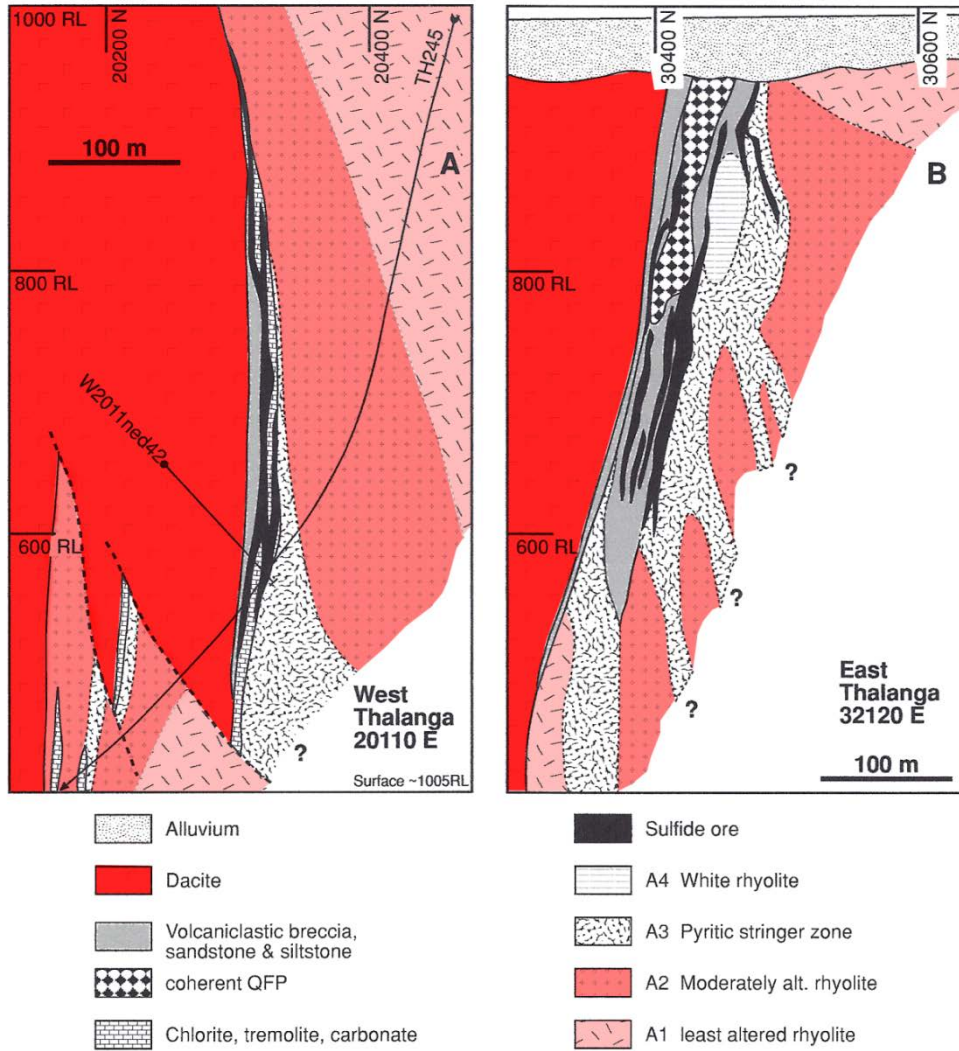


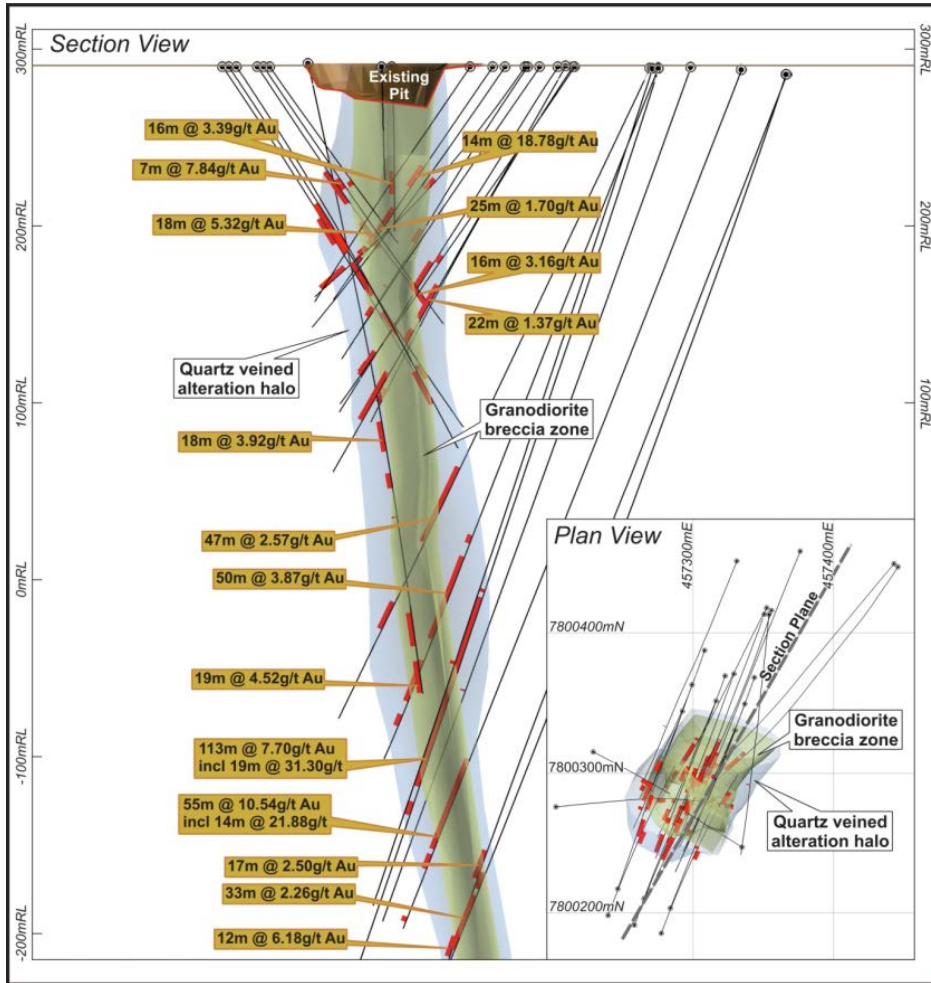
Figure 11A - Generalized Trends entering EPM 18393 from the West.  
(After Mantle Mining Corporate Website)



**Figure 11B – Drilling Locations and Generalized Trends on Adjacent Property.**  
 (After Mantle Mining Corporate Website ASX Announcement)

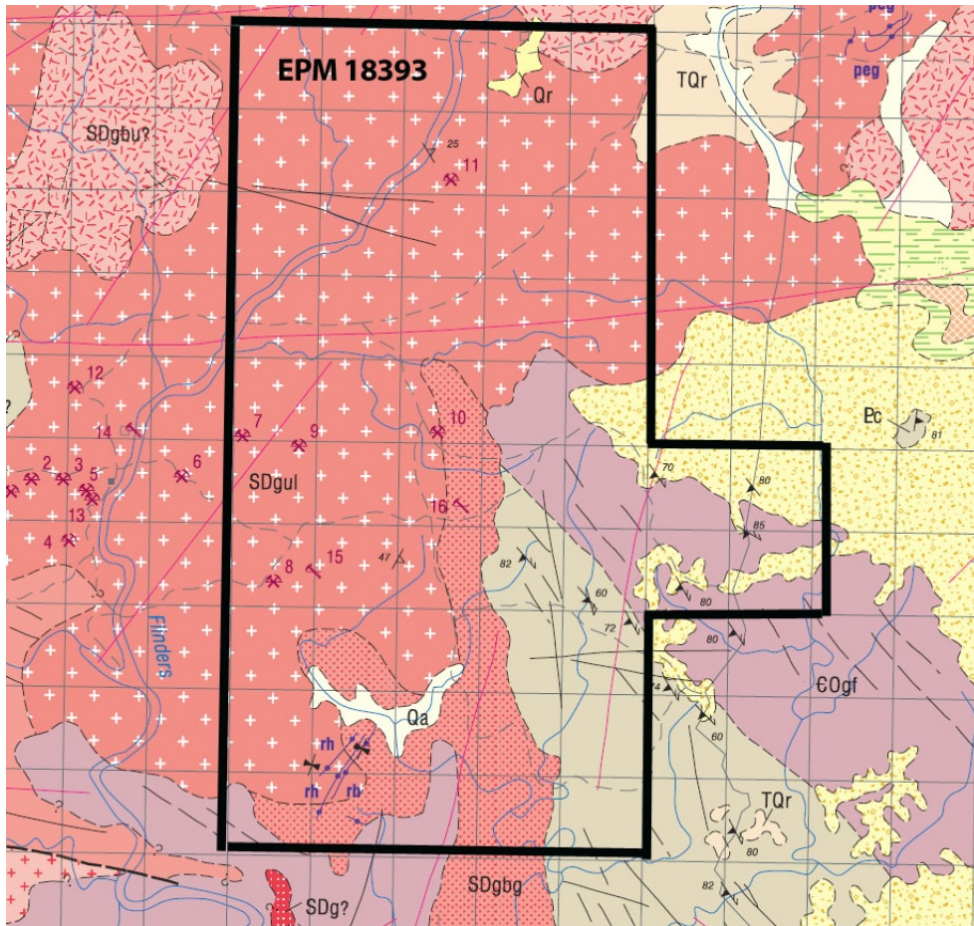


**Figure 12A and B – Blind Drilling at the Thalanga Mines Area**  
(from Paulick, *et al.*, 2001)

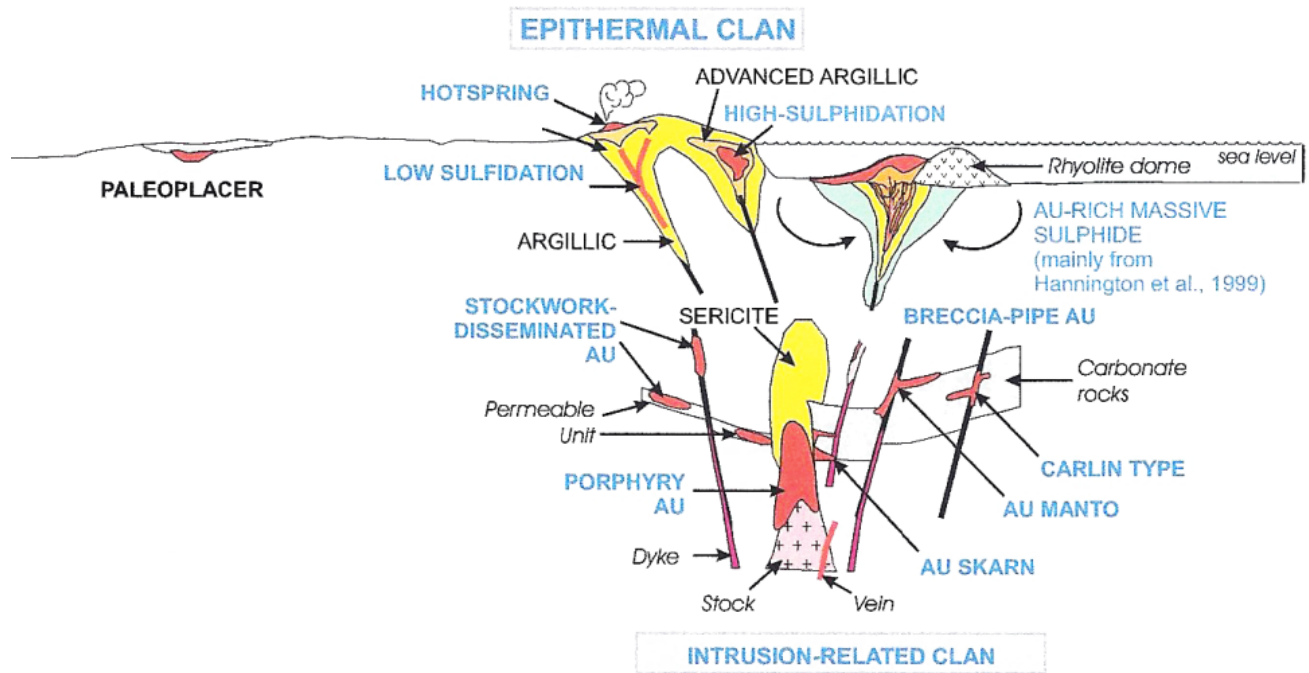


**Figure 13 - Cross Section of Drilling Results by Resolute Mining Ltd. at the Welcome Deposit**  
 (from [Resolute Mining Ltd.](#))



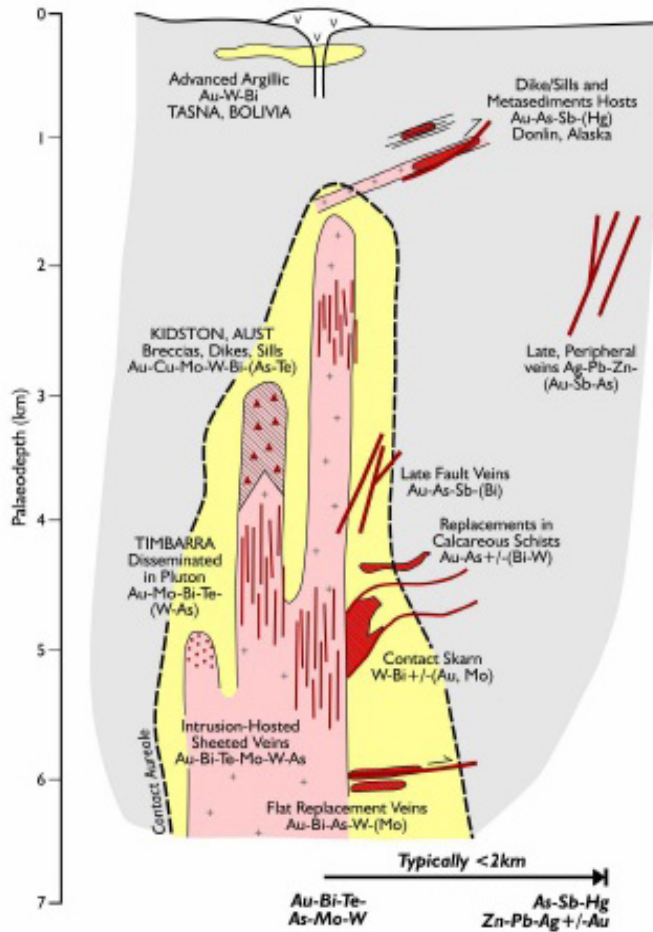


**Figure 15 - Local Geology - White Mountain Tenement and Surrounding Areas  
(Historical Prospect Areas in Red)**



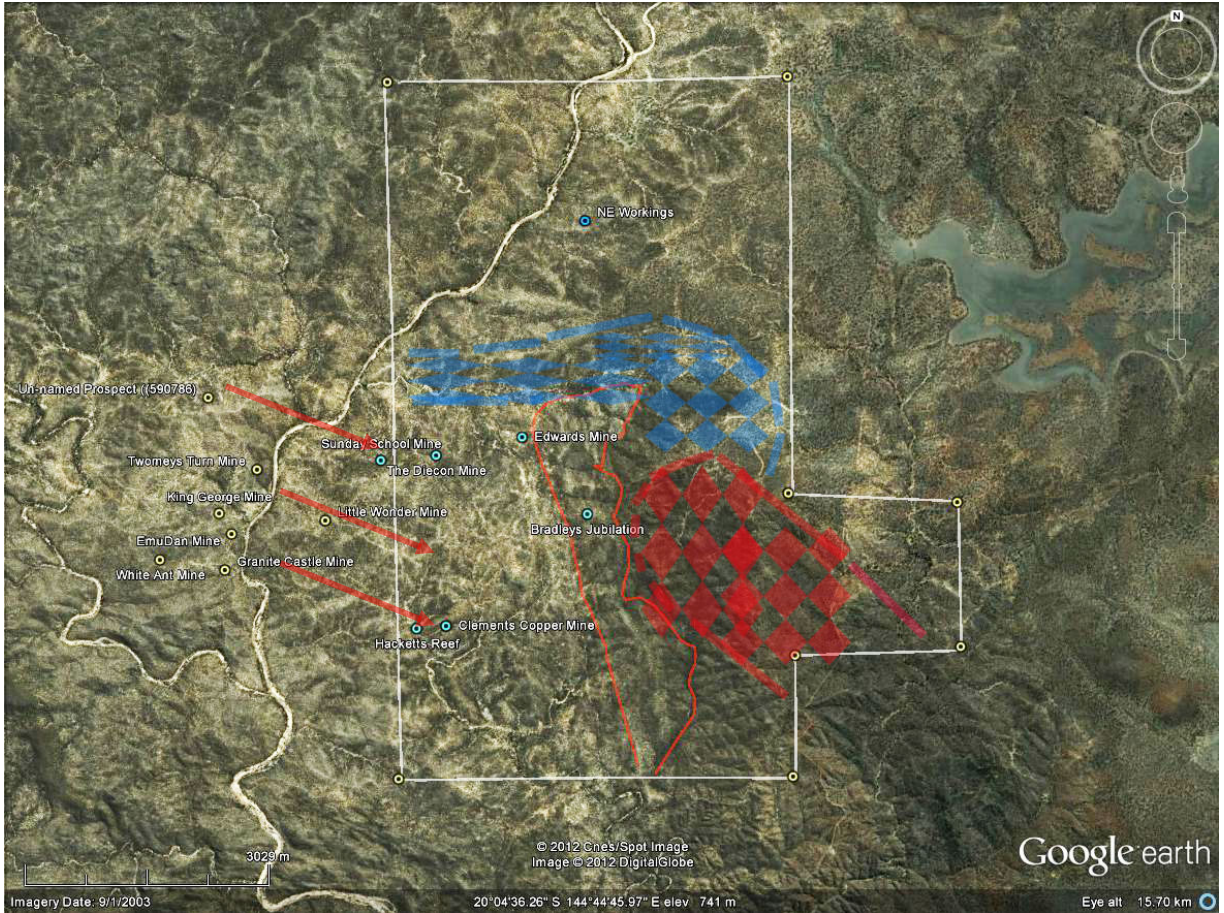
**Figure 16 – Epithermal and Intrusion-Related Gold Mineralization**  
 (Robert, *et al.*, 2007)

### Reduced Intrusion - Related Clan

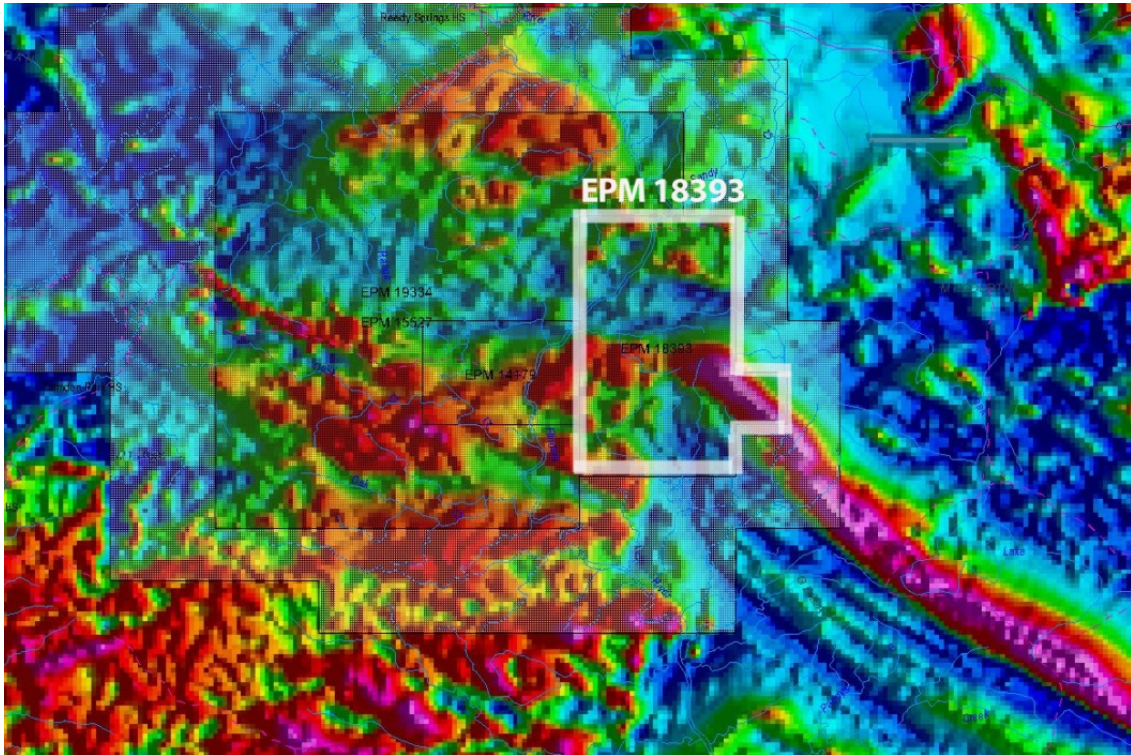


**Figure 17 – Modeling of Intrusion-Related Gold Mineralization**  
 (Robert, *et al.*, 2007)





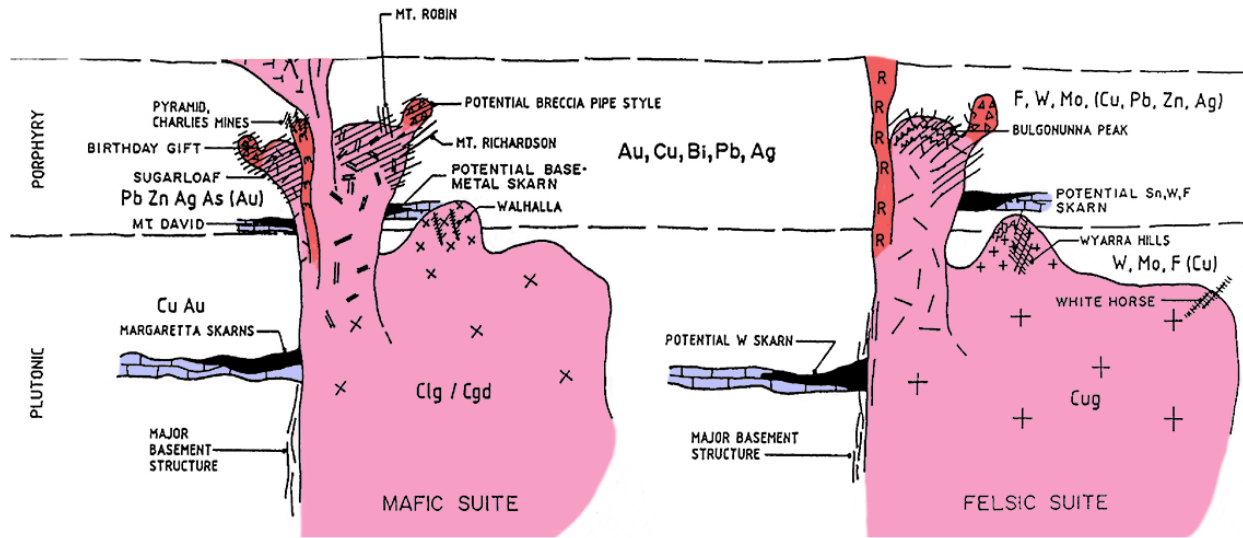
**Figure 19 - Areas of Interest: White Mountain Historical Mine Sites and Geological Units of Special Interest** (Left click to expanded view online).



**Figure 20 – 1998 Magnetics Map for White Mountain Tenement and Environs.**



**Figure 21 - Joints and Faulting at the Northern Terminus of the Magnetic Anomaly.**  
(Google Map)



**Figure 22 - Primary Models of Gold Mineralization for Guidance at the White Mountain Tenement**  
 (After Beams, 1995)

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**B. Contributing Personnel**

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- M. David Campbell, P.G. ....** Online:  
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- Bruce Handley, P.G. ....** Online:  
<http://i2massociates.com/bruce-handley-pg-curriculum-vitae>

## **Appendix I – List of Standard Technical Abbreviations**

Above mean sea level .....	amsl
Ampere .....	A
Annum (year) .....	a
Billion years ago .....	Ga
Centimeter .....	cm
Cubic centimeter .....	cm <sup>3</sup>
Cubic feet per second .....	ft <sup>3</sup> /s or cfs
Cubic foot .....	ft <sup>3</sup>
Cubic meter .....	m <sup>3</sup>
Day .....	d
Days per week .....	d/wk
Degree .....	°
Degrees Celsius .....	°C
Dry metric ton .....	dmt
Foot .....	ft
Gallons per minute (US).....	gpm
Gram .....	g
Grams per liter .....	g/L
Grams per tonne .....	g/t
Greater than .....	>
Hectare (10,000 m <sup>2</sup> ) .....	ha
Horsepower .....	hp
Hour .....	h ( <i>not</i> hr)
Hours per day .....	h/d
Hours per week .....	h/wk
Hours per year .....	h/a
Kilo (thousand) .....	k
Kilogram .....	kg
Kilograms per cubic meter .....	kg/m <sup>3</sup>
Kilograms per hour .....	kg/h
Kilograms per square meter .....	kg/m <sup>2</sup>
Kilojoule .....	kJ
Kilometer .....	km
Kilometres per hour .....	km/h
Kilonewton .....	kN
Kilopascal .....	kPa
Kilovolt .....	kV
Kilovolt-ampere .....	kVA
Kilovolts .....	kV
Kilowatt .....	kW
Kilowatt hour.....	kWh
Kilowatt hours per tonne (metric ton) .....	kWh/t
Kilowatt hours per year .....	kWh/a
Less than .....	<
Liter .....	L

Liters per minute .....	L/m
Megabytes per second .....	Mb/s
Megapascal .....	MPa
Megavolt-ampere .....	MVA
Megawatt .....	MW
Meter .....	m
Meters above sea level .....	masl
Meters per minute .....	m/min
Meters per second .....	m/s
Micrometer (micron) .....	µm
Milliamperes .....	mA
Milligram .....	mg
Milligrams per litre .....	mg/L
Milliliter .....	mL
Millimeter .....	mm
Million .....	M
Million tonnes .....	Mt
Minute (plane angle) .....	'
Minute (time).....	min
Month .....	mo
Ounce .....	oz
Parts per billion .....	ppb
Parts per million .....	ppm
Percent .....	%
Percent moisture (relative humidity) .....	% RH
Phase (electrical) .....	Ph
Pound(s) .....	lb
Second (plane angle) .....	"
Second (time) .....	s
Specific gravity .....	SG
Square centimeter .....	cm <sup>2</sup>
Square foot .....	ft <sup>2</sup>
Square kilometer .....	km <sup>2</sup>
Square meter .....	m <sup>2</sup>
Thousand tonnes .....	kt
Tonne (1,000 kg) .....	t
Tonnes per day .....	t/d
Tonnes per hour .....	t/h
Tonnes per year .....	t/a
Volt .....	V
Week .....	wk
Wet metric ton .....	wmt

## **Appendix II - Glossary of Technical Terms**

After Towsey, 2005

## Glossary of Technical Terms

acid(ic)	In geology, a chemical classification of igneous rocks containing more than 66% silica. In chemistry, having a pH <7.
adamellite	(another term for quartz monzonite) is an intrusive igneous rock that has an approximately equal proportion of orthoclase and plagioclase feldspars with 5-20% quartz.
aeromagnetics	airborne geophysical survey measuring variations in the Earth's magnetic field
age	time unit of the geological time scale. A fourth-order unit, being a sub-division of Epoch, and occasionally sub-divided.
albite	sodium-rich feldspar. Common rock-forming mineral.
alteration	(zone/envelopes) change in mineralogical composition of a rock commonly brought about by reactions with hydrothermal solutions.
andalusite	an aluminum nesosilicate mineral with the chemical formula $Al_2SiO_5$ . Andalusite is a common regional metamorphic mineral that forms under low pressure and moderate to high temperatures.
anomalous	a departure from the expected norm. In mineral exploration, this term is generally applied to either geochemical or geophysical data (values higher or lower than the norm).
anomaly	in mining terms, refers to geochemical or geophysical data that are values higher or lower than the norm.
arenite	a sedimentary clastic rock with sand grain size between 0.0625 mm (0.00246 in) and 2 mm (0.08 in) and containing less than 15% matrix.
arsenopyrite	an iron arsenic sulfide ( $FeAsS$ ), it can be associated with significant amounts of gold. Consequently it serves as an indicator of gold-bearing quartz veins (reefs). Many arsenopyrite-gold ores are refractory, i.e. the gold is not easily liberated from the mineral matrix.
assay	chemical analysis. Strictly refers to analysis of precious metals by the fire-assay method with a gravimetric finish. Commonly used to mean any chemical analysis.

auriferous	containing gold (from Latin aurum meaning gold)
base metal	generally a metal inferior in value to the precious metals, mainly copper, lead zinc, nickel, tin and aluminum.
basic	igneous rocks, low in silica and rich in mafic minerals
basement	crustal layer of rocks beneath the overlying sedimentary strata
batholith	a large mass of consolidated intrusive igneous material (usually of granitic composition) (see also pluton).
bedding	arrangement of individual rock layers or beds.
bedrock	solid rock underlying soil, alluvium etc.
belt	a zone or band of a particular kind of rock strata exposed on the surface
biotite	black mica. Common rock-forming mineral, often associated with metamorphism or alteration.
block faulting	a type of normal faulting where the crust is divided into structural or fault blocks of different orientation and elevation
block model	the term applied to the final output of a computer based process to reflect the likely configuration of the mineralization and the surrounding material based on three-dimensional blocks.
boiling zone	zone at some vertical depth at which the rock pressure is low enough to allow fluids to boil. Important in epithermal deposits, as this creates a marked change in pressure and temperature, which can change the ore fluid composition and cause minerals to precipitate.
breakeven	in ore reserve estimation, the gold grade at which the mining cost equals the value of the extractable gold. At breakeven grades, the operation makes neither a profit nor a loss. Breakeven can be calculated at various cost levels, such as an operating breakeven (the grade required to continue operations) or total cost breakeven (which takes into account overheads such as depreciation, amortization, cost of capital, off-site overheads, interest, tax etc).
cadastre locations	A map showing boundaries of Homestead properties,
Cambrian	time unit of the geological time scale, about 500-600 million years ago. Oldest subdivision of the Paleozoic Era.

carbonate	compound of carbon and oxygen with one or metals, especially calcium( $\text{CaCO}_3$ ), magnesium ( $\text{MgCO}_3$ ) and iron ( $\text{FeCO}_3$ ).
Carboniferous	time unit of the geological time scale, a geological period, 360 to 286 million years ago. A sub-division of the Paleozoic Era
chalcopyrite	a copper iron sulfide mineral ( $\text{CuFeS}_2$ ) that crystallizes in the tetragonal system. Chalcopyrite is present in volcanogenic massive sulfide ore deposits and sedimentary exhalative deposits, formed by deposition of copper during hydrothermal circulation chlorite dark green iron magnesium mineral, often associated with metamorphism or alteration.
clast	particle or fragment
clastic	composed of particles or fragments
cleavage	planar fracture or parting in rock formed by deformation
co-magmatic	formed during the same igneous event.
cordierite	a magnesium iron aluminum cyclosilicate mineral in a solid-solution series between the magnesium-rich and iron-rich varieties, typically occurring in contact or regional metamorphism of argillaceous rocks. It is especially common in hornfels produced by contact metamorphism of mudstones.
costeaning	The removal of soil and subsoil to expose rock formations in prospecting for quartz veins (reefs) or lodes. Also, proving an ore deposit or vein by trenching across its outcrop at approximate right angles and lastly, tracing a lode by pits sunk through overburden to underlying rock.
country rock	the enclosing rock around a body of ore
craton	a stable part of the Earth's crust, in which deformation has been only visible for a prolonged period.
Cretaceous	time unit of the Geological Time Scale, a geological Period, about 144 to 65 million years ago, a sub-division of the Mesozoic Era.
cross-cut	mining passage constructed at right angles to the general trend of the ore body (see also drive, shaft, rise and winze)
cross-section	a section, usually vertical, through an ore body or geological model at right angles to the dip of the unit

cut-off	the estimated lowest grade of ore that can be mined and treated profitably in a mining operation.
cuttings	broken pieces of rock generated by a drill bit during drilling. Forms the main part of percussion drill samples.
density	mass divided by volume. Measured here in tonnes per cubic meter.
Devonian	time unit of the Geological Time Scale, a geological Period, 416 – 359 million years ago
diamond drilling	method of obtaining a cylindrical core of rock by drilling with a diamond impregnated bit.
dilution	reduction in grade resulting from admixture of lower grade material during mining or rock-breaking processes.
disseminated	mineralization more or less evenly distributed throughout a rock.
drill cross section	a section perpendicular to strike on which the trace of drill holes are plotted.
drill intercepts	the intersections (usually of the target mineralization) made within an exploration drill hole.
drive	horizontal mining passage or access way underground, oriented along the length or general trend of the ore body (noun and verb)(see also cross-cut).
dyke	a tabular body of igneous rock, cross cutting the host strata at a high angle.
epigenetic	mineral deposit of later origin than the enclosing rocks.
fault	a fracture in rocks along which rocks on one side have been moved relative to the rocks on the other.
feasibility study	a comprehensive study of technical, financial, economic and legislative matters of sufficient depth and accuracy to provide the basis for financing.
felsic	igneous rock composed principally of feldspars and quartz.
ferruginous	rich in iron.
fire assay	assay procedure involving roasting of a sample in a furnace to ensure complete extraction of all the contained metal.

fluid inclusion	bubbles of gas and/or liquid, sometimes containing crystals, within mineral grains that can be used to determine the temperature and pressure of formation of the mineral and provide data on the chemical composition of the original fluids.
foliation	laminated structure in rocks caused by alignment of platy mineral grains, usually as a result of deformation and/or metamorphism
footwall	the wall or surface on the underside of an inclined geological feature such as a fault, vein, ore-body or stope.
fracture	a break in the rock that may show shearing or not. May be a joint, without movement on either side of the fracture.
Fry analysis	Fry analysis is a statistical method of correlating data points to see if there is a preferred direction. It offers a visual approach to quantify characteristic spatial trends for groups of point objects. See Fry, N. 1979. Random point distributions and strain measurement in rocks. <i>Tectonophysics</i> Vol. 60, pp. 806-807.
gabbro	coarse grained dark igneous rock of basic composition. A coarse-grained variety of basalt.
galena	lead sulphide mineral, an ore of lead often containing silver.
gangue	waste minerals associated with ore
geological mapping	the recording in the field of geological information on a map.
geophysical techniques	-the exploration of an area in which physical properties (e.g. resistivity, conductivity, magnetic properties) unique to the rocks in the area are quantitatively measured by one or more methods.
geostatistics	mineral resource estimation method. A computer based method wherein particular relationships between sample points are established and employed to project the influence of the sample points. Based on the application of statistics to the variation in grade of ore bodies.
gossan	intensely oxidized, weathered or decomposed rock or soil, usually the upper and exposed part of an ore deposit or mineral vein visible on the surface.

granite, granitic	coarse grained igneous rock composed of quartz and feldspar with varying amounts of ferromagnesian minerals such as biotite or hornblende, with or without muscovite. Adjective is 'granitic'.
granitoid	field term for a body of rock of granitic composition (containing quartz).
gravity survey	geophysical survey technique measuring variations in the Earth's gravitational field, due to variations in rock densities.
greywacke	a variety of sandstone generally characterized by its hardness, dark color, and poorly sorted angular grains of quartz, feldspar, and small rock fragments or lithic fragments set in a compact, clay-fine matrix.
greisen	a highly altered granitic rock or pegmatite, formed by autogenic alteration of a granite and is a class of skarn. Greisens are prospective for mineralisation because the last fluids of granite crystallization tend to concentrate incompatible elements such as tin, tungsten, molybdenum and fluorine, as well as metals such as gold, silver, and occasionally copper.
hanging wall	the wall or surface on the upper side of an inclined geological feature such as a fault, vein, ore body or stope.
head grades	a general term referring to the grade of ore delivered to the processing plant.
hornfels	a hard, very fine grained rock which is the group designation for a series of contact metamorphic rocks which have been baked and indurated by intrusive igneous masses.
hydrothermal	pertaining to heated water (hot aqueous solutions), associated with the formation of mineral deposits or the alteration of rocks.
igneous	rocks formed by solidification from the molten state deep underground.
Indicated Resource	an 'Indicated Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a reasonable level of confidence. It is based on exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are too widely or inappropriately spaced to confirm geological and/or grade continuity but are spaced closely enough for continuity to be assumed.

Inferred Resource	an ‘Inferred Mineral Resource’ is that part of a Mineral Resource for which tonnage, grade and mineral content can be estimated with a low level of confidence. It is inferred from geological evidence and assumed but not verified geological and/or grade continuity. It is based on information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes which may be limited or of uncertain quality and reliability.
in-situ	term used to describe rocks and minerals found in their original position of formation. Or, mineral resources considered to be “in place.”
intermediate	igneous rocks between acid and basic in composition.
intrusive	an igneous rock that has intruded previously existing rocks.
isochron	a term used in the determination of radiometric age dates. If the plot comparing daughter/non-isotope ratios with parent/non-isotope ratios falls on a straight line, that line “of equal time” is called an isochron.
isoclinal folds	intensely folded rock layers where the inter-limb angle is between 10° and zero, giving the impression of parallel rock layers.
isotope	different atoms of the same element, having the same atomic number but different atomic weights. The ratios of different isotopes in rocks and minerals can be used to estimate the age of the specimen or the time of crystallization or thermal events.
joint	fracture in rock along which no appreciable movement has occurred.
JORC Code	the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code 2004 Edition”, a report of the joint committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Australian Mining Industry Council. It is a comprehensive integrated exposition on geological resources and ore reserves, and adherence to the Code is a requirement under the Australian Stock Exchange Listing Rules.
km	kilometer(s)
level	underground horizon at which an ore body is opened up and from which mining proceeds.

lineament	long major topographic feature identified on aerial photograph, which may or may not be a fault or joint.
lithic	pertaining to or formed of rock
lithological	pertaining to the type of rock.
lode	tabular or vein-like deposit of valuable mineral between well-defined walls.
mafic	describing silicate mineral or rock that is rich in magnesium and iron. Most mafic minerals are dark in color and the relative density is greater than 3. Common rock-forming mafic minerals include: olivine, pyroxene, amphibole, and biotite. Common mafic rocks include basalt, dolerite, and gabbro.
Measured Resource	a 'Measured Mineral Resource' is that part of a Mineral Resource for which tonnage, densities, shape, physical characteristics, grade and mineral content can be estimated with a high level of confidence. It is based on detailed and reliable exploration, sampling and testing information gathered through appropriate techniques from locations such as outcrops, trenches, pits, workings and drill holes. The locations are spaced closely enough to confirm geological and/or grade continuity.
metamorphism	an assemblage of rocks that have been subjected to intense heat and pressure of sufficient duration to alter the pre-existing minerals to different mineral types that were stable in such environments.
microthermometry	determination of the temperature of formation of minerals by examining, heating and cooling fluid inclusions under a microscope.
migmatite	a rock at the frontier between igneous and metamorphic rocks. Migmatites form under extreme temperature conditions during prograde metamorphism, where partial melting occurs in pre-existing rocks.
mineralization	the introduction of valuable minerals into a rock body
muscovite	a white mica mineral
nugget	fragment of native gold, often water-worn
nugget effect	a bias produced in geostatistics caused by isolated high values
open cut	synonymous with open pit

open pit	mine excavation or quarry, open to the surface
Ordovician	time unit of the Geological Time Scale, a geological Period from 500 to 440 million years ago, a sub-division of the Paleozoic Era
ore	rock or mineral(s) that can be extracted at a profit. Often applied (incorrectly) to mineralization in general.
Ore Reserve	an 'Ore Reserve' is the economically mineable part of a Measured or Indicated Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. Ore Reserves are sub-divided in order of increasing confidence into Probable Ore Reserves and Proved Ore Reserves
ore shoot	pods of mineralized material, often high grade, within a vein
orthoclase	potassium feldspar
outcrop	a body of rock exposed at the ground surface
oxidized	near surface or after-mining decomposition of rocks, minerals or metals by exposure to the atmosphere and ground water.
Paleozoic	Time unit of the Geological Time Scale, a geological Era from 600-251 million years ago
pegmatite	coarse grained igneous rocks, similar to granite, often very coarse grained, rarely with crystals tens of meters in length. May contain rare or unusual minerals or metals. Often occurs as dykes or veins.
percussion drilling	method of drilling using a hammering action with rotation, forcing dust and cuttings to the hole collar by compressed air. Usually refers to open hole percussion drilling, where cuttings return outside the drill rods. See also RAB drilling and RC drilling
Permian	Time unit of the Geological Time Scale, a Period from 280-251 million years ago, a sub-division of the Paleozoic Era

petrography	the study of rocks under the microscope
petrology	the study of the origin, structure and occurrence of rocks
pH	literally, “power of Hydrogen”. A measure of the concentration of hydrogen ions in solution that determines acidity or alkalinity. The pH ranges from 0 to 14, with 7 being neutral. Acids have a pH less than 7 and alkalis greater than 7
plagioclase	group of feldspar minerals ranging from sodium-rich to calcium-rich with mixed compositions in between
potassic alteration	type of alteration due to introduction or increase of the alkali metal potassium.
portal	surface entrance to a tunnel or drive.
pre-feasibility study	a relatively comprehensive analysis which is qualified by the uncertainty of fundamental criteria and assumptions to the degree that it cannot be the basis for a final financial analysis
Probable Ore Reserve	a ‘Probable Ore Reserve’ is the economically mineable part of an Indicated, and in some circumstances Measured, Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified. A Probable Ore Reserve has a lower level of confidence than a Proved Ore Reserve.
prospect	an area that warranted or warrants detailed exploration.
Proved Ore Reserve	a ‘Proved Ore Reserve’ is the economically mineable part of a Measured Mineral Resource. It includes diluting materials and allowances for losses which may occur when the material is mined. Appropriate assessments, which may include feasibility studies, have been carried out, and include consideration of and modification by realistically assumed mining, metallurgical, economic, marketing, legal, environmental, social and governmental factors. These assessments demonstrate at the time of reporting that extraction could reasonably be justified.

pyrite	an iron sulphide mineral, often associated with economic mineralization. Occasionally used as an ore of sulphur. With inclusion high amounts of arsenic, the mineral becomes arsenopyrite.
pyroxene	family of silicate minerals that usually contain iron and magnesium and commonly calcium.
quartz	very common minerals composed of silica SiO <sub>2</sub> . Amethyst is a variety of the well-known amethystine color. Aventurine is a quartz spangled form with scales of mica, hematite, or other minerals. False topaz or citrine is a yellow quartz. Rock crystal is a clear variety. Rose quartz is a pink variety, and cairngorm is a brownish variety. Tiger-eye is crocidolite (an asbestos-like material) replaced by silica and iron oxide. Quartz is the name of the mineral prefixed to the names of many rocks that contain it, such as quartz porphyry, quartz diorite.
RAB drilling	see Rotary Air Blast
raise	see Rise
RC drilling	see Reverse Circulation
recovered grades	means the eventual recovery after mining dilution and processing losses measured against plant feed tonnes.
recovery (drilling)	proportion (%) of core or cuttings actually recovered from a cored interval, compared to the maximum theoretical quantity.
recovery factors	the mining and metallurgical factors affecting recovery of gold through a plan of grade-quantity control of ore or metal relative to its other constituents.
reef	in older mining terms, a white gold-bearing quartz vein.
reserves (ore)	see Proved or Probable Ore Reserves. It is recommended that the reader study the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code 2004 Edition", a report of the joint committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Australian Mining Industry Council for a comprehensive integrated exposition on geological resources and ore reserves. The various resource categories are classified according to the level of geological information, and thus the confidence, underlying the estimate.

The Inferred Resources cannot become a Reserve. The Proved and Probable Reserves are derived respectively from the Measured and Indicated Resource after the application of sufficient technical, financial, marketing, economic, legislative, legal and environmental factors to be confident that their mining and processing would be economically viable. However, it should be appreciated that the Code does not define a level of profitability.

resource	see Measured, Indicated or Inferred Mineral Resource. Mineralization to which conceptual tonnage and grade figures are assigned, but for which exploration data are inadequate to estimate ore reserves.
reverse-circulation drilling	Method of drilling whereby rock chips are recovered by pressurized air returning inside the drill rods.
reverse fault.	a fault that dips towards the block that has been relatively raised.
rise, raise	a vertical or inclined underground shaft or access way between levels mined from the bottom up.
rock-chip sampling	obtaining a sample, generally for assay, by breaking chips off a rock face.
Rotary Air Blast (RAB) Drilling	Method of drilling soft rocks in which the cuttings from the bit are carried to the surface by pressurized air returning outside the drill rods.
schist	type of fine grained metamorphic rock with laminated fabric similar to slate but often showing a sheen.
scoping study	a study having the objective of defining what options, if any, should be subject to intensive analysis.
sediment	particles deposited from suspension in water, wind or ice consisting of clay or quartz particles.
sequence	group of sedimentary rocks.
sericite	fine grained variety of mica generally formed by metamorphic processes.
S.G.	Specific Gravity
shaft	a vertical or inclined passage from the surface by which a mine is entered and through which ore or ventilation air is transported.

shear	zone in which rocks have been deformed by lateral movement along innumerable parallel planes.
sheeted vein	groups of closely spaced distinct parallel fractures filled with mineral matter and separated by layers of barren rock.
silicified	referring to rocks in which a significant proportion of the original constituent minerals have been replaced by silica.
Silurian	time unit of the Geological Time Scale, a Period from about 438 to 408 million years ago.
skarn	rock type refers to calcium-bearing rocks containing a range of silicate minerals, and is most often formed at the contact zone between intrusions of granodiorites, granites, or other high-temperature intrusives with limestone or other calcareous units.
Specific Gravity	mass divided by volume at a specified temperature compared to an equal amount of water which is assigned an SG of 1.0. Equivalent to density (mass per unit volume), measured here in tonnes per cubic meter.
sphalerite	zinc sulphide mineral.
staurolite	a complex iron, aluminum nesosilicate mineral with iron, zinc and magnesium in variable ratios. It is an index mineral for intermediate- to high-grade metamorphics.
stockwork	interlocking network of tabular veins or lobes.
stope	mine excavation from which ore is being or has been extracted.
stratigraphy	study of stratified rocks, especially their age, correlation and character.
stream sediment survey	systematic sampling of sediments within drainage channels, used to locate traces of mineralization which have weathered from the ore zone and been shed into the drainage channels.
strike	the azimuth of a surface, bed or layer of rocks in the horizontal plane.
stringer	narrow vein or irregular filament of mineral traversing a rock mass.
sulphides	minerals comprising a chemical combination of sulphur and metals.
supergene	as in supergene enrichment, is a process occurring relatively near the surface where ground-water circulation occurs with concomitant oxidation

and chemical weathering. The descending ground water oxidizes the primary (hypogene) sulfide ore minerals and redistribute the metallic ore elements where they enrich the base of the oxidized portion of the deposit.

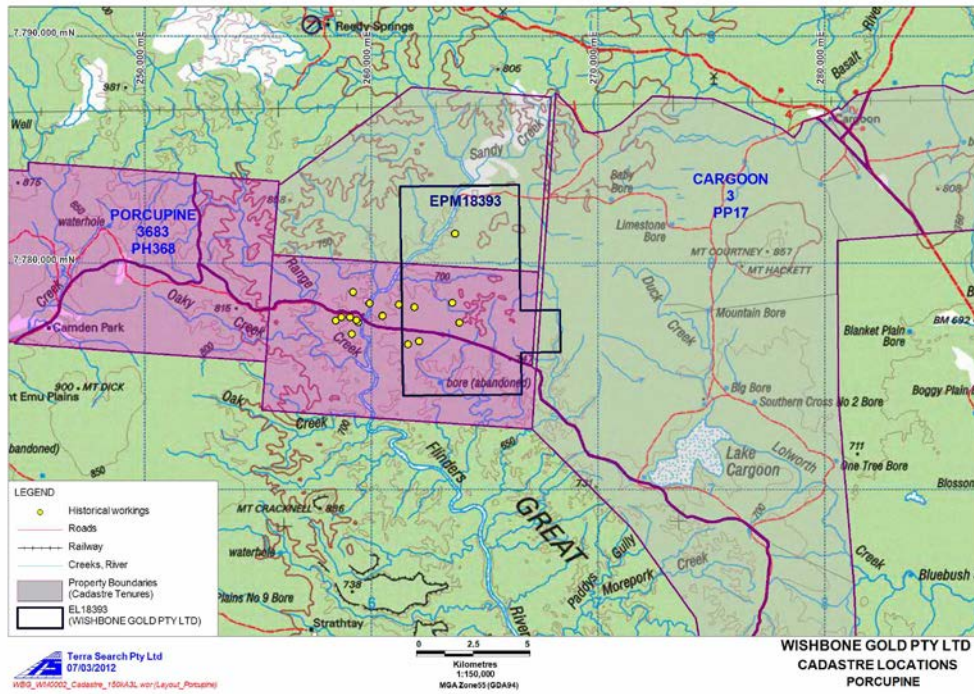
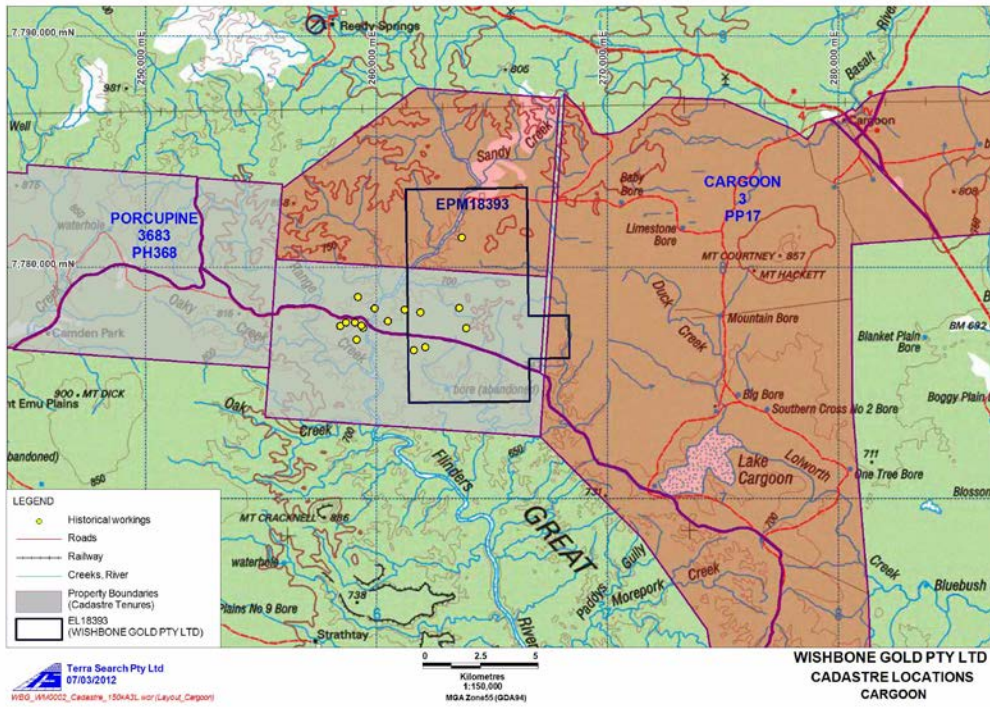
syenite	medium to coarse-grained, acidic igneous rock, containing less silica than a granite.
tailings	material rejected from a treatment plant after the recoverable valuable minerals have been extracted.
tonalite	igneous rock similar to granite but containing mainly calcium feldspar rather than alkali (sodium and potassium) feldspar.
true width	width or thickness of a lode or other formation measured at right angles to its sides (see also apparent width)
variogram	a statistical model, usually presented as a graph, that describes the average Inferred Mineral
variography	a statistical study of the way in which metal or grade distribution varies within a deposit and the relationship between adjacent samples. It is used in order to determine grade continuity within a geological or computer model of the ore body, and to estimate the range of influence of samples.
vein	a narrow dyke-like intrusion of mineral traversing a rock mass of different material.
volcanic	class of igneous rocks that have flowed out or have been ejected at or near the earth's surface, as from a volcano.
volcanoclastic	description of a clastic sediment containing material of volcanic origin.
volcanogenic.	of volcano origin.
wall rock	rock mass adjacent to a fault, fault zone or lode.
winze	a vertical or inclined underground shaft or access way between levels mined from the top down.

**Appendix III – Homestead Station Contact Information  
and Cadastre Locations**  
(from Terra Search)

## Homestead Identifications: White Mountain Tenement

(from Terra Search)

<u>PROPERTY</u>					<u>CONTACT</u>
EPM	Property Name	Lot	Plan	Property Address	Landowner
White Mountains					
18393	Cargoos Qld PL	3	PP17	Gregory Springs Road The Cape, Q, 4816	Cargoos Qld PL Owner: Bart Wilkinson Cassiopeia Stn, MS 163 Clermont, Q,
18393	Camden Park	3683	PH368	Mount Emu Rd, Porcupine, Q, 4821	Camden Park Grazing PL-Wayne Neilsen
	*located within focus area				



## **Appendix IV – Historical EPM Exploration Methods** (from Terra Search)



Houston Seattle

Summary of mineral exploration under Exploration Permit, Authority to Prospect and Mining Lease Tenure

Title (AP for Min. & EPV unless stated)	Company	Date Granted	Exploration Target	Mine(s)/ Prospect(s)	Exploration Techniques						Company Report No. (CR)
					Geology	Geophys.	Geochem.	No. of Samples	Develop. & drill/No.	Research & assess.	
670	Nickel Mines Ltd	1/10/69	Cu, Pb, Zn, Ag	The Antler	C		d, e	0			4185
815	Combined Mining & Exploration N.L./ Horizon Explorations Ltd	20/6/70	Cu, Pb, Zn				d, c	5, 1			3557
1016/1017/1074	Jodokus Australia Pty Ltd	13/4/72 27/7/72	Cu, Pb, Zn		A	M, I	d	5			4500
1018	International Nickel Australia Ltd	27/4/72	Cu, Pb, Zn	Mundic Creek, Calif Creek, Sensible Creek, Waddy's Hill	A, B, C	N	c, b, d	2, 2, 2			4432
1090	Easo Exploration & Production Australia Inc.	9/8/72	Cu, Pb, Zn	Waddy's Hill		Q, M	c	2	f		4724
1402	Easo Exploration & Production Australia Inc.	9/8/72	Cu, Pb, Zn		A		b	1			5601, 6680, 6318, 6681, 6944
1544	Le Nickel Australia Pty Ltd/ Penaroya (Australia) Pty Ltd	5/8/75	Cu, Pb, Zn	Thalanga, Waddy's Hill, Gydgie Hill, New Homestead Diggings, Cooked Creek, North Limb, North Range, Thalanga East, Thunderprint No. 1, 2, 3, 4	A, B, E, F	L, I, J, N, K, M, R	b, c, e	4, 4, 5	B4, B6, B5, U46, U493		5731, 5974, 6174, 6341, 7095, 6777
1590	Penaroya (Australia) Pty Ltd		Cu, Pb, Zn	Gydgie Hill	A	L, N					6776, 7094
2014	Penaroya (Australia) Pty Ltd	18/9/78	Cu, Pb, Zn	Thalanga East, Thalanga, Gydgie Hill	A, B	N, K	d, c, e	2, 5, 5	B31, K, F, I		7050, 7643, 7644, 7781, 10074,



Houston Seattle

Title (AR for Min. & EPM unless stated)	Company	Date Granted	Exploration Target	Mine(s)/ Prospect(s)	Exploration Techniques							Company Report No. (CR)
					Geology	Geophys.	Geochem.	No. of Samples	Develop. & Drill/No.	Research & assess.		
2075	Easo Exploration & Production Australia Inc.	15/7/79	Cu, Pb, Zn			L, J						7728, 8734, 9455, 11446, 12318
2197	Penarroya (Australia) Pty Ltd	20/9/79	Cu, Pb, Zn									7862
24922493	Australian Anglo American Searches Pty Ltd	1/7/80	Placer Au			A, C		a b T	0 1 1	f		9265, 10090, 10939
2571	Easo Exploration & Production Australia Inc.	9/9/80	Cu, Pb, Zn									8837, 11459
2807	Metals Exploration Ltd	19/12/80	Au, Cu, Pb, Zn	Big Hit, UB-1, UB-1 South		A, B, F	L, J, N	a b d	2 4 2	j/3 j/2		9323, 10933, 10934, 11966
3221	Penarroya (Australia) Pty Ltd	26/7/82				A, C		d d	0			13236
3282	EMAS Associates/ Freeport of Australia Inc.	2/4/82	Au	The Flat Chinese Diggings, Puddler Creek, Four Mile, Barrington Lode		C		d a T	4 3	j/559	O	11951, 13310
3450	Metals Exploration Ltd	19/12/80	Au, Cu, Pb, Zn	Big Hit, UB-1, UB-1 South				a c d	5 5	k l	13 7	13134, 13664
3510	The Broken Hill Proprietary Co. Ltd	3/6/83	Au, Cu, Pb, Zn			E		a c d	5 5			12966
3615	Amad N.L./ Aztec Exploration Limited	17/11/83	Au	The Antler, Antler Extended		B		b d d	0 4 4	g/10 v/26		13228, 13493, 14460, 15473, 15474
3699	CRA Exploration Pty Limited	3/3/84	Cu, Pb, Zn	Century Area			L, J, K, N			v/17		13995, 14528
3798	Panconterial Mining Limited	16/8/84	Cu, Pb, Zn	Diago Gully, Gydiel Hill						k/68		21615, 23326, 19482
3817	CRA Exploration Pty Limited	21/8/84	Cu, Pb, Zn	Atlan Hills		A		b d	1 1			14583, 15133
3909	M. Curtain & D. Fisher	5/12/84	Placer Au	Chinese Diggings, Puddler Creek, Barrington Reef		A, B		T				15416
4115	Battle Mountain (Australia) Inc.	14/10/85	Au			A, E	L, J, N	b	1			16505, 16906, 17358



Houston Seattle

	Granted	Target	Prospect(s)	Geology		Geophys.		Geochem.		No. of Samples	Develop. & drill./No.	Research & assess.	Report No. (CR)
				A, B	I, J, M	b	c	d	a				
4202	Western Mining Corporation Limited	Au	Big Hill, UB-1	A, B	I, J, M	b	c	d	5	K/6	q	16249, 16256, 16547, 16873, 18186, 18283, 21841, 21915	
4352	Panorama (Australia) Pty Ltd	Au		A		b	d		1			16311	
4404	Freeport of Australia Minerals Limited	Au, Cu, Pb, Zn	Nine Mile Creek, Telephone Gully, Sensible Creek	A, B		a	b	c	3	g/4	q	17260, 17470, 17535	
4764	D. Wilson & E. & M. Sorohan	Au	Toomba Mine, Don Shaft, Barrington, Poly Cow	A, B		b	d		1			18173, 18934	
4819	Comatus Pty Ltd	Au	Johnson's Hill Reef, Johnson's Gully, Clara Jane Reef	C		b	c		4			18497, 18857, 19826, 20058, 20817, 22417	
4912	Pan Australian Mining Ltd	Au, Cu, Pb, Zn		A, E		b	d		3			19537, 19799, 20719	
4915	Pan Australian Mining Ltd	Au, Cu, Pb, Zn		A, E		b	c	d	2			18214, 19540, 19818, 20705	
5015	Australian Overseas Mining Limited	Au		A		b	d		1		q, A, P	19424, 20429	
5025	Dalrymple Resources N.L.	Au	Area 1 (Lisner Reef), Area 2, Area 3	A	I, J	b	d		1			18215, 19734, 20510, 21293	
5068	Pan Australian Mining Ltd	Au, Cu, Pb, Zn		C, E		d			2			18119, 20168, 20465	
5112	Australian Overseas Mining Limited	Au	The Gap	A, B		b	c		4	U/0		18334, 19697, 20522	
5156	Herald Resources Limited	Au		C		d			0			18560	
5272	Pan Australian Mining Ltd	Au				b	d		1			19440, 20282	
5322	Carbine Gold N.L.	Au	Grasstree, Lady Barrington	B, C		b	d		0			19140	

Title (AP for Min. & EPM unless stated)	Company	Date Granted	Exploration Target	Mine(s)/Prospect(s)	Exploration Techniques							Company Report No. (CR)
					Geology	Geophys.	Geochem.	No. of Samples	Develop. & Drill/No.	Research & Assess.		
5419	Mount Burgess Gold Mining Co. N.L.	10/6/88	Au		A		a	0			20277	
5736	Metana Minerals N.L.	10/2/89	Cu, Pb, Zn			I, J	b	3			21878	
5747	American Boulder N.L.	10/2/89	Au		C, E	E, I, J, N	b	4			21247	
5898	Pan Australian Mining Ltd	26/5/89	Au, Cu, Pb, Zn	Lone Hand Extended, Bunbury, Inipit			c	4			23164, 23751	
5913	Australian Overseas Mining Limited	8/6/89	Au	The Gap			d	1			21586	
7415/7407	ACM Gold Ltd	29/5/90	Au, Cu, Pb, Zn				b	2			23274	
7407		24/7/90			C		d	5			22930	
7091	Conatus Pty Ltd	19/4/90	Au				b	4			22930	
7623	CEA Exploration Pty Limited	14/1/91	Au, Cu, Pb, Zn		C, D	N	d	1			24136	
7743/8050	CRA Exploration Pty Limited	16/1/91	Au, Cu, Pb, Zn	Altandale, The Antler, Antler Extended	E, D	M, N, S	b	4			23839	
		5/6/91					c	5				

KEY TO ABBREVIATIONS





<b>GEOLOGY</b>	<b>GEOPHYSICS</b>	<b>GEOCHEMISTRY</b>	<b>DEVELOPMENTS &amp; DRILLING</b>	<b>RESEARCH &amp; ASSESSMENT</b>
A geological mapping (regional)	G Aerial Surveys)	T (No. of samples)	f costeaning/pitng	n environmental studies
B geological mapping (detailed)	H gravity	U unknown	g underground (shale/salts)	o feasibility studies
C geological reconnaissance	I magnetic	V <20	h diamond core/drilling	p geostatistics
D landcat	J radioactivity	W 20-50	i percussion drilling	q literature reviews
E photography	K (Ground Surveys)	X 51-100	j rotary drilling	r metallurgical studies
F photlog/interography	L ENA/TM	Y 101-200	k reverse circulation drilling	s mine design
	M gravity	Z >200	l auger drilling	t mineral processing
	N IP & EP	a pan concentrates	m bucket drilling	u ore reserves/resources
	O magnetic	b rock chip		v hydrogeological studies
	P radioactivity	c soil		
	Q resistivity	d stream sediment		
	R seismic	e chemical assay results		
	S downhole logging			

**Appendix V – Legend of Geologic Units Occurring  
in and around the EPM**


## Legend of Geologic Units used in Maps

**Note:** Figures 14 and 15: Geological legends and age relationships diagram shown below for the geologic maps covering the White Mountain area.

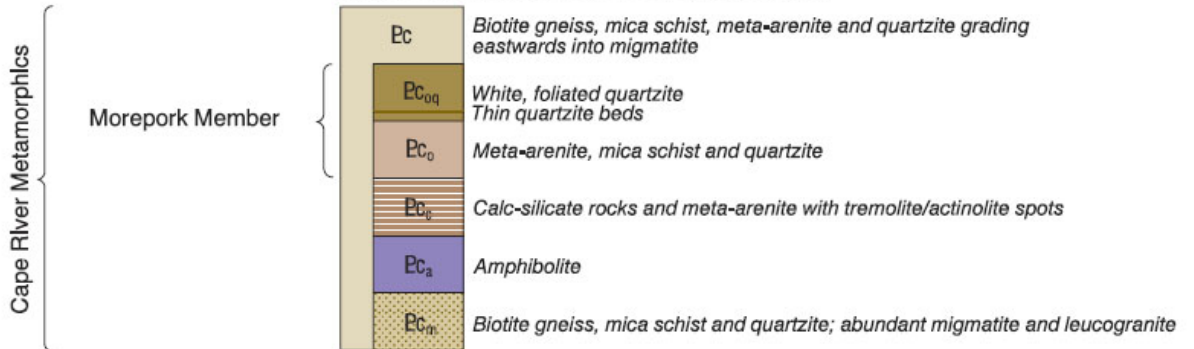
PALAEOZOIC		<b>LATE PERMIAN</b>	
	Betts Creek beds	Pb	<i>Lithic to quartzose sandstone, micaceous siltstone, conglomerate, mudstone, carbonaceous shale and coal</i>
		<b>LATE CARBONIFEROUS TO PERMIAN</b>	
	Deep Water Creek Granophyre	Pg <sub>d</sub>	<i>Pink miarolitic granophyre</i>
		bx	<i>Brecciated quartzite and meta-arenite, ranging from crackle-breccia to clast-in-matrix breccia</i>
		CPv	<i>Brown, grey to purple, generally crystal-rich rhyolitic ignimbrite ( in north ); lithic-rich dacitic tuff and breccia with abundant basement-derived lithic clasts, minor rhyolitic ignimbrite</i>
	Gypsy Pocket Granodiorite	Pgg	<i>Grey hornblende-biotite granodiorite</i>
		CPir	<i>Intrusive rhyolite and minor dacite; aphyric to porphyritic and locally flow-banded</i>
		CPg	<i>White to pale grey, medium-grained biotite granodiorite</i>
		<b>SILURIAN TO DEVONIAN</b>	
	Grasstree Leucogranite	SDgg	<i>Pink to white muscovite, garnet, leucogranite, pegmatite, aplite; commonly forming layered complexes and dykes</i>
	Davey Creek Granite	SDgav	<i>Pink to grey, medium-grained, slightly porphyritic, muscovite-biotite granite</i>
		SDg <sup>a</sup>	<i>Pink, medium-grained, muscovite leucogranite</i>
		SDg	<i>Mainly biotite and muscovite-biotite granite</i>
Baby Granodiorite	SDgby	<i>Foliated pinkish-grey to greenish-grey, sparsely porphyritic muscovite-biotite, biotite-muscovite and garnet-biotite-muscovite</i>	
Blg Bore Granodiorite	SDgbg	<i>Grey, medium-grained, porphyritic biotite granodiorite</i>	
Bubbling Granodiorite	SDgbu	<i>Foliated white to pink, medium-grained, porphyritic muscovite-biotite and biotite-muscovite granodiorite and granite, with equant pink alkali feldspar phenocrysts to 1 cm, quartz and muscovite to 6 mm; common biotite-rich schlieren</i>	
Cargoon Granodiorite	SDgca	<i>Grey, medium-grained, porphyritic hornblende-biotite granodiorite to tonalite with scattered phenocrysts of plagioclase to 1.5 cm</i>	

Hogg Granodiorite		<i>Intensely foliated buff to grey medium to coarse-grained, subequigranular garnet-biotite-muscovite granodiorite</i>
Mistake Granodiorite		<i>Foliated grey to buff-grey, porphyritic muscovite-biotite granodiorite, with common alkali feldspar phenocrysts to 3 cm</i>
Strathay Granite		<i>Foliated, pinkish-grey, porphyritic biotite granodiorite with scattered alkali feldspar phenocrysts to 1 cm</i>
Upland Granodiorite		<i>Foliated, grey, pinkish-grey, porphyritic muscovite-biotite granodiorite with common alkali phenocrysts to 4 cm</i>

**CAMBRIAN TO ORDOVICIAN**

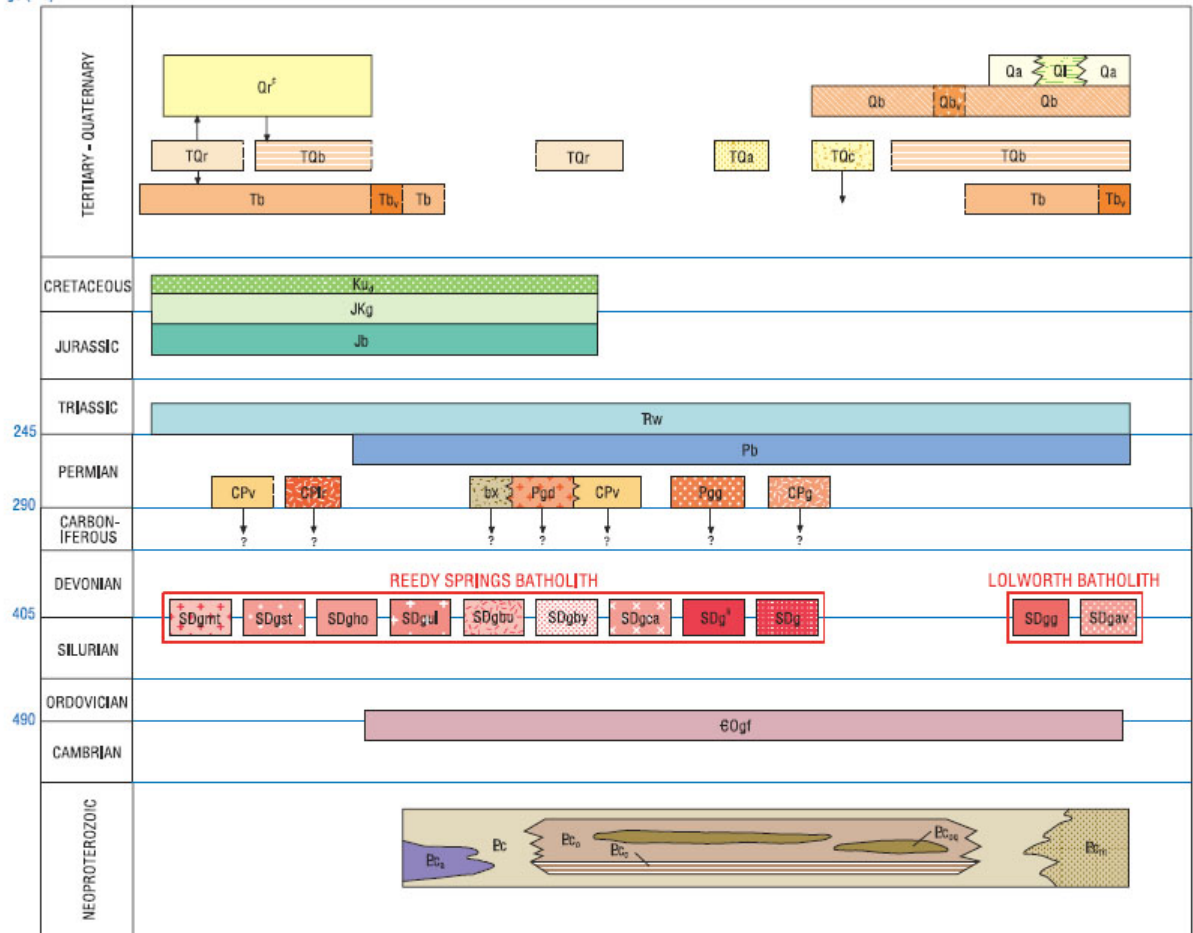
Fat Hen Creek Complex		<i>Foliated, melanocratic biotite, tourmaline-biotite and hornblende-biotite tonalite to granodiorite with gneiss and calc-silicate xenoliths; grading into migmatite</i>
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**NEOPROTEROZOIC OR CAMBRIAN**







Age (Ma)

**SCHEMATIC DIAGRAM**



Age in million of years (Ma), Phanerozoic Time Scale, 1994

**EXPLANATION**

-  Conformable relationship  
Unit appears elsewhere in diagram
-  Facies variant
-  Intrusive unit; V points towards older unit where known
-  Possible age range younger or older

In the schematic reference, rock units are shown in their stratigraphic relationships to one another. The height of a box suggests its age range which is based on palaeontological data, or isotopic age in the case of intrusive units and volcanic units. As many intrusive units occur over much of the batholith, no attempt has been made to display their geographic relationships.

**Appendix VI – Field Photos**  
(on the White Mountain Tenement)



**General Vicinity of Bradley's Jubilation Mine Workings (Dr. Beams and Mr. Campbell)**



**Clements Copper Mine Workings**



**Altered Sulphide Vein Showing Malachite (Green)**  
(<http://en.wikipedia.org/wiki/Malachite>)





**Edward Mine Workings (Showing altered sulphide vein – above)**





**Aerial View of Central Area of Tenement (looking southeast)**



**Aerial View of Central Area of Tenement (looking southwest)  
(Flinders River on upper right)**



**Flinders River in Flood Stage in areas (Looking South)**

**Appendix VII – Classification of Gold Deposits  
in the  
Lolworth- Ravenswood Province  
(from Terra Search Pty Ltd.)**

ERA	PERIOD OR EPOCH	ROCK UNIT NAME OR SYMBOL	RELATIONSHIPS	STRUCTURAL / DEPOSITIONAL ENVIRONMENT	REMARKS	
CENOZOIC	QUATERNARY	Qz	Superficial	Alluvium	Main source of underground water	
		Seilheim Formation Qe	Superficial	Probably high level deposits of the ancestral Burdickin River. Environment possibly lacustrine	Silicified wood locally abundant. Possibly of Pleistocene age (Wyett et al., 1965, 1969, 1987 and to press)	
	EARLY TERTIARY	Tl				
		Tu				
	UPPER CARBONIFEROUS OR LOWER PERMIAN	C-P3	Intruded Ravenswood Granodiorite Complex and C-P3c			Resembles C-P2 phase of Tuckers Igneous Complex
		C-P2	Intrudes C-Pb1 with strong shearing at contact. Intruded by C-P3		Epizonal composite stock	Resembles C-P1 phase of Tuckers Igneous Complex
		C-P1	Intrudes Ravenswood Granodiorite Complex and Carboniferous volcanics (Cv)			Possibly magmatically related to C-P2 and C-P3 phases
		C-P4	Intrudes all other phases of Tuckers Igneous Complex			Small dykes and veins. Other small masses marginal to the complex
		C-P3	Intrudes C-P1 and C-P2. Intruded by C-P4			Y-shaped sheet intrusion
		C-P2	Intrudes Ravenswood Granodiorite Complex and Carboniferous Breccia (Cv) Intruded by C-P3 and C-P4		Epizonal composite stock	
		C-P1	Intrudes Ravenswood Granodiorite Complex and Carboniferous volcanics (Cv). Intruded by or possibly gradational to C-Pc			Calibro similar to gabbroic rocks (O-Dd) of doubtful age which form small masses throughout the Ravenswood Granodiorite Complex
		C-Pc	One stock intrudes the Mt Windsor Volcanics. A twofold intrusion in the north east of the area (in which C-Pe1 intrudes C-Pg) intrudes the		Epizonal stocks	
C-Pg						
C-Pe1		Overlie or intrude the Ravenswood Granodiorite complex. Intruded by the Boori and Tuckers Igneous Complexes		Extrusives and associated intrusives	Not appreciably folded. Gold mineralization in intrusive breccia at Mt Wright	
UPPER CARBONIFEROUS	Cv					
	Cur					
U. SILURIAN OR L. DEVONIAN	S-Db	Intrudes Ravenswood Granodiorite Complex (O-D)		Post-tectonic intrusion	Associated copper and molybdenum mineralization at Keat's prospect. Isotopic age 394 to 30 m.y.	
	S-Dg	Intrudes S-Db		Differentiate of S-Dc	Numerous associated micro-granite dykes	
PALAEOZOIC	O-Da	Small separate unnamed intrusions. Some intrude the Mt Windsor Volcanics, others O-Dr and some O-Dg		Late stage differentiates	Small granitic masses related to the O-Dg / O-Dk period if intrusions	
	Kirkles Granite O-Dk	Intrudes O-Dr		Late stage differentiate	Lower intrusive contacts mostly gently dipping. Gold mineralization at Kirk	
	Millaroo Granite O-Dj	Intrudes Kirk River beds O-Dr, O-Dg. Intruded by breccia (Cv) at Mt Wright		Late stage differentiate	Contact shallowly or moderately dipping. Intruded by numerous dykes. Isotopic age 454 +/- 30 m.y.	
	Mosgardes Adameilite O-Dm	Intrudes O-Dr, probably intrudes O-Dg, but shearing obscures relationship; intruded by micro granite and micro diorite dyke		Possibly a contaminated differentiate	Southern contact flatly dipping beneath O-Dr. Minor associated gold mineralization. Isotopic age 454 +/- 30 m.y.	
	O-De	Intrudes O-Dr, intruded by granite dykes related to nearby O-Dn mass, and by Tuckers Igneous Complex		Possible differentiate	No known associated mineralization	
	Glenell Granodiorite O-Dg	Intrudes O-Dr			Minor associated gold mineralization. Isotopic 454 +/- 30 m.y.	
	O-Dr	The initial and most widespread phases of the complex			Host to almost all Au, Ag, Mo, Cu mineralization. Isotopic ages of 454 + 30 and 394 + 30m.y. (See Appendix)	
	Kirk River Beds	Intruded by Millaroo Granite		Poorly sorted, graded bedding and unidirectional structures	Gold mineralization at Bankers Hill in Townsville 1,250,000 sheet area	
	Cape River beds	Root pendant in main granodiorite phase of Ravenswood Granodiorite Complex (O-Dj)			Contact with main granodiorite phase (O-Dj) moderately dipping	
	Cambrian Ordovician	Mount Windsor Volcanics C-Ow	Intruded by O-Dr, O-Dg, O-Dn, C-Pg. Contact with O-Dr generally faulted		Gold mineralization at Brookville and at various points in Kobery Range	

Stratigraphic Column with Classification of Gold Deposits in the Lolworth-Ravenswood Province from Metals (1986)

**Appendix VIII - Curriculum Vitae for:**

**Michael D. Campbell, P.G., P.H.**

**and**

**Jeffrey D. King, P.G.**

## Curriculum Vitae

**Michael D. Campbell, P.G., P.H.,**  
Vice President and Chief Geologist/Hydrogeologist  
**I2M Associates, LLC**  
<http://www.I2MAssociates.com>  
Houston Office

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Cell Phone: 713-248-1708  
Fax: 713-807-0985  
Email: mdc@I2MAssociates.com

### Education

1976, M.A., in Geology and Geophysics, Rice University under an *Eleanor and Mills Bennett Fellowship in Hydrology* for Research and Seminars in Hydrogeology and Associated Disciplines. 31 Graduate Hours Toward Ph.D., Houston, TX, Thesis: *Paleoenvironmental and Diagenetic Implications of Selected Siderite Zones and Associated Sediments in the Upper Atoka Formation, Arkoma Basin, Oklahoma-Arkansas*, 124 p. (Continuing Research)

1966, B.A., in Geology, The Ohio State University with Courses and Research in Hydrology, Hydrogeology and Associated Environmental Programs. German Secondary Field of Specialty, Columbus, OH. Began college in 1960 in southern California (at San Bernardino Valley College), taking undergraduate courses including: geology, chemistry, engineering drawing, etc. Transferred to OSU in 1962.

### Professional Memberships / Affiliations

Association of Ground Water Scientists and Engineers (AGWSE)  
American Association of Petroleum Geologists (Emeritus)  
(Div. of Environmental Geosciences & Energy Minerals - Founding Member, 1977)  
Society of Economic Geologists (SEG-Fellow)  
Society of Mining, Metallurgy, and Exploration (AIME-SME Registered Member)  
Geological Society of America (GSA-Fellow)  
Association of Geoscientists for International Development (AGID)  
Houston Geological Society (HGS)  
Association of Environmental & Engineering Geologists (AEEG)  
International Association Hydrogeologists (IAH)  
American Institute of Hydrogeologists (AIH)  
American Institute of Professional Geologists (AIPG)  
International Society of Environmental Forensics (ISEF)

Texas Association Professional Geoscientists (TAPG)

### **Professional Certification / Registration**

Professional Geologist (AIPG-#3330)  
Professional Hydrogeologist (AIH-#480) (Recertification-2004)  
Professional Geologist (Wyoming-#546)  
Professional Geologist (Mississippi-#347)  
Professional Hydrogeologist (Washington-#866)  
Professional Geologist (Washington-#866)  
Professional Geoscientist (Texas-#53)  
Professional Geologist (Alaska-#606)  
Registered Member – (SME -#479440RM)

### **Professional Honors, Awards and Committees**

Who's Who in the Southwest (First Listed: 18th Edition - 1982, etc.)  
Who's Who in America (First Listed: 49th Edition - 1995, through 58th Edition for 2004)  
Who's Who in Technology (1982, etc.) Listing: (see CV)  
American Men & Women of Science Listing (here) (1st Listed: 14th Ed. -1979, etc.)  
Men of Achievement (International) (First Listed: 10th Edition - 1984)  
American Institute of Professional Geologists (1975, etc.)  
American Institute of Hydrology (1984, etc.)  
Ohioana Book Award in Science (1975)  
Citation by Law Engineering as Corporate Hydrogeologist (1990)  
Citation by Class of the Institute of Environmental Technology (1992 & 1994)  
Public Service Award - Outstanding Contributions, Texas Section, AIPG (1998)  
Chairman, Environmental & Mining Sessions, AIPG Annual Mtg, Houston, Tx, Oct., 1997  
Chairman, Internet Committee, Texas Section, AIPG (1998-Present)  
Chairman, Internet Resources Committee, Texas Section, AEG (2003-Present)  
Shlemon Mentor Hall of Fame in Applied Geoscience, GSA Mtg., Texas A&M U., March 16, 2004. Poster at GSA Mtg., Denver  
Fellow, Geological Society of America, April, 2004  
Distinguished Alumni Hall of Fame: LHS59.org  
Mann Mentor in Hydrogeology, GSA South-Central Section Mtg., Trinity U., April 1, 2005  
Chairman, Uranium Committee, EMD-AAPG (2004-Present)  
President (2010-2011), EMD-AAPG  
Registered Member, Society for Mining, Metallurgy & Exploration (SME)  
Fellow, Society of Economic Geologists (SEG)

### **Continuing Professional Education / Training**

Mr. Campbell has attended, presented papers, or served as session chairman in the following technical conferences. He has also maintained the appropriate certifications in health and safety training. Click [here](#) to review.

## Career Summary

Mr. Campbell is well-known nationally and internationally for his work as a technical leader, program manager, consultant and lecturer in hydrogeology, mining, and associated environmental and geotechnical fields. He has gained a wide range of interdisciplinary experience in business and technical management in the environmental (regulatory, geological and hydrogeological), mining, and financial fields spanning more than 40 years.

Mr. Campbell has published widely, most notably: *Water Well Technology* (McGraw-Hill) and *Rural Water Systems Planning and Engineering Guide* (Commission on Rural Water). In the mid to late 1970's, he served on the Editorial Board of the journal: *Ground Water* for eight years and served as cofounder and first Director of Research of the NWWA Research Facility at Rice University. In the late 1970's, he also produced the text: *Geology [and Environmental Considerations] of Alternate Energy Resources* (Houston Geological Society) and many other publications and consulting reports over the years on a variety of applied hydrogeologic, geologic, mining, and injection well and hazardous waste subjects. He maintains an extensive library of more than 300,000 citations on environmental and mining topics covering the U.S. and overseas.

Mr. Campbell interrupted his graduate studies after the master's degree (Ph.D. work at Rice University in 1976) to join a major engineering and environmental consulting company as Director, Alternate Energy, Mining and Environmental Programs. During this period, he also served as an invited technical expert and lecturer for UNESCO-sponsored water-supply projects conducted in many parts of the world (e.g., Sweden, Italy, India, Tanzania, Brazil, etc.). Mr. Campbell provided management consulting for a mining project in Nevada (with revenues/expenses of more than \$8 million/year) and as a principal consultant for exploration, mining, processing/refining and environmental activities. Over the past 15 years, Mr. Campbell has provided senior technical guidance, review, training, litigation support and consultation on numerous hydrogeological, water supply, and hazardous waste projects involved in both RCRA and CERCLA programs for major law firms and consulting engineering and environmental companies as well as industry.

## Chronological Professional Experience

During the mid to late 1960's, after graduating from The Ohio State University, Mr. Campbell worked for a major American oil and minerals company (Conoco Mining Group) in Australia

and Southeast Asia, successfully conducting / managing field exploration programs, drilling operations, and water-supply investigations for development projects involving industrial and energy minerals, and precious and base metals (discovery credited for phosphate in the NT). In the late 1960's to early 1970's, after returning to the U.S., he served three years as District Geologist for the Eastern U.S. and Canada with a major uranium exploration and mining company in Wyoming (Teton, Div. United Nuclear). While there, he conducted research on hydrochemistry associated with roll-front uranium occurrences and successfully applied the results to the company's field program nationwide with new prospect areas in the Eastern U.S., (reported on in a chapter in the 1977 HGS text on frontier uranium exploration).

During the 1970's, Mr. Campbell subsequently conducted various exploration programs as a consultant in the U.S. for companies such as Texas Eastern Nuclear (U.S. and Sudan), General Crude Oil Company (Div. International Paper) for lignite and other commodities on targets ranging from uranium, rare earth minerals, sulfur, industrial minerals to base metals and precious metals. During 1974-1977, he was awarded a Mills Bennett Fellowship to Rice University, where he subsequently received a Master's degree in geology, and during which he managed a major uranium and rare-earth exploration project in Alaska.

In 1983, Mr. Campbell and two associates from the Canadian group, WGM, Inc., formed a consulting firm and conducted numerous domestic and international geologic, mining, economic, and hydrogeologic investigations, including mineral property valuations and exploration programs (rediscovery credited), mine operational and financial management projects, via mineral-reserve analyses, preliminary feasibility studies, environmental investigations of various types, and other geotechnical investigations.

During the early 1990's, Mr. Campbell served as Regional Technical Manager for DuPont, and after a few years opened a private practice providing consulting services on a range of natural resources for industry and the legal community, and as an expert witness in more than 40 cases. Actual activities can be monitored by reviewing his list of publications and reports.

In the early 2000s, Mr. Campbell was appointed as Chairman of the AAPG Energy Minerals Division (EMD) Committee on Uranium (and Nuclear Minerals), a position he continues hold. In 2009, he was subsequently elected President of the EMD and has recently completed his term (2010-2011).

In 2010, after some 17 years operating a private practice via M. D. Campbell and Associates, L.P., he joined I2M Associates, LLC based in Seattle with an office in Houston for the purpose of developing projects as a result of the renewed interest in world-wide exploration and development of mineral commodities and the associated environmental issues.

Mr. Campbell's current CV, including all publications /presentations /reports, is included in the link: <http://i2massociates.com/michael-d-campbell-pg-ph-curriculum-vitae>

### **Recent Mineral Publications / Presentations / Major Reports:**

Selected professional publications / presentations / major reports of the past 10 years are listed below:

Campbell, M. D., and M. A. Wiley, 2011, "Uranium and Nuclear Minerals," in *Unconventional Energy Resources: 2011 Review* by the Energy Minerals Division, American Assoc. Petroleum Geologists, *Journal of Natural Resources Research*, Vol. 20., No. 4, December, pp. 279-328. ([Paper](#), pp. 311-328).

Campbell, M. D., and J. D. King, 2011, "Iron Glen Project: Northeast Queensland, Australia," Competent Persons Report (CPR) / N 43-101 Report for Iron Glen Mining Pty Ltd., Allenby Capital Limited and Strategic Minerals plc, London, England, by I2M Associates, LLC, Houston and Seattle, May 2, 199 p.

Campbell, M. D., 2011, "State of the Uranium Industry in the U.S. & the World: Updated - 2011," Presented at the April Meeting of the Ohio Geological Society, Ramada Plaza Hotel & Conference Center, Columbus, Ohio, April 21, ([PDF](#)).

Wise, H. M., and M. D. Campbell, 2011, "State of the Uranium Industry in the U.S. and the World," AAPG Conference and Exhibition, Houston, EMD Session, April 12. ([PDF](#)).

Campbell, M. D. and H. M. Wise, 2010, "Uranium Recovery Realities in the U.S. - A Review," Invited Presentation for the Dinner Meeting of the Houston Geological Society's Engineering and Environmental Group, May 18, Houston, Texas, 51 p. ([Click here](#)).

Campbell, M. D., J. D. King, H.M. Wise, B. Handley, and M. David Campbell, 2009, "The Role of Nuclear Power in Space Exploration and the Associated Environmental Safeguards: An Overview," Report of the Uranium Committee, Energy Minerals Division to the Astrogeology Committee of AAPG. Presented at the Conference of the AAPG-Energy Minerals Division and Astrogeology Committee Sessions, June 8-10, held in Denver, CO. ([Click here](#)).

Campbell, M. D., B. Handley, H. M. Wise, J. D. King, and M. David Campbell, 2009, "Developing Industrial Minerals, Nuclear Minerals and Commodities of Interest via Off-World Exploration and Mining," Paper/Poster at the Conference of the American Association of Petroleum Geologist (AAPG), Energy Minerals Division Sessions, June 9, Denver, CO., 27 p. ([Click here](#)).

Campbell, M.D., and J. D. King, 2009, "AusPotash Corporation: Adavale Basin Potash, Queensland, Australia," 43-101 Report, by M. D. Campbell and Associates, L.P., Houston, July, 113 p.

- Campbell, M. D., 2009, "Uranium," in *Unconventional Energy Resources: 2007–2008 Review*, Energy Minerals Division, American Association of Petroleum Geologists, of the *Journal of Natural Resources Research*, Vol. 18., No. 1, January. (Uranium section in [Paper](#)).
- Campbell, M. D., *et al.*, 2008, "Nuclear Fuel Exploration, In Situ Recovery, and Environmental Issues in context with the National Energy Needs through Year 2040," *Proc. Texas Commission of Environmental Quality Conference and Trade Fair*, Session: "Underground Injection Control," Invited Paper, Austin, Texas, April 30, 2008 ([Click here](#)).
- Campbell, M. D., *et al.*, 2008 "The Nature and Extent of Uranium Reserves and Resources and Their Environmental Development in the U.S. and Overseas," AAPG – Energy Minerals Division Conference, April 23, 2008, Session: "Uranium Geology and Associated Ground Water Issues", San Antonio, Texas ([Click here](#)). Updated and published in AIPG's *Professional Geologist* in 2009 ([here](#)).
- Campbell, M. D., *et al.*, 2007, "Uranium In-Situ Leach Development and Associated Environmental Issues," *Proc. Gulf Coast Geological Societies Conference*, Fall, Corpus Christi, Texas, 17 p. PDF Version: ([here](#)).
- Campbell, M. D., 2007, "Pressure on the Electrical Grid and 3rd Quarter, 2006 Uranium Concentrate Production", in *Unconventional Energy Resources and Geospatial Information: 2006 Review*. The American Association of Petroleum Geologists, Energy Minerals Division, *Natural Resources Research*, Vol.16., No. 3, September. ([Paper](#)).
- Campbell, M. D. and M. David Campbell, 2005, "Uranium Industry Re-Development and Expansion in the Early 21st Century: Supplying Fuel for the Expansion of Nuclear Power in *the U.S., The Environment vs. The Paradigm*," Rocky Mountain Natural Gas Strategy Conference & Investment Forum, Session 1, Presented by Colorado Oil & Gas Association, August 1-3, Denver, Colorado, 44 p.
- Campbell, M. D., *et al.*, 2005, *Recent Uranium Industry Developments, Exploration, Mining and Environmental Programs in the U.S. and Overseas*, Energy Minerals Division, AAPG, Uranium Committee 2005 Report, March 25, ([here](#)).
- Campbell, M. D., 2004, Professional Memorial: Ted H. Foss, Ph.D., P.G., Geological Society of America Memorials, Vol. 33, April, pp. 17-22. ([here](#)).
- Campbell, M. D., 2004, Preliminary Examination of Mineralogical Samples from Rwanda, April 24, 32 p. (Confidential Client from Rwanda).

### **Historical Mineral Publications / Presentations / Major Reports:**

Those publications/reports of historical interest (1968 to 1996) are presented via a link, click [here](#).

## Curriculum Vitae

### Jeffrey D. King, P.G.

President and Senior Program Manager

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Email: [JDKing@I2MAssociates.com](mailto:JDKing@I2MAssociates.com)

### Education

1979, B.A. in Geology, Western Washington University, WA

### Summary of Experience

Mr. King has over 25 years of technical and managerial experience in the natural resource field. Mr. King has extensive experience in developing successful regulatory- and landowner-negotiation and public-relations programs, has conducted or directly managed all aspects of site permitting, and has been involved in the financial and technical evaluation of mining properties for a major mining company and other projects. He has also founded, developed and operated two successful companies. He is licensed as a Professional Geologist in the State of Washington (#1727) and a member of the Society of Mining, Metallurgy and Exploration (SME).

### Mining Experience

Mr. King developed mining process expertise in the late 1970's and early 1980's. During this time he worked for Companies such as Bethlehem Copper, Union Oil (MolyCorp) and the mining consulting firms for Watts, Griffis and McOuat and Campbell, Foss and Buchanan, Inc. including gold mining and gold placer evaluation in the lower states and in Alaska. In 1984, Mr. King was named mine manager of a gold and silver mine in Nevada. He served in that capacity until 1986 when he was named Vice President of Operations.

Selected technical presentations on metals and potash by Mr. King are cited below:

Campbell, M. D., and J. D. King, 2011, "Iron Glen Project: Northeast Queensland, Australia," Competent Persons Report (CPR) / N 43-101 Report for Iron Glen Mining Pty Ltd., Allenby Capital Limited and Strategic Minerals plc, London, England, by I2M Associates, LLC, Houston and Seattle, May 2, 199 p.

Campbell, M. D., J. D. King, H. M. Wise, R. I. Rackley, and B. Handley, 2009 "The Nature and Extent of Uranium Reserves and Resources and Their Environmental Development in the U.S. and Overseas," AAPG – Energy Minerals Division 2008 Report, revised for publishing in AIPG's *The Professional Geologist*, Vol. 46, No. 5, September/October, pp. 42-51 - Peer Reviewed. ([Click here](#))

Campbell, M. D. and J. D. King, 2009, "AusPotash Corporation Project: Adavale Basin, Queensland, Australia, NI 43-101 Report, by M. D. Campbell and Associates, L.P., Houston and Seattle, July 8, 113 p. ([Click here](#)).

Campbell, M. D., J. D. King, *et al.*, 2008, "The Nature and Extent of Uranium Reserves and Resources and their Environmental Development in the U.S. and Overseas", *Proc. Conference of the American Association of Petroleum Geologists (AAPG), Energy Minerals Division*, April 23, San Antonio, Texas, 14 p. ([PDF](#)).

Campbell, M. D., H. M. Wise, and J. D. King, 2008, "Nuclear Fuel Exploration, In Situ Recovery, and Environmental Issues in Context with the National Energy Needs through Year 2040", *Proc. Texas Commission on Environmental Quality Conference and Trade Fair*, April 30, An Invited Presentation, Austin, Texas ([PDF](#)).

## Environmental Experience

Between 1990 and 1998 Mr. King worked for the DuPont Company directing environmental projects in Washington, Oregon, Alaska and British Columbia, Canada. In 1998, Mr. King formed Pacific Environmental and Redevelopment Corporation to focus on large-scale projects involving the redevelopment of formerly contaminated properties. In completing these projects, Mr. King has developed or managed a team of resources and associates with experience ranging from environmental sciences to master-planned community and golf-course construction.

One such environmental project managed by Mr. King involved the environmental clean-up of an industrial site south of Tacoma, Washington. Once the contaminants were removed, Mr. King oversaw the construction of a golf course followed by the construction of quality homes. The golf course was completed in 2006 and has just won the "Top Ten New Courses in the World" Award for 2007, given by *Travel and Leisure Golf Magazine* (See Announcement (CV)).

In late 1990, he served with M. D. Campbell and Associates, L.P. as a Senior Program Manager. In 2010, he formed I2M Associates, LLC and presently serves in a management role for the company as President and Senior Project Manager, and in a variety of other management functions, including corporate oversight, project management and assessment, property evaluations, and field investigations of mining and large environmental projects.

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