



**4 BASE METALS MEMORANDUM**

## MEMORANDUM

### Base Metal and Uranium Exploration Program 2006 - Recommendations

**To: Sam Randazzo**

**From: Wayne Taylor (WT) and Tim Boddington (TB)**

**Date: 21-January-2006**

Encouraging metal assays results were received in late 2005 from surface and drill hole samples in the Marqua and Field River areas. The results have been documented in the latest Quarterly and highlight the prospectivity of the area for base metals (Pb, Cu, Zn, Ag), nickel, cobalt, phosphate and uranium. In addition, two priority magnetic anomalies identified by Duncan Cowan (CWN-148 and CWN-169) remain untested. The nature of the rock units present, their anomalous metal content and the structural setting of the area suggest potential for the presence of an economic ore-body or ore-bodies, however, the exploration play should be regarded as largely a "greenfields" one and therefore high risk. A future exploration program needs to be focussed on locating a metal deposit or deposits of economic size preferably at relatively shallow depth <300m. The province is a polymetallic one in which more than one type of deposit style and commodity spread may be present.

The main targets or target areas are as follows (see also Figure 1):

- (a) Red Heart – Boat Hill Corridor: a belt of shallowly dipping Cambrian black shales, limestone and phosphorite which is juxtaposed against oxidised Neoproterozoic sedimentary units. The belt is about 30km long by 3 km wide, and has potential for Kupferschiefer-style mineralisation. Economic grades of phosphate have also been identified in surface samples and shallow drill holes along the corridor.
- (b) Field River Anticline Core: Pb-Cu-Ag mineralization is hosted in granite in the axial trace of the anticline. The main target area at Christmas Dam is about 5km by 2km in size.
- (c) Desert Syncline: A uranium anomaly in which one assay reported a near economic grade of uranium oxide has been identified in Red Heart Dolostone in the core of the syncline.
- (d) Mt Dobbie: Anomalous Pb-Cu-U is hosted in altered and ferruginous Mt Dobbie granite. The mineralization style appears similar to that in the Christmas Dam area. There is also iron oxide-copper-gold potential.
- (e) CWN-148: A bullseye magnetic anomaly is located at 250m depth at the western end of the Red Heart-Boat Hill Corridor. The anomaly is a potential iron oxide-copper-gold target.
- (f) CWN-169: The magnetic anomaly is located in a structurally favourable position on the Adam Fault east of Desert Syncline. The anomaly is a potential iron oxide-copper-gold target.
- (g) Boxhole Pb Deposit: An untested aerial magnetic anomaly is located in a 2km by 1km area just north of old Pb mining pits. MVT mineralisation is the primary target in this area.
- (h) Hydrothermal alteration zones / quartz vein systems in Marqua and Field River areas have yielded anomalous Cu and Au. Gold exploration would require a different exploration approach compared to base metals.



Because the area is large and much of it is under shallow sand cover both WT and TB agreed that the only practical exploration method to identify a significant sulphide body is to use electromagnetic (TEM) and electrical (IP) geophysical methods. The TEM (time-domain electromagnetic) method is able to distinguish any large interconnected sulphide bodies and distinguish them from other conductive units such as black shales or saline ground waters. The IP (induced polarization) method is able to identify any disseminated (i.e. poorly interconnected) conductive mineralization.

Drilling of random traverses across the stratigraphy would be very much a “hit and miss” strategy only likely to produce similar results to those already obtained to date. Surface geochemistry would be unreliable due to the sand cover and would be unlikely to identify a blind ore body.

However, broad spaced bedrock drilling, in conjunction with appropriate surface sampling methods, should be considered for gold exploration in prospective areas.

### **Specific Recommendations**

#### **Red Heart – Boat Hill Corridor and Field River Anticline Axis: Base Metals**

The recommendation for exploration of the Red Heart – Boat Hill Corridor and Field River Anticline Axis is to:

- (1) Fly an airborne TEM survey using the Fugro TEMPEST system, and
- (2) Following evaluation of the TEM survey results and discussion with Duncan Cowan, consider an IP survey across the Christmas Dam prospect area.

Note that we already have a quote for a TEMPEST survey (Fugro, October 2005), however we would have to expand the survey area 1 km or so to the south to cover the Field River Anticline in the Christmas Dam area perhaps by increasing the line spacing. There are already a number of untested conductive anomalies identified at Boat Hill by MIM in the 1990's. They represent stand-up drill targets. Figure 2 shows the preferred EM survey outline, which encompasses the salient target areas as well a realistic down-dip extent for potential Kupferschiefer mineralisation.

The quote for the TEMPEST survey (100m line spacing parallel to the strike of the stratigraphy) was:

- Mobilization-Demobilization: \$45,000 (this cost could be shared with other explorers wanting to do surveys in the Mt Isa area).
- Data Acquisition and Processing (474 line-km): \$77,700 (\$164 per line-km).
- Standby Rate: \$3,500 per day (e.g. in case of adverse weather conditions).

Total (excluding Standby costs) is \$122,700.

It would be best to undertake the survey later in the year, say May-June, to avoid weather problems. Also we would expect the Marqua Substitute EL application, which covers the Boat Hill – Red Heart Corridor to be granted in May.

We would also want Duncan Cowan to carefully monitor quality control during the survey and to assist with interpretation and targeting once results are received (this may cost about \$15K)

The IP (Induced Polarisation) survey would probably cost around the \$35K mark so all up we would probably be looking at spending around [\$160K??] assuming we can share mobilization costs.

#### **Red Heart – Boat Hill Corridor: Phosphate**

No specific recommendations have been made with regard to further exploration for phosphate mineralization. Because phosphate is a bulk commodity the economics of a phosphate mine are dictated by proximity to transport infrastructure (rail or main road). Although the Boat Hill area is located 250 km as-the-crow-flies from BHP's Phosphate Hill mine (south of Mt Isa), the road distance is 400 km and road



conditions are poor. In the event of discovery of a base metal deposit in the Boat Hill area the economics of mining a phosphate deposit may change. Elkedra's exploration efforts in the short term should therefore be directed towards discovery of higher value metal deposits. It should also be noted that the Boat Hill phosphorite does contain anomalous uranium and it may be worth flying detailed radiometrics as an add-on during the proposed Boat Hill TEM survey.

### **Desert Syncline Uranium**

The recommendation here is to undertake a systematic surface radiometric survey together with further rock-chip and soil sampling. A program of trenching (using a back hoe or similar) aimed at targeting specific anomalies could then be undertaken. To minimise heavy equipment mobilisation costs, the trenching could probably be done in conjunction with diamond mini-bulk sampling planned for the Cravens Peak area.

### **Mt Dobbie Cu-Pb and U**

Further surface radiometric surveying combined with rock-chip sampling is recommended. If the geophysical techniques proposed for the Christmas Dam area prove successful they could be applied in this area at a later date.

### **CWN-148 (located within Marqua tenement)**

A ground magnetic survey over the anomaly was completed in 2003. The anomaly will be included in the TEMPEST survey. An IP line could also be acquired across the anomaly if warranted. If the anomaly shows up as being conductive it would need to be tested by RC drilling or RC with a diamond tail.

### **CWN-169 (located within Field River tenement)**

A ground magnetic survey needs to be completed over the anomaly in the first field program of the year and then it should be assessed for follow-up by Duncan Cowan. Follow-up may include acquisition of an IP line.

### **Boxhole Lead Deposit**

Duncan would need to confirm the nature of the aerial magnetic anomaly identified by the NTGS. A ground magnetic survey should then be completed over the 1 x 2 km aerial magnetic anomaly. If the anomaly is confirmed an IP survey should be completed over the target zone to identify drill targets.

### **Hydrothermal Veins/Alteration Zones**

There are numerous polyphase hydrothermal quartz veins that cross-cut mainly Neoproterozoic rocks in the Marqua-Field River area. Some veins sampled by TB reported anomalous Au and Cu. Gold exploration presents a different set of problems and methods compared to base metals, but the EM survey might define some conductive zones related to potential gold mineralisation in the anticlinal axis. The main recommendation here is to process ASTER imagery (Satellite remote sensing data with some multispectral capability) to identify potential hydrothermal alteration zones. Such zones could then be the focus of systematic sampling programs followed by or including broadly spaced bedrock drilling later in the year.

### **Target Drilling**

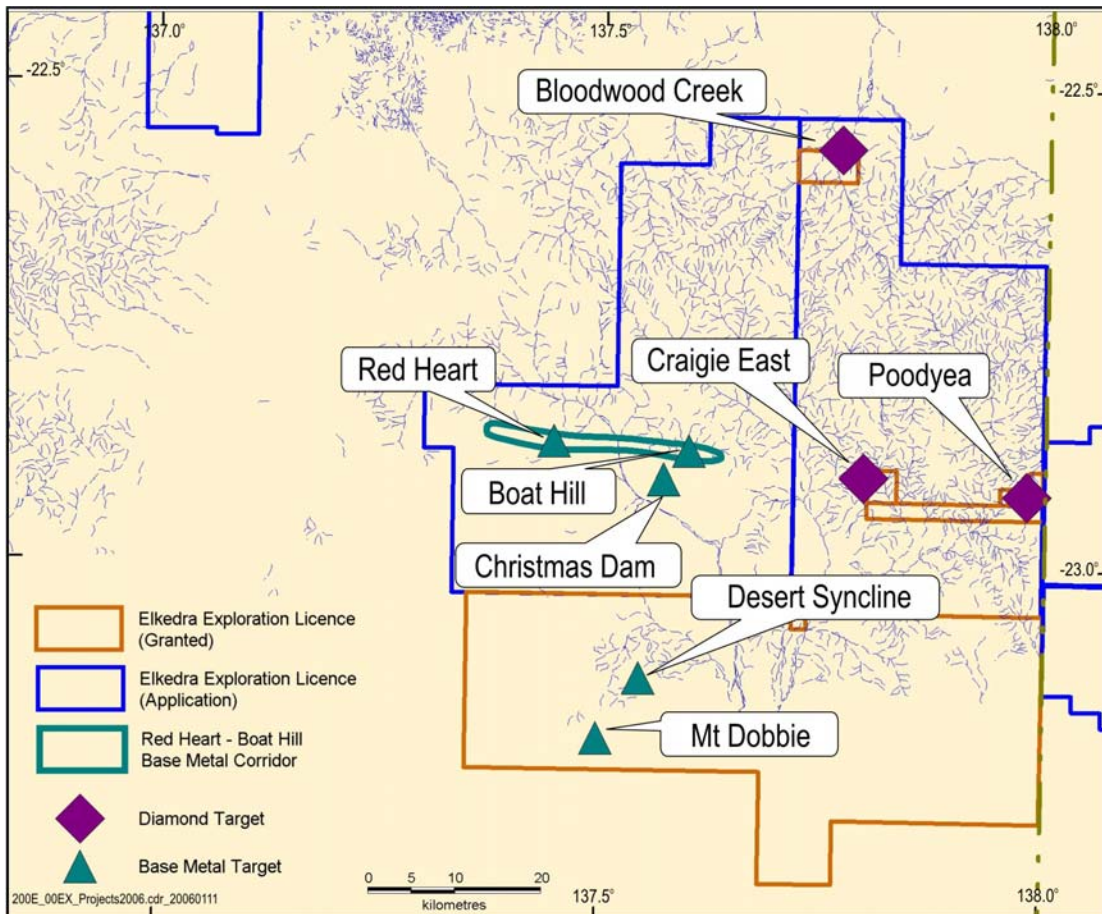
Once a series of targets has been identified they could be prioritized for a drilling program with a possible timing of August-October 2006.

While detailed costings and quotes would need to be obtained for all these programs we think about \$250K would need to be allocated for the geophysical testing and sampling program outlined above.

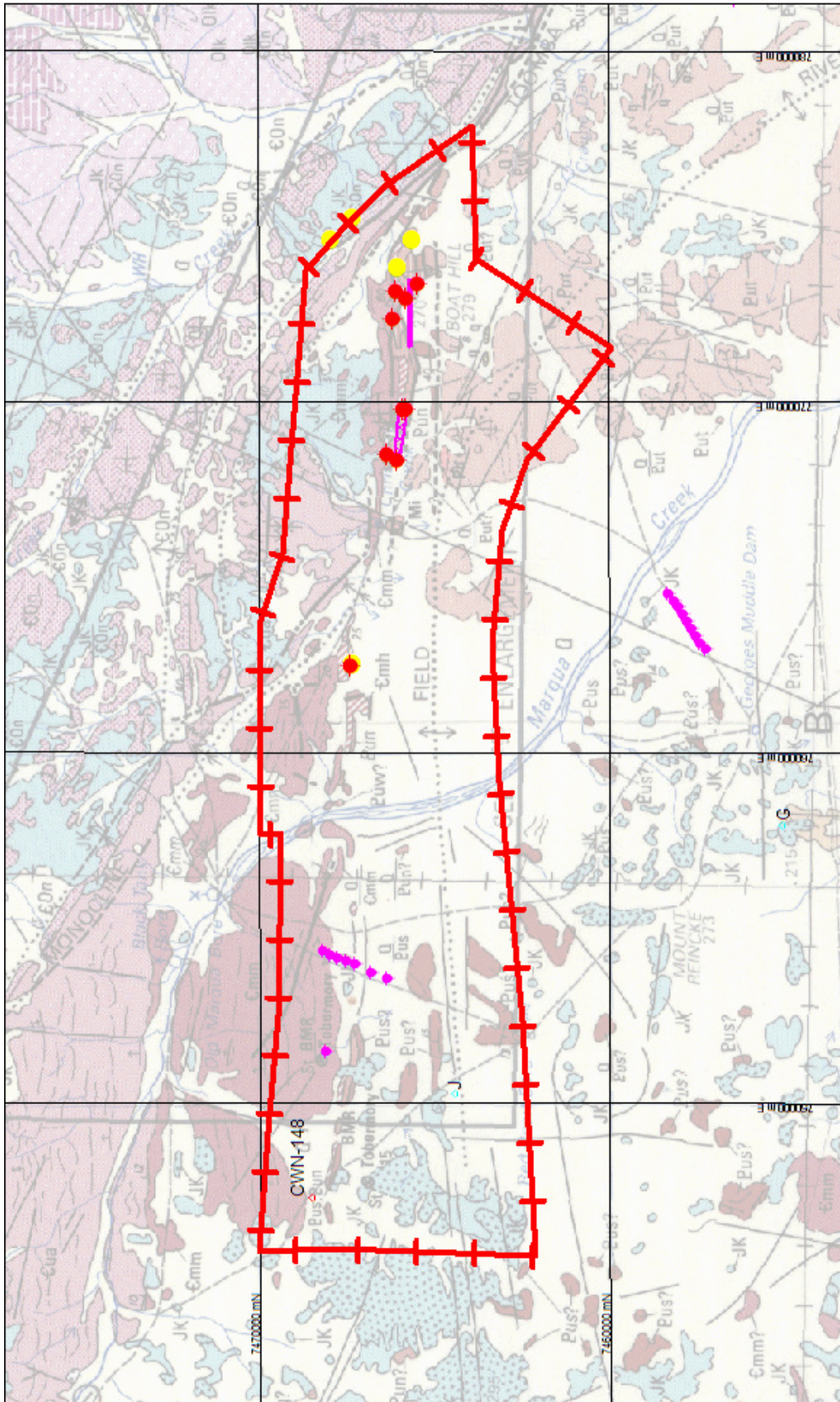


Depending on numbers and depths of targets a similar amount would probably be needed for the drilling program.

Wayne Taylor  
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21-1-06



**Figure 1.** Tenement outline showing granted tenements and applications in relation to base metal and diamond targets. The granted tenement in the south is Field River. The main base metal anomalies at Boat Hill and Christmas Dam are located on Marqua SEL, which is presently under application (due for grant in May 2006).



**Figure 2.** Preferred EM Survey Outline (approx. 30km x 7km). Boat-Hill Red-Heart Corridor (figure rotated 90 degrees, i.e. North direction to left).