Titleholder: Kajeena Mining Company Pty Ltd
Operator (if different from above): Teck Australia Pty Ltd
Tenement Manager/Agent: McColl Tenement Services
Titles/Tenements: EL 10383, 10385, 10386, 10387
Mine/Project Name: West Arunta
Report title including type of report and reporting period including a date: Combined annual report for period ending 1 September 2009
Personal author(s): Kalma AJ, Cawood MJ
Corporate author(s): Teck Australia Pty Ltd
Company reference number:
Target Commodity or Commodities: Copper, Gold, Nickel
Date of report: 6th November 2009
Datum/Zone: GDA94/Zone 52
250 000 K mapsheet: Mount Rennie, Mount Leibig
100 000 K mapsheet:
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Executive Summary

Exploration for the period was confined to tenements EL10383 and EL10385 due to delays in heritage clearances over 10386 and 10387. Desktop targeting using published geology, regional airborne magnetics, radiometrics, Landsat TM and Aster data and sparse government rock chip data resulted in the generation of 59 anomalies which were ranked for field testing. On tenements EL10383 and EL10385, 164 float, 63 calcrete, 61 lag and 323 vegetation samples were collected in late 2008 with assays received in January 2009.

The results were assessed and in late August 2009, 6 areas were revisited from which anomalous copper and nickel is reported. 472 Niton field portable XRF readings and 7 float samples were collected. Results included Ni readings up to 2500ppm and Cu readings up to 504ppm.

At the same time, heritage clearances were partially completed over tenements EL10386 and EL10387 with the expectation that field sampling will be possible in late 2009 or 2010.
1. Background
Teck Australia Pty Ltd is the operating partner of a joint venture with Kajeena Mining Pty Ltd. Negotiation over access to the JV tenement holdings since 2002 resulted in the grant of four tenements, EL’s 10383, 10385, 10386, 10387, on the 2nd of September 2008. Access to other tenements is discussed on a regular basis and to date no additional grants have taken place.

2. Location
The tenements are located approximately 270km W-NW of Alice Springs and extend non-contiguously to the Western Australian border, a further 220km as shown in Figure 1.

3. Regional Geology
A regional scale structure, the central Australian suture separates tenements 10383 (north) and tenements 10385, 86 and 87 (south). The southern region is known as the Warumpi Province, a 1690–1610 Ma accreted terrane, comprising metasedimentary, metavolcanic and metamorphosed plutonic rocks that abut the southern margin of the North Australian Craton (NAC).

The province is further separated into the Haast Bluff Domain of amphibolite facies and the Yaya Domain of granulite facies.
To the north of the central Australian suture lies the Aileron Province of which the basal succession comprises siltstones, quartz arenites, quartzo-feldspathic sandstones and minor greywackes. The succession is interpreted to form part of the broadly defined Lander Rock beds package, a flysch succession that is widespread over this area of the NAC. Intruding the Lander Rock beds at various ages are both mafic and felsic intrusive.

Figure 1a Proterozoic Geology; Tenements 10383, 10385
4. Previous Exploration

No previous base metal exploration has been undertaken over the tenements.

5. Targeting

Little is known of the metalogenic character of the area due to the absence of any previous systematic exploration. Mineralization styles which are targeted include IOCG Copper - Gold, Broken Hill Types and Nickel – Copper sulfides.

Desktop targeting involved the compilation and integration of a variety of data. Aster data was acquired for the area together with Landsat ETM+ to map Iron, clay and silica alteration. Regional airborne magnetics was used for structural targeting and for anomaly extraction and radiometrics assisted geological interpretation and anomaly detection. Mapped and interpreted 250K geology was also used.

Table 1 lists the data used in the study;

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**Landsat ETM+**

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**Geophysics**

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Table 1: Data acquired to support targeting.
Figure 2a Landsat ETM+ "AGSO1" classification of clay (R), iron (G) and silica (B). Several significant Fe anomalies are shown as A, B, C, D. Fire scars typically present as cyan. Structurally influenced clay and iron responses are visible at E and F as red and yellow.
Figure 2b Landsat ETM+ "AGSO1" classification of clay (R), iron (G) and silica (B). The scene boundary is evident in the far west of the image with the variation in scene statistics causing a shift in the color response. The clays through the centre of the image reflect either weathering or metamorphic processes associated with meta-sedimentary units of the Haasts Bluff domain.

Figure 3a and 3b Aster chlorite (R) – Illite (G)– Kaolinite (B) as RGB.
**Figure 3a** reveals a circular illite/kaolinite anomaly at (A) and further distinguishes the Landat clay anomaly as illite, suggestive of metamorphic processes.

**Figure 3b** Higher response features also correlate with the Landsat imagery, notably the mixed and seemingly fault bound response in the centre of the image.
**Geophysics**

**Figures 4a and 4b** shows the variable magnetic trend in this Reduced to Pole, Total Magnetic Intensity RGB Image.

**Figure 4a.** Mafic intrusive are interpreted in the image around (A) and are considered prospective for nickel. Convergence of the E-W central suture and a NW trending structure is evident at (B) and a sinistral fault trends NE at (C). The magnetic anomaly to the south of (C) is considered a prospective IOCG target.

**Figure 4b.** The low magnetic response represents the granulite facies Haasts Bluff Domain with the higher magnetic
response indicative of the Ya Ya metamorphics. Anomalies A and B are considered to have IOCG potential.

**Radiometrics**

**Figures 5a and 5b** show potassium, thorium and uranium radiometric response over the tenements. Variation in the regolith can be seen in the stream networks, dunes, subcrop and outcrop.

**Figure 5a** Interpreted “hot” granites are shown at A and B whilst a uranium anomaly along a NW trend is clearly evident at C. Thorium anomalies appear to correspond with outcropping granites and charnockites.
Figure 5b distinguishes large areas of dunes and likely aeolian sands interspersed by granites. A number of “hot” granites are also distinguished in white and the trend through the centre of the image suggests some structural influence. In the north east the variable response reflects the exposed or sub-cropping geology (granites, rhyolites & metamorphics).
Target Methodology

Anomalies for each of the input data layers were considered in combination, resulting in a target layer used to guide field planning and exploration.


October/November 2008
A sample plan was prepared based on light 4wd access targeting the collection of float, lag and calcrete samples. For heritage reasons, no use of rock hammers was permitted to sample insitu rock. Vegetation sampling was also considered a viable sampling technique in areas of relatively shallow soils and absence of other mediums. Soils are believed to be mostly transported, either aeolian or through sheet wash and are not considered a suitable sample medium.

Figure 6a Sample plan with 4WD planned routes based on anomaly (59) locations, proximity and access.
Figure 6b Testing the anomalous areas (El10386 & El10387) subject to heritage clearances are planned in late 2009 or 2010.
A field program was successfully completed during the months of October and November 2008, resulting in the collection of;

Figure 7; 2008 sample locations and proposed access routes.
Results

Appendix 1 comprises a full listing of assay results. In summary, sampling included:

1. 323 Vegetation samples (from detritus around the tree roots).
2. 63 calcrite samples.
3. 61 lag samples.
4. 164 float samples.

Figure 8 Gold ppb
Figure 9 Cu ppm

Figure 10 Nickel ppm
X areas were found worthy of additional review and were subject to additional sampling in September of 2009. The areas are shown in Figure 12.

**August 2009**

Six areas identified during the October/November 2008 field program were re-visited in August 2009 for detailed surveying with a Niton field portable XRF. 472 readings were collected over the six areas with the best results returning 1404 ppm Cu and 8204 ppm Ni. The locations of the Niton readings are shown in Figure 12.
Figure 12 August 2009 Niton sampled prospects

Three prospects requiring follow-up were identified;

“Gully”, a hematite breccia NW of Kintore is associated with a major NW-SE structure. The breccias are best developed to the NW with numerous breccia outcrops extending over approximately 500m x 150m within a quartzite unit. Minor native copper and malachite was observed with Niton readings of >1000ppm Cu. The structure extends SE under shallow cover for 2.5km where more breccia outcrops occur. Here the hematite is well developed but is generally <10m wide and weakens after a further 500m.

“Silly Mid On”, a highly weathered interpreted ultramafic southeast of Kintore outcrops for approximately 1000m x 300m. The ferruginous, vuggy outcrop returned up to 8200ppm Ni.

“Leg Gully”, a massive hematite unit NE of Kintore is located proximal to a major E-W trending structure hosted within micaceous schist. The E-W trending ironstone was observed on two traverses 1500m apart. The occurrences were up to 40m wide although the real dimensions are not known due to extensive shallow cover. Copper readings of >1000ppm were returned with the Niton.
7. References


Appendix 1

GR117-09_2009_GA_02_SurfaceGeochem.txt
Appendix 2

GR117-09_2009_GA_02_SurfaceGeochemNiton.txt