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## **YAMBLA PROJECT**

**ARUNTA REGION, N.T.**

### **ANNUAL TECHNICAL REPORT EL26142**

**For the period 18<sup>th</sup> February 2009 to 17<sup>th</sup> February 2010**

**Holder: Cullen Exploration Pty Ltd**

**Operator: Cullen Exploration Pty Ltd**

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- 1. Cullen, Perth**
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## 1.0 SUMMARY

EL26142 is centred ~ 140km ENE of Alice Springs in the Arunta Region.

During the first year of tenure, previous exploration of the area was reviewed in detail and a field reconnaissance review was completed.

EL26142 is considered prospective for vein-hosted and metasomatic uranium mineralization.

## 2.0 INTRODUCTION

Cullen acquired EL26142 as part of a push to gain prospective ground for uranium exploration in the Northern Territory.

## 3.0 LOCATION AND ACCESS

EL 26142, Yambla, is located ~ 140km ENE of Alice Springs (Figure 1).

| Tenement | Tenement Name | Holder | Granted    | Commitment | Area  |
|----------|---------------|--------|------------|------------|-------|
| EL26142  | Yambla        | Cullen | 18/02/2008 | \$150,000  | 11 BL |

## 4.0 REGIONAL GEOLOGY AND MINERALISATION

The NTGS geological description for the geological setting is as follows:

“The Arunta Region is a complex basement inlier in central Australia that has undergone a prolonged history of sedimentation, magmatism and tectonism extending from the Palaeoproterozoic to the Palaeozoic. The Arunta Region can be subdivided into the three, largely fault bounded terranes with distinct geological histories: the Aileron, Warumpi and Irindina Provinces.

The Aileron Province comprises greenschist to granulites facies metamorphic rocks with protolith ages in the range 1865-1710 Ma. It forms part of the North Australian Craton and is geologically continuous with the gold-bearing Tanami and Tennant Regions to the north. In contrast, the Warumpi Province comprises amphibolite to granulite facies rocks with protolith ages in the range 1690-1600 Ma, and is interpreted to be an exotic terrane that accreted to the southern margin of the North Australian Craton at 1640 Ma.

The Irindina Province in the Harts Range region comprises Neoproterozoic to Cambrian metasediments that formed in a major depocentre within the Centralian Superbasin. It underwent high-grade metamorphism and deformation during Ordovician (480 - 450 Ma).

Several sub-economic occurrences of copper-lead-zinc, gold, tin, tungsten, tantalum, mica, nickel, chromium and semi-precious stones are known from the Arunta Region. There is significant potential for gold in the northern and western Aileron Province adjacent to the Tanami Region, and untested base metal potential in the Warumpi Province.”

## 5.0 REVIEW OF PREVIOUS EXPLORATION - EL26142

The location of competitor ELs and regional geology is shown in Figure 2.

Extensive exploration for uranium and other minerals has been carried out by PNC (CR1996-0286) and others. The locations of prior ELs in the vicinity of EL25716 and 26142 are shown in Figures 3a-3d, and the location of drill holes by prior explorers is shown in Figure 4.

**TABLE 2: Prior tenement holders in the general area of EL25716**

| EL No   | Company                 | Exploration Target        |
|---------|-------------------------|---------------------------|
| EL1801  | Hillrise/CRA            | Base metals, Au, Ag and U |
| EL1801  | Mistral Mines           |                           |
| EL1956  | Hillrise/CRA            | Ruby, Cu, Au, BMs         |
| EL4673  | Carthews, S             | Base metals               |
| EL562   | Keewanee                |                           |
| EL6133  | Hayward, M              | Ruby                      |
| EL1991  | Australis Mining/Placer | REE, U and Ta.            |
| EL10158 | Tanami Exploration      | Selwyn Cu/Au              |
| EL7967  | PNC                     | Uranium                   |
| EL9032  | PNC                     | Uranium                   |

Exploration by PNC located the Yambla prospect in 1992. PNC did not report the exploration techniques that were used to identify the Yambla mineralization. The mineralization at Yambla consists of uraninite-type veins hosted by amphibolite. It is possible that the Yambla style mineralization may extend into EL25716 in the vicinity of Salthole Dam and a nearby un-named Cu prospect (Figure 5).

### 5.1 Stream Sediment Sampling

Although the NT Strike database does not record any stream sediment sampling in the general area of the EL, Placer reported (CR1970-0016) stream sediment sampling at a density of one sample per 5 square miles over the area of AtoP1991 and analyses for base metals – no anomalous zones were detected.

Hillrise reported (CR1980-0158; 1981-060) that CRA carried out bulk sampling (-4mm) and -80# stream sediment sampling over EL1956 – Cullen’s ELAs are located in the NW of the old EL1956 area. The sample density of the CRA program was quite low because of the large area covered. There are approximately 20 samples in the vicinity of Cullen’s ELAs. CRA/Hillrise reported anomalous Zn, Cu, U, Co in the headwaters of Yambla in the area of EL26142.

## 5.2 Rock Chip Sampling

PNC (CR1996-0286) carried out rock chip sampling over numerous uranium occurrences in the area of the ELs.

Placer carried out rock chip sampling of pegmatite identified using aerial photographs for the tenement area. Placer did not identify any uranium anomalies and its report did not contain any assay results or sample locations.

## 5.3 Geophysics

PNC carried out airborne magnetic and radiometric surveys of their extensive tenement holdings in December 1994. The airborne survey therefore post dates the discovery of the Yambla Prospect. Uranium anomalies were selected based on field evidence gathered prior to the airborne survey. There do not appear to be any airborne anomalies that were followed up within the area of Cullen's ELAs.

## 5.4 Drilling and Trenching

PNC drilled approximately 13 RC holes at **Yambla**. PNC concluded that; "although no economic mineralization was intersected, the alteration envelope was intersected in all drill holes and radiometric anomalies were intersected in 3 holes. The grades and continuity of the radiometric anomalies in the 3 drill holes (Figure 6) only indicated scattered nodular mineralization as evidenced from outcrop and trench exposures".

PNC further commented that: **the amount of drilling has not adequately tested the 1.5km strike length of the surface mineralization. Only about 150m of mineralized strike length has been tested to a vertical depth of 50m. Viable mineralization may well exist within the untested portions of the alteration envelope (Figure 7)**, as evidenced by a brittle amphibolite unit structurally prepared by low angle fracturing;

- Permeation of metasomatic fluids (Na, CO<sub>3</sub>-rich) generated during a metamorphic heat pulse along this fracture system;
- Alteration of in-situ rock with white and dark alteration; and
- Precipitation of uraninite due to reduction associated with the mobilization of the amphibolite.

PNC also located uranium mineralization at the **Bonny and Hof Prospects** (Figure 4) that are within or near EL26142. PNC excavated three trenches to expose uranium mineralization at Bonnie over a 100m interval in a retrogressed fault that was considered to be "a viable drill target". The anomaly at Hof was not considered to be as strong as that at Bonnie and was a low-priority drill target.

## 6.0 EXPLORATION DURING YEAR 2008-2009

A field reconnaissance program was undertaken in the area of EL26142 to locate previously identified U occurrences and to appraise their geological setting and the regolith/landform setting.

### SCINTILLOMETER TEST

To evaluate the propagation of radiation in the regolith materials, a test was undertaken using some uraniferous nodules from Yambla. In a sandy creek bed which showed a constituent background the nodules were placed on the ground. The readings on the scintillometer and distances from the nodules were:

|                |           |
|----------------|-----------|
| Background     | ~50 c/s   |
| 10m            | 60 c/s    |
| 3.0m           | 70 c/s    |
| 1.5m           | 170 c/s   |
| 1.0m           | 200 c/s   |
| 0.5m           | 550 c/s   |
| Next to sample | 8,000 c/s |

Then, with the sensor at 0.7m above ground, barren sand was put over the samples in varying thicknesses and readings recorded:

|            |               |
|------------|---------------|
| No sand    | 450 c/s       |
| 20cm sand  | 400 c/s       |
| 30 cm sand | 300 c/s       |
| 35 cm sand | 200 c/s       |
| Background | 160 - 180 c/s |

Note that the background on the two tests is different. This is due to different range scales being used.

This survey demonstrated the very limited propagation of radiation from uraniferous nodules even through relatively thin barren cover. Any colluvial cover of more than 0.35 m thickness would therefore completely mask the radiation signal from high-grade but small uraniferous nodules in the regolith.

### SPECTROMETER-BASED FIELD ORIENTATION SURVEY

The regolith at Yambla comprises thin residual soil on top of rises, with saprolite and saprock frequently exposed at surface. Downslope, thin colluvium covers the flanks and immature alluvium fills creek beds. Overall, the landform can be categorized as dominantly erosional with some interspersed depositional domains.

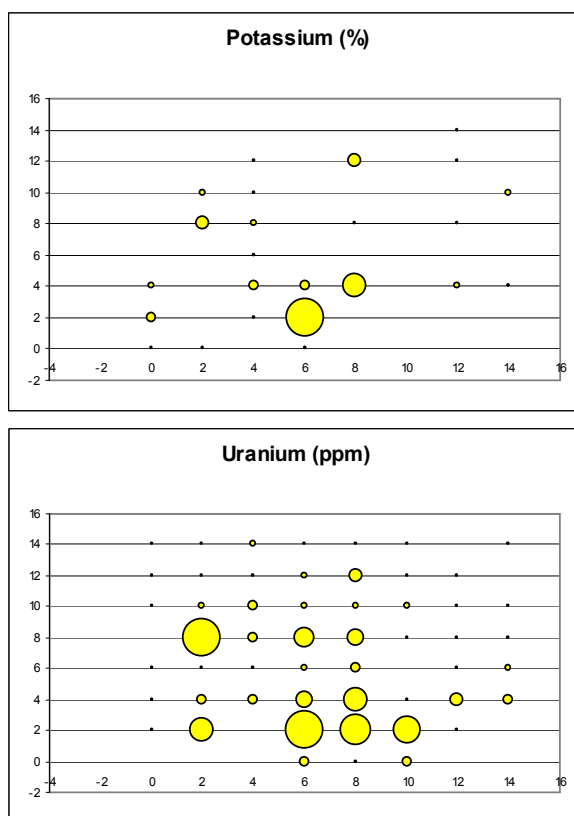
PNC's mapping, costeaning and rock chip sampling was verified and found to be accurate and within approximately 20m of the actual locations. Not all reported U hotspots could be located, possibly due to extensive sampling over the years. Readings at hotspots were 500-3500 ppm U using a handheld Exploranium/SAIC GR-135G spectrometer. Samples were

taken of soil and of a yellow/black mineral specimens from one of the hotspots (Figure 5). All 9 samples were submitted to ALS Laboratories in Alice Springs for a multi-element suite; analyses are attached in the appendix. The results show anomalous Ag, As, Ba, Cd, Pb (3.2%), Th (>1%) and U (>1%) concentrations in the yellow/black mineral specimen sample.

The geological controls of the U hotspots and occurrences were difficult to assess due to the ground disturbance caused by the costeaning and subsequent rehabilitation. In one area, the radiometric hotspot and its surrounding area were relatively undisturbed and a detailed survey was conducted over an area of 14x14m on stations 2 m apart. Readings of K, U and Th were taken and bubble plots of the respective concentrations are shown in Figure 7 below; bubble sizes correspond to the concentrations; geographic north is to the right side of the plots. The maxima for K, U and Th are 4.5%, 154 ppm and 20 ppm respectively.

The limited surface extent of the high-grade radiometric sources in the Yambla area is exemplified by the U, Th and K distribution shown in Figure 7, with the high-grade U zone measuring about 6x6m. The U readings appear to indicate a spot anomaly at surface from which material has been dispersed downhill. Such surface expression may indicate pencil-shaped shoot geometry in the bedrock that represents a difficult drill target and could easily have been missed in some of the earlier drilling and costeaning programs. Thorium shows the widest dispersion at surface.

In the northern part of the tenement, attempts to identify the source of several hotspots that appear to be aligned along an E-W trend, failed. The only radiometric source found in the field is a 15-20 m wide meta-sedimentary sequence near the hill top with U concentrations of approximately 5-15 ppm and Th concentrations of ~20 ppm.



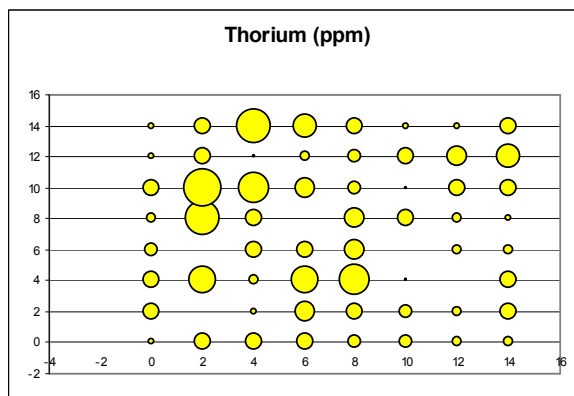
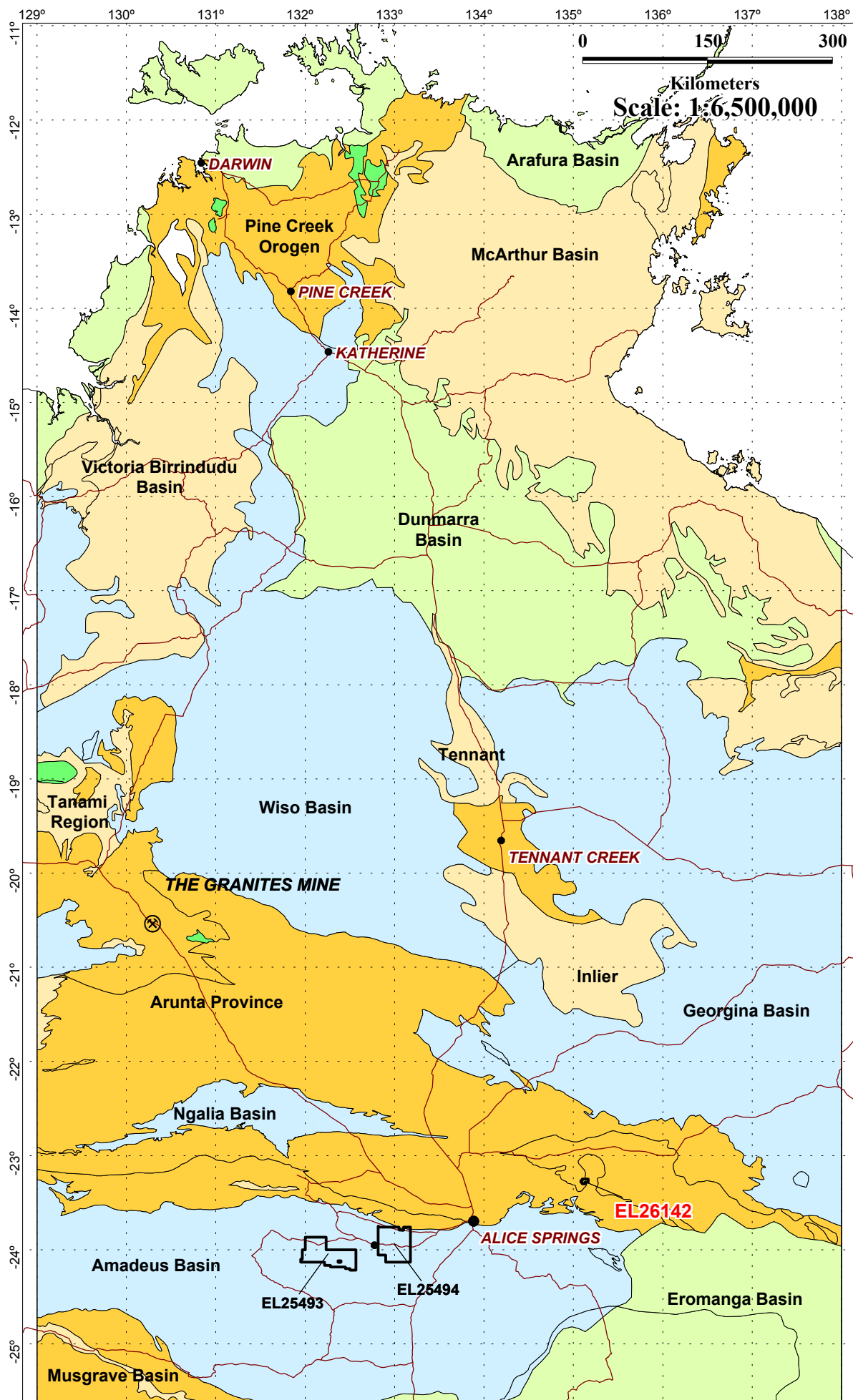


Figure 7. Yambla Prospect, Radiometric survey of K, U and Th concentrations using a handheld spectrometer

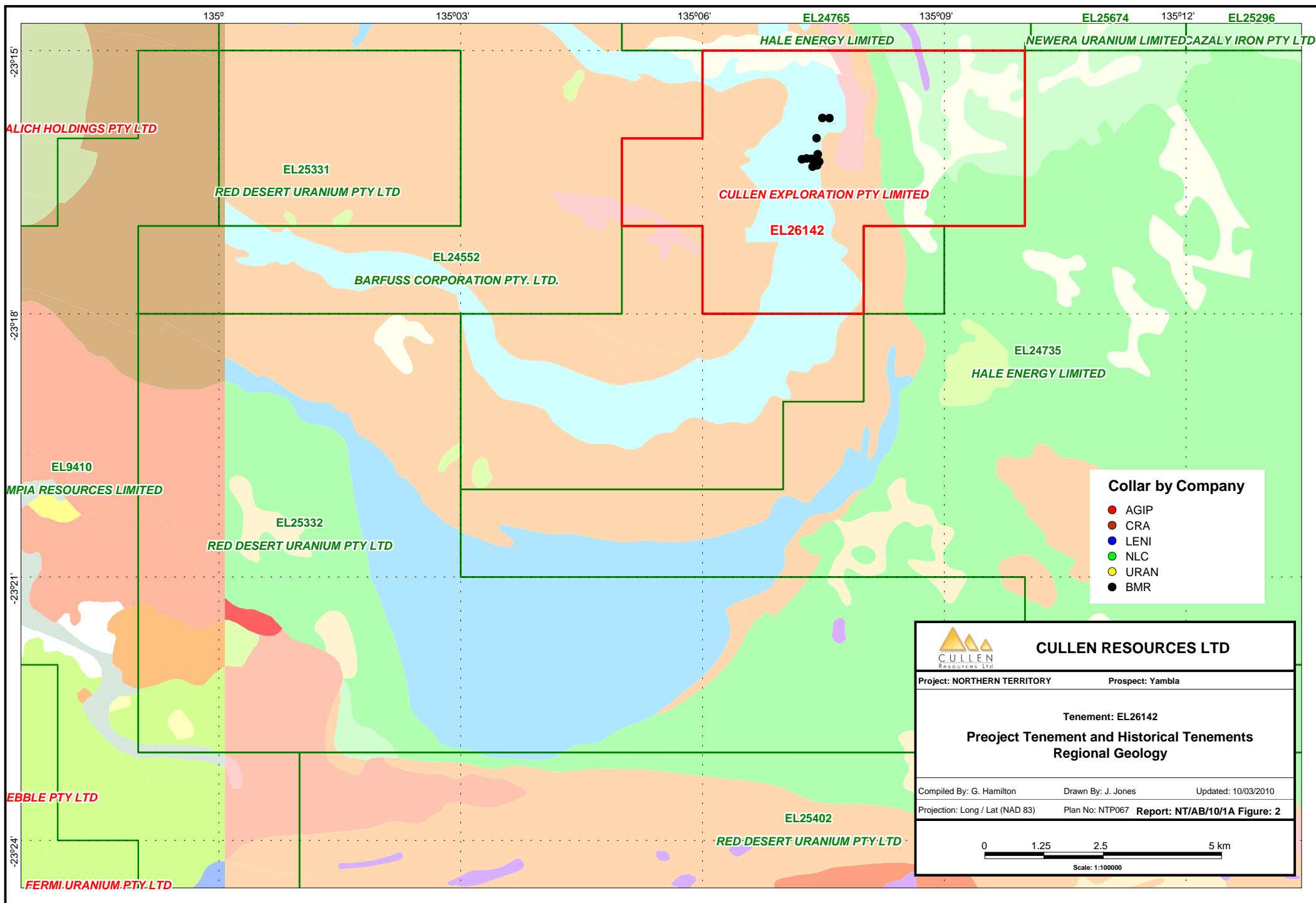
## 7.0 EXPLORATION DURING YEAR 2009-2010

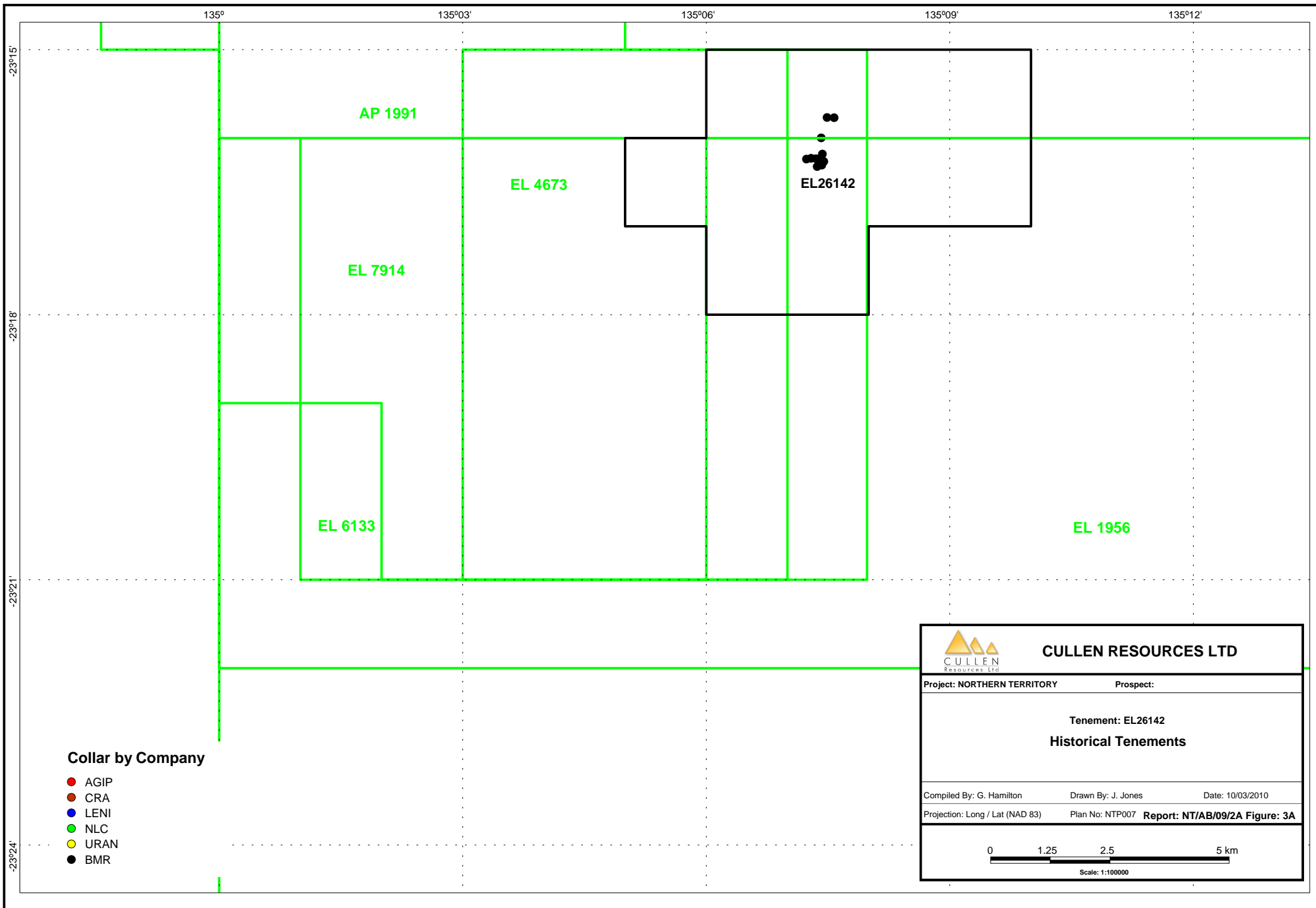
During the year, the data relating to the project was presented to a number of prospective partner companies as a farm-out opportunity. Exploration in Cullen's Arunta project area was curtailed due to the Global Financial Crisis and some tenements were dropped. EL26142 was prioritised for farm-out. Discussions were held with a number of groups and in December 2009 - January 2010, Uranium Exploration Australia and Cullen completed an Agreement.





# **CULLEN RESOURCES Ltd** **NT PROJECT LOCATIONS**





**CULLEN RESOURCES LTD**

Project: NORTHERN TERRITORY

Prospect:

Tenement: EL26142

**Historical Tenements**

Compiled By: G. Hamilton

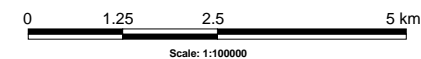
Drawn By: J. Jones

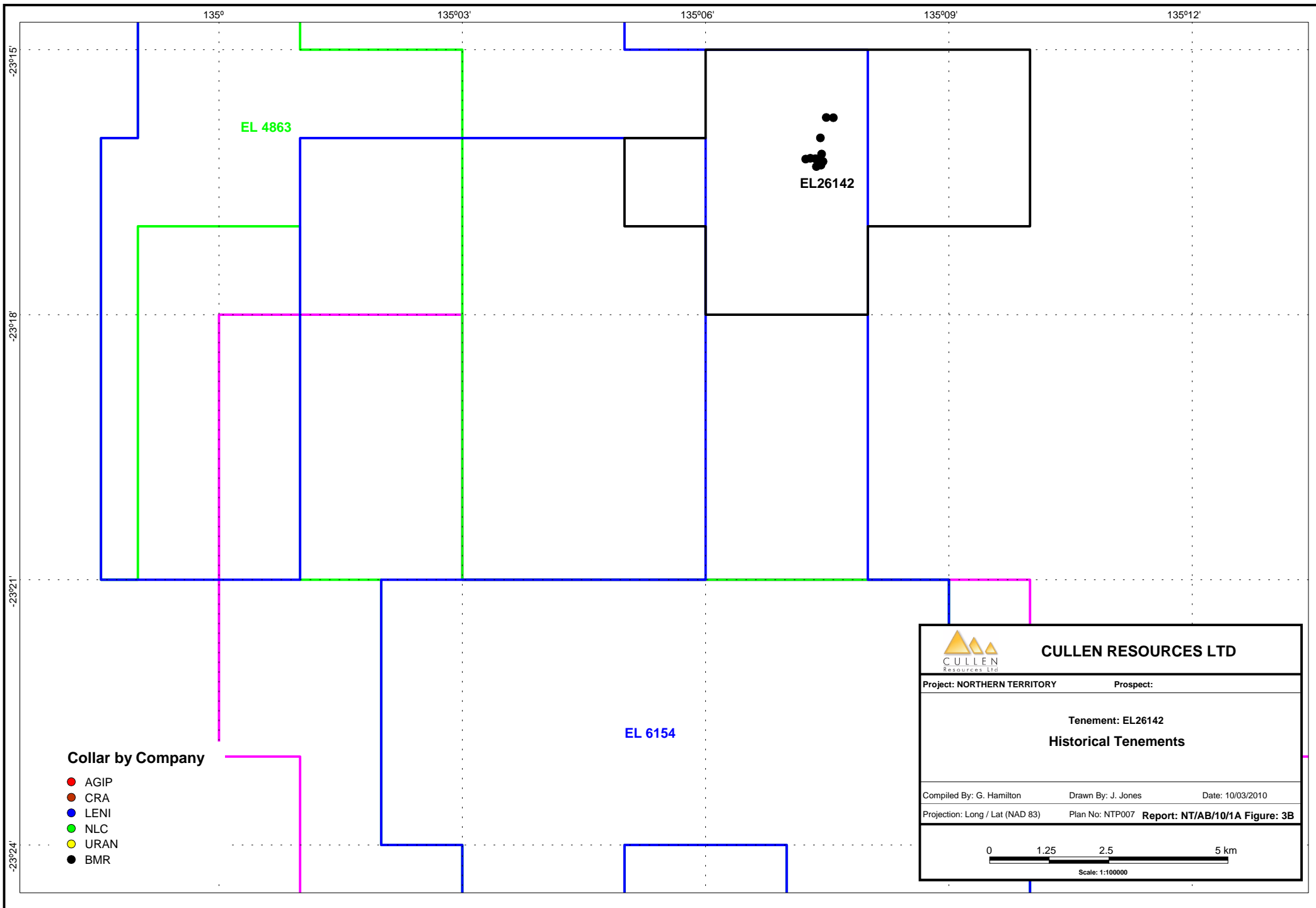
Date: 10/03/2010

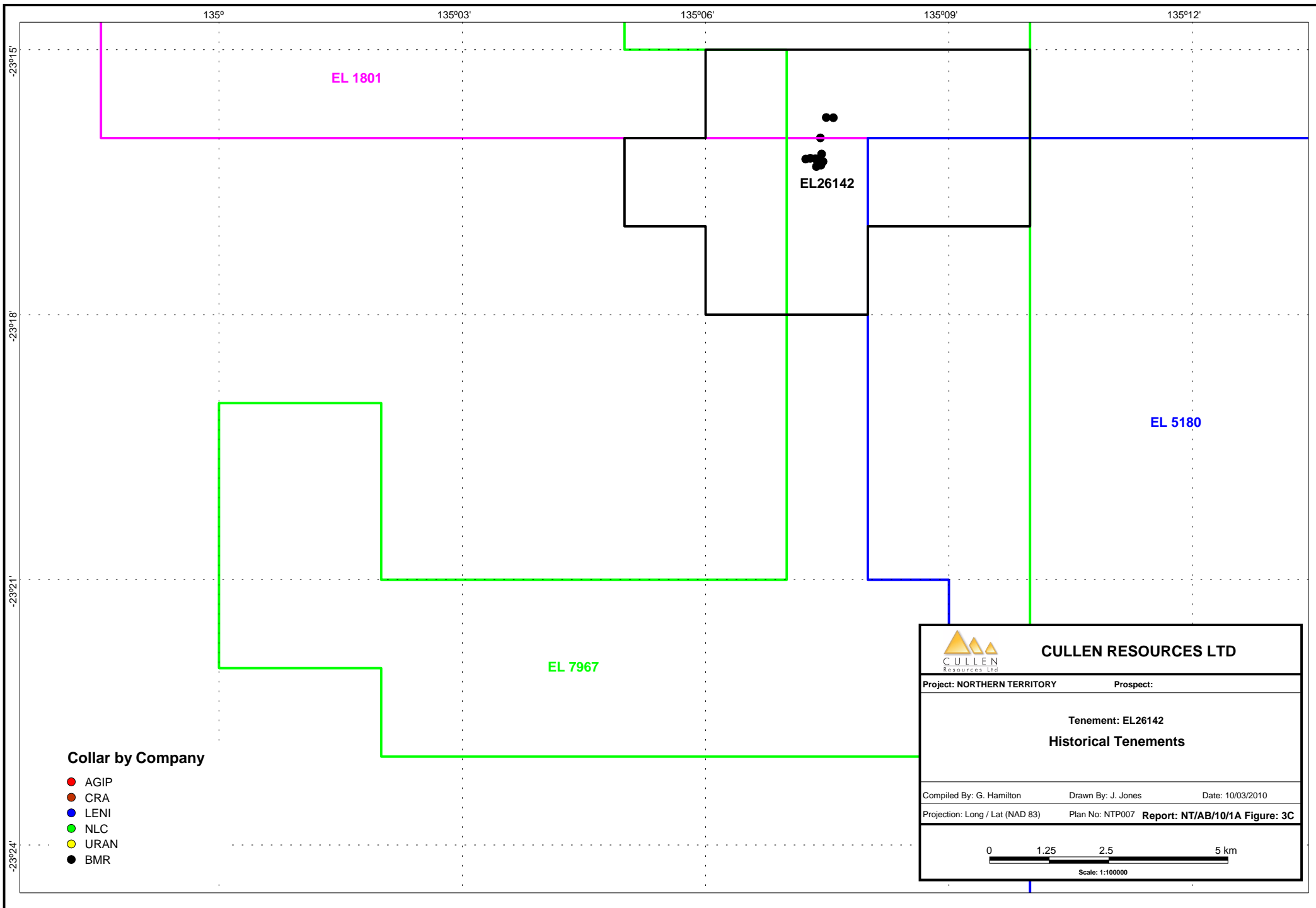
Projection: Long / Lat (NAD 83)

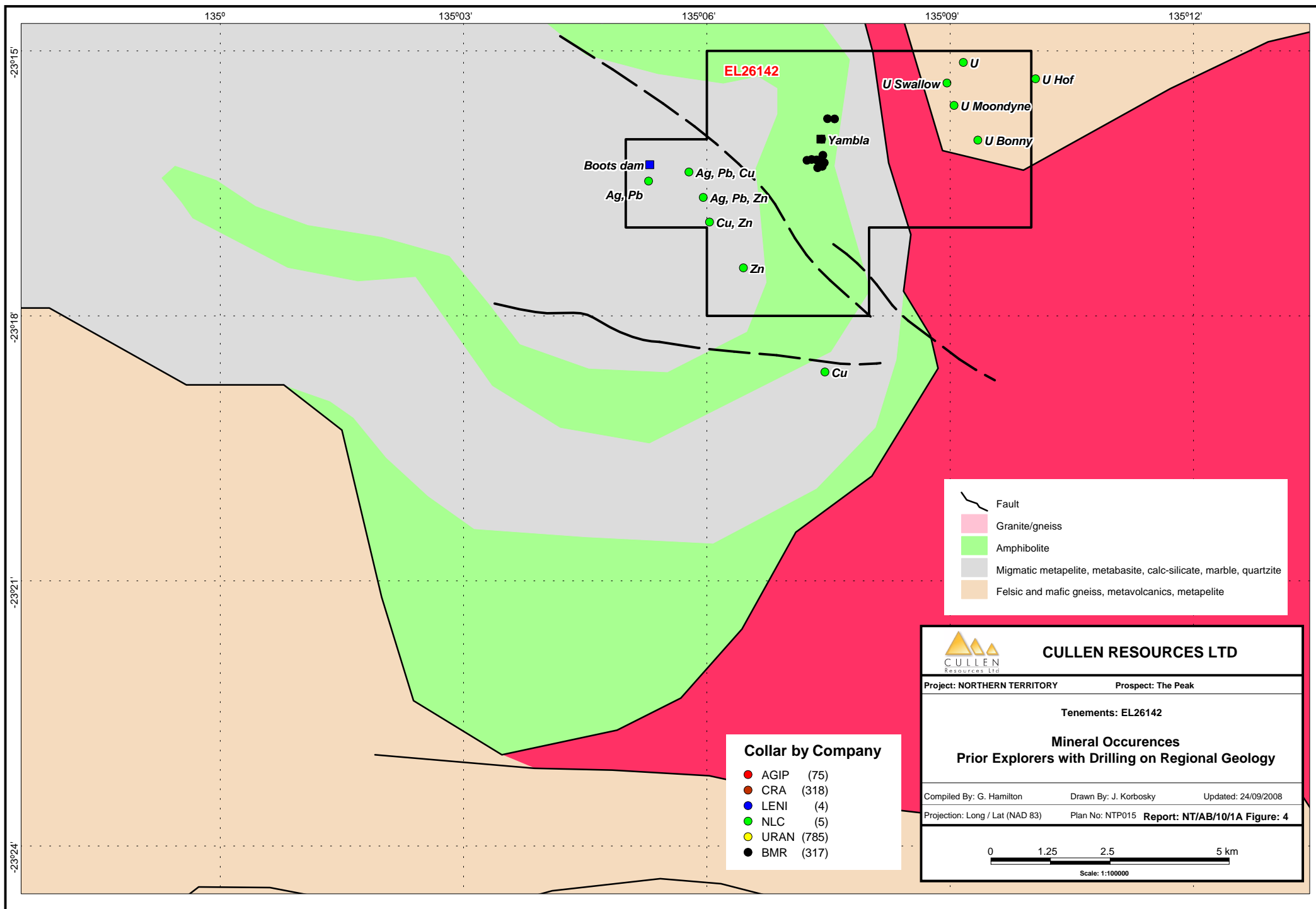
Plan No: NTP007






Report: NT/AB/09/2A Figure: 3A








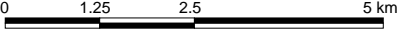


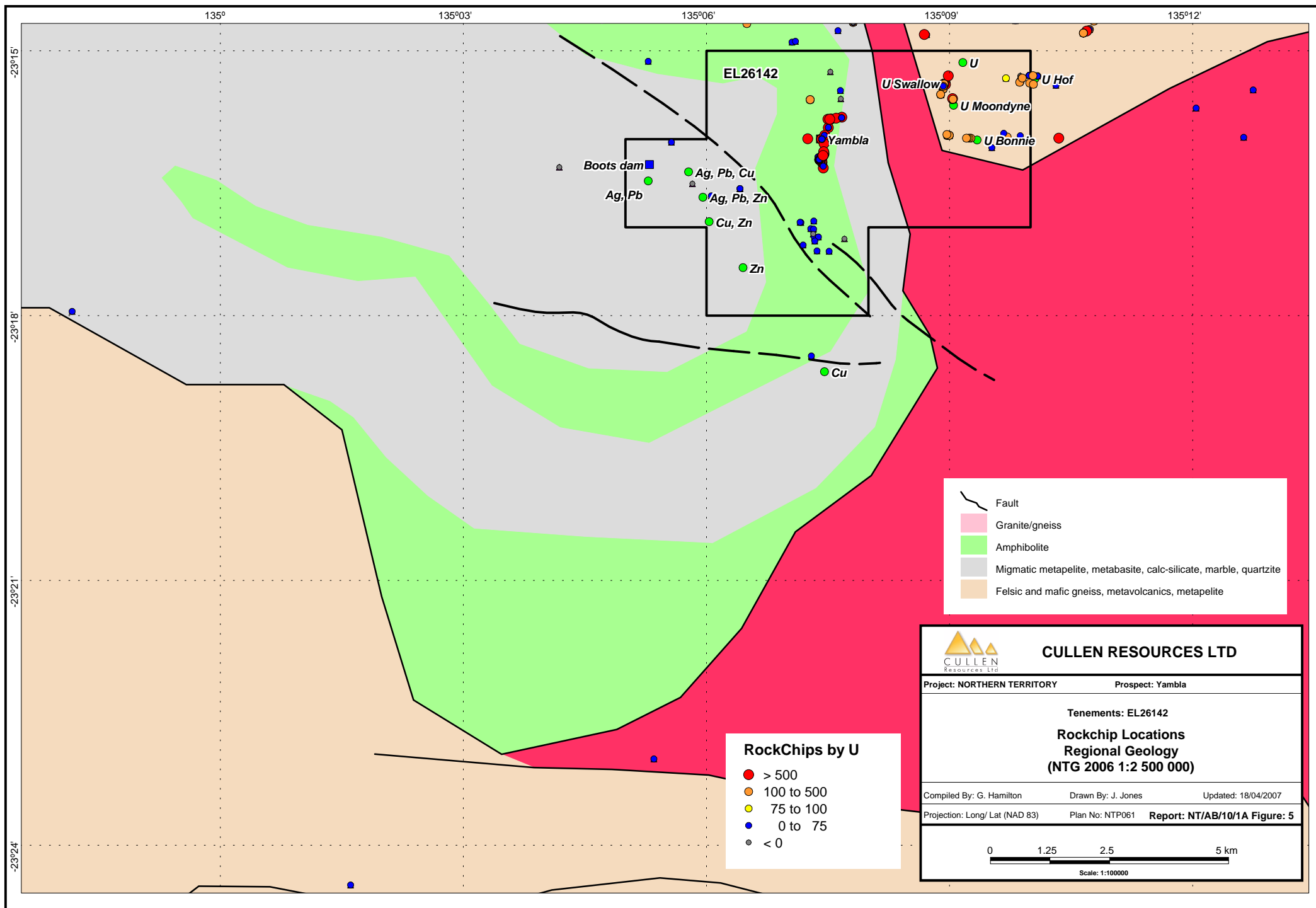
 Fault  
 Granite/gneiss  
 Amphibolite  
 Migmatic metapelite, metabasite, calc-silicate, marble, quartzite  
 Felsic and mafic gneiss, metavolcanics, metapelite

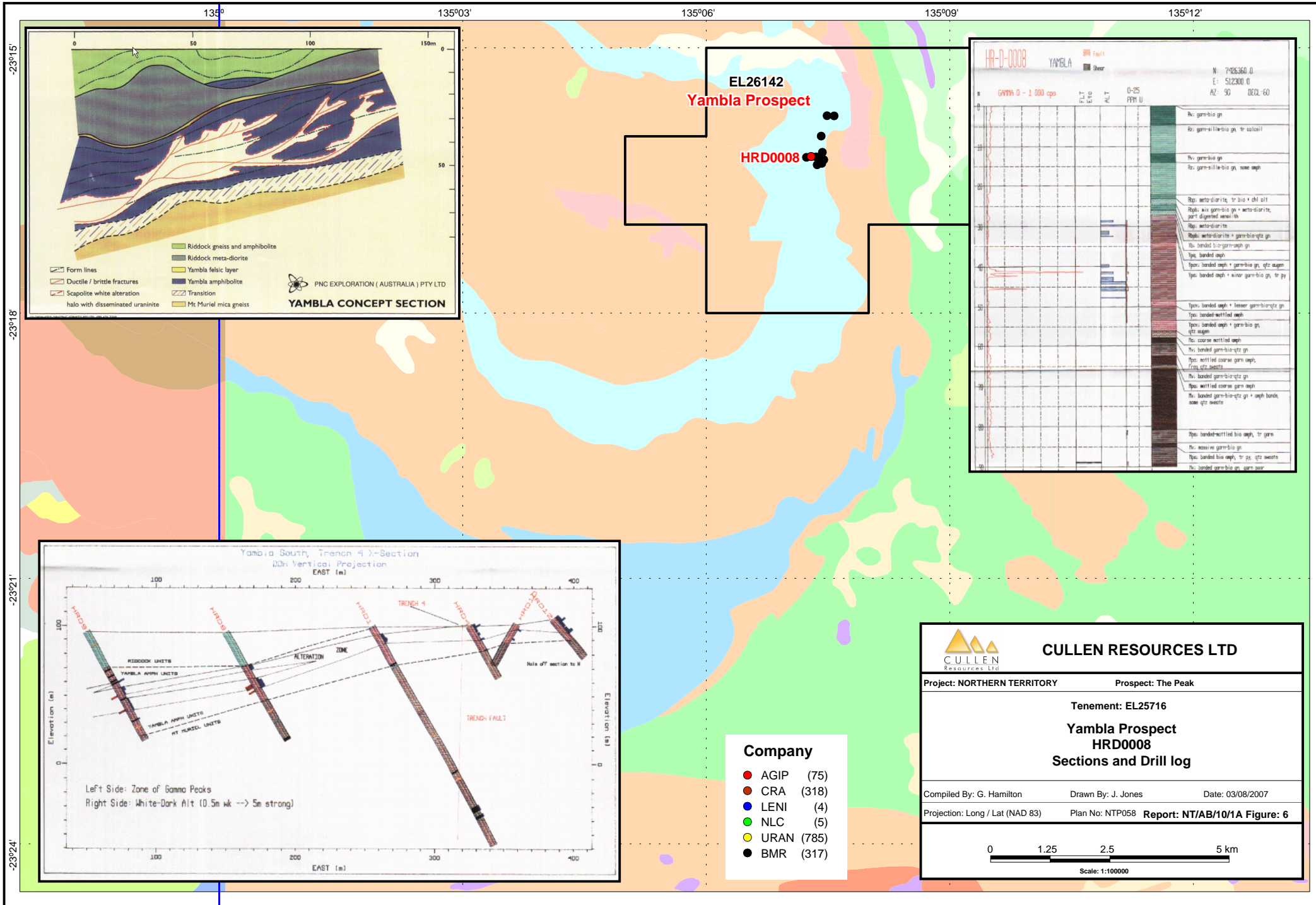
**Collar by Company**

|        |       |
|--------|-------|
| ● AGIP | (75)  |
| ● CRA  | (318) |
| ● LENI | (4)   |
| ● NLC  | (5)   |
| ● URAN | (785) |
| ● BMR  | (317) |

**CULLEN RESOURCES LTD**

|  |                       |                               |
|--|-----------------------|-------------------------------|
| Project: NORTHERN TERRITORY  | Prospect: The Peak    |                               |
| Tenements: EL26142   |                       |                               |
| <b>Mineral Occurences</b><br><b>Prior Explorers with Drilling on Regional Geology</b>                    |                       |                               |
| Compiled By: G. Hamilton   | Drawn By: J. Korbosky | Updated: 24/09/2008           |
| Projection: Long / Lat (NAD 83)  | Plan No: NTP015       | Report: NT/AB/10/1A Figure: 4 |
| <br>Scale: 1:100000 |                       |                               |







## **APPENDIX 1**

### **Expenditure Report**