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# **MOUNT DENISON PROJECT EL 24622**

Napperby (SF5309) 1:250,000 Sheet  
Denison (5353) 1:100,000 Sheet

## **REPORT**

**April 2008**

**Submitted by: Epsilon Energy Limited**

**Date: 30<sup>th</sup> April 2008**

**Author: Margaret Newton**

**Distribution: 1) Department of Primary Industry, Fisheries and Mines  
2) Epsilon Resources Ltd**

## **EXECUTIVE SUMMARY**

### **EL 24622 Mount Denison Project**

The Mount Denison Tenement EL 24622 consists of 238 km<sup>2</sup> situated approximately 335km south west of Tenant Creek and 247km northwest of Alice Springs. It can be found on the Denison 1:100,000 and the Napperby 1:250,000 map sheets.

Mount Denison is a pastoral property about 30 km north east of the remote Yuendumu community, 320 km northwest of Alice Springs in Central Australia. Access to the tenement is by rough road travelling northeast off the main Tanami Road, or via tracks running southeast from Mount Denison.

The primary target in the area is uranium mineralization.

Desktop exploration has been ongoing, and Epsilon Energy Limited is currently in negotiations with the Central Land Council to gain access to the project area for initial field reconnaissance. This will include detailed track delineation for tenement accessibility, and small soil sample programme.

The tenement shows strong granitic outcrop and is blanketed by alluvial and colluvial sediments. Minor metamorphic schists are exposed in the western quartile of the tenement

50% of the tenement block has been submitted.

## TABLE OF CONTENTS

|                                       |   |
|---------------------------------------|---|
| MOUNT DENISON PROJECT .....           | 1 |
| EXECUTIVE SUMMARY.....                | 2 |
| TABLE OF CONTENTS.....                | 3 |
| LIST OF FIGURES.....                  | 3 |
| LIST OF TABLES.....                   | 3 |
| 1.0 INTRODUCTION.....                 | 4 |
| 1.1 Location and Access.....          | 4 |
| 1.2 Tenement Status.....              | 4 |
| 2.0 GEOLOGY .....                     | 5 |
| 2.1 Regional Geology .....            | 5 |
| 2.2 Project Geology.....              | 5 |
| 3.0 HISTORICAL EXPLORATION .....      | 6 |
| 4.0 OVERVIEW OF URANIUM GEOLOGY ..... | 7 |
| 5.0 WORK COMPLETED - 2007.....        | 7 |
| 5.1 Digital Terrane Model.....        | 7 |
| 5.2 Geophysical Data .....            | 7 |
| 5.3 Surface Geochemistry .....        | 7 |
| 6.0 REFERENCES .....                  | 8 |

## LIST OF FIGURES

*All Figures Listed Below Located at the End of the Report*

|  |    |
|--|----|
| Figure 1 Project Location.....                               | 9  |
| Figure 2 Project Digital Elevation Plan.....                 | 10 |
| Figure 3 Project Plan Surface Geology.....                   | 11 |
| Figure 4 Project U/Th determined from Radiometric data ..... | 12 |

## LIST OF TABLES

|   |   |
|---|---|
| Table 1 Tenement Status.....                    | 4 |
| Table 3 Historical Exploration on EL24622 ..... | 6 |

## 1.0 INTRODUCTION

This report outlines the mineral exploration in the project up to April 2008. The primary target in the project area is uranium mineralization.

## 1.1 LOCATION AND ACCESS

The Mount Denison Tenement EL 24622 consists of 422 km<sup>2</sup> situated approximately 335km south west of Tenant Creek, and 247km northwest of Alice Springs. It can be found on the Denison 1:100,000 and the Napperby 1:250,000 map sheets. The Kurrupiri Aboriginal Corporation has charge of an aboriginal living community in the area (Lot 4747)

Access is via rough road travelling northeast from the Tanami Road (north of the Anmatjere Community). It is accessible through tracks running southeast from Mount Denison (Figure 1).

## 1.2 TENEMENT STATUS

Table 1 shows the current tenement status for EL 24622.

**Table 1 Tenement Status**

| Tenement | Area (km <sup>2</sup> ) | Date Granted | Expiry Date    | Registered Holder      | Rent (\$) | Required Annual Expenditure |
|----------|-------------------------|--------------|----------------|------------------------|-----------|-----------------------------|
| EL 24622 | 422                     | 23/12/2007   | Not applicable | Epsilon Energy Limited |           |                             |

## 2.0 GEOLOGY

### 2.1 REGIONAL GEOLOGY

The Mount Denison Project is located in the Lower Proterozoic Arunta Block of the Northern Territory, on the northern margin of the Ngalia Basin. The project has the potential for occurrences of metamorphic and intrusive related uranium deposits within igneous basement rocks, and sandstone uranium deposits in the overlying sedimentary units.

As can be seen in Figure 5, Mount Denison straddles two described regolithological units of the Arunta Block; The Davidson Regolithe and the Napperby Regolithe. They are described as follows:

**DAVIDSON REGOLITHE** broadly this is described as moderately weathered bedrock consisting of block laterite at depth below the soil; ironstone gravels, shallow ironstone gravely sands, broad shallow drainage floors with calcrete, some rocky ridges & hills capped by laterite

The soils are red earthy sands, with some yellow earthy sands on gently sloping plains siliceous sands in flood-plain areas. The terrane comprises flat to gently undulating sand plains, poorly developed dune formations, and some stone-covered ridges.

The relief is moderate, major landforms being sand plains. minor landforms consisting of undulating ridge and slope terrain on lateritised sediments. There are some rock outcrops, minor dune fields and minor calcrete areas

To generalize the Davidson Regolithe can be seen as an erosional/depositional environment with moderate to high relief, variably weathered and stoney.

**NAPPERBY REGOLITHE** Characteristically mountainous with small valley plains, fans and occasional dunes; The Napperby Regolithe is broadly described as unweathered bedrock comprising bare rocks, quartz gravels and stone-covered ridges.

The soils are shallow stony sands, red earths mantled with stones and gravels.

The terrane presents as steep ranges and ridges. Narrow valleys with sandstone, quartzite and conglomerate. Bare rocks and rugged mountain ranges composed of gneiss and schists. There may be quartzite and sandstone hills with sandy plains and granite with occasional rocky hills and ridges.

It is a depositional environment comprising flood plains, coastal plains, salt lakes, alluvial plains, swamps, dune fields; or bare rock.

### 2.2 PROJECT GEOLOGY

Primary uranium mineralisation is associated with the metamorphic schists and the pegmatite and granite intrusions. Reconnaissance in the mid 1978 indicated several radioactive zones and uranium rich rocks at quartz hill and Crown anomaly.

In the Quartz Hill area, uranium mineralisation is associated with apatite bearing schists and with the granites at the crown anomaly, along with promising rock chip sample results ranging from 0.002% U<sub>3</sub>O<sub>8</sub> to 0.096% U<sub>3</sub>O<sub>8</sub>.

TMI1VDCol also suggests a northeast-southwest trending fault which may act as a conduit for uranium hexavalents in solution.

The overlying sedimentary units have characteristics favourable for the concentration of uranium by redox processes

### 3.0 HISTORICAL EXPLORATION

During the reporting period, a search of the open file mineral exploration reports located a number of reports of interest to future work on this tenement. Collation of these reports is ongoing.

**Table 2 Historical Exploration on EL24622**

| Dates  | Company   | Commodity                                     | Work Completed  | Tenements         |
|--|---|---|---|-------------------|
| 1998   | Exodus Minerals Limited<br>Normandy Gold Pty Ltd  | Au  | Airborne manetics and radiometrics<br>Soils sampling<br>Rotary Airblast<br>Vacuum Drilling<br>Regional Gravity survey<br>Geomorphological Interpretation<br>DEM | EL8420            |
| <b>Beantree Project</b><br>Although the ground was not considered unprospective, the tenement was surrendered to focus on other ventures.  |   |   |   |                   |
| Dates  | Company   | Commodity                                     | Work Completed  | Tenements         |
| 1979   | Australia and New Zealand Exploration Company (ANZECO),<br>Central Pacific Minerals NL,<br>Yuendumu Mining Company NL | Uranium,<br>Tungsten<br>(reported separately) | Mapping<br>Geochem sampling   | EL 1317<br>EL1316 |
| <b>Mount Denison and Reynolds Range</b><br>Examination of uraniumiferous prospects and petrological evaluation of rocks.<br>Uranium is mobile in the secondary environment, accumulated in small quantities in minor calcrete development.<br>Reconnaissance also indicated several radioactive zones and uranium rich rocks at Quartz hill and Crown anomaly.<br>In the Quartz Hill area, uranium mineralisation is associated with apatite bearing schists and with the granites at the crown anomaly, along with promising rock chip sample results ranging from 0.002% U3 O8 to 0.096% U3O8. |   |   |   |                   |
| Dates  | Company   | Commodity                                     | Work Completed  | Tenements         |
| 1976   | Bureau of Mineral Resources   | General Geological Investigation              | Reconnaissance radiometric survey   | EL1317            |
| Several areas of anomalous radioactivity in the Th and Ur spectrometer channels.   |   |   |   |                   |
| Dates  | Company   | Commodity                                     | Work Completed  | Tenements         |
| 1968   | Mining Corp Exploration NL  | General Geological Investigation              | Geological Mapping  | EL1317            |
| Geological reconnaissance only.  |   |   |   |                   |

## **4.0 OVERVIEW OF URANIUM GEOLOGY**

The Mount Denison Project has the potential for occurrences of metamorphic and intrusive related uranium deposits within igneous basement rocks, and sandstone uranium deposits in the overlying sedimentary units.

The basement consists of metamorphic rocks and granites and pegmatites, and the uranium is associated with the apatites and granites nearby.

Uranium can also be transported in its soluble hexavalent form by oxygenated groundwaters flowing through aquifers within the blanketing sediments. Uranium is trapped, leading to potentially economic accumulations, by adsorption and/or precipitation from solution following reduction to its insoluble tetravalent form. Organic matter, or redox fronts can facilitate uranium capture.

## **5.0 WORK COMPLETED - 2007**

Exploration activities for the reporting year focussed primarily on project review. The project review consisted of viewing and assessing the following datasets:

Detailed review of historical data.

Regional digital terrain model (Figure 2.)

Regional multi-client aeromagnetic data (Figure 3.)

Regional aerial radiometrics.

## **5.1 DIGITAL TERRANE MODEL**

The terrain model indicates that this tenement lies within an area of elevated terrain and valley deposits. The elevated areas reflect high quantities of near surface intrusive granitoid and metamorphic rocks. The areas of lower relief are typically blanketed by Quaternary alluvial and eolian sands. The relief is a typical reflection of the Davidson and Napperby regoliths

## **5.2 GEOPHYSICAL DATA**

Existing multi-client geophysical data shows EL 24622 perched on a large area of strong magnetic anomaly. Clearly seen is the Wangala Granite from which is associated with uranium mineralisation.

Also featured as a high aeromagnetic response in the north west quartile of the block is the Coniston schist, a biotitic-sericitic-quartz orthoschist which is also of exploration interest.

TMI1VDCol also suggests a northeast-southwest trending fault which may act as a conduit for uranium hexavalents in solution.

## **5.4 FURTHER EXPLORATION**

Epsilon Energy Limited is currently in negotiations with the Central Land Council to gain access to the project area for initial field reconnaissance. This will include detailed track delineation for tenement accessibility, and small soil sample programme.

Subject to satisfactory results from this survey reconnaissance, an infill programme will be developed, and RAB drilling may be undertaken.

## 6.0 REFERENCES

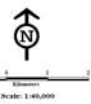
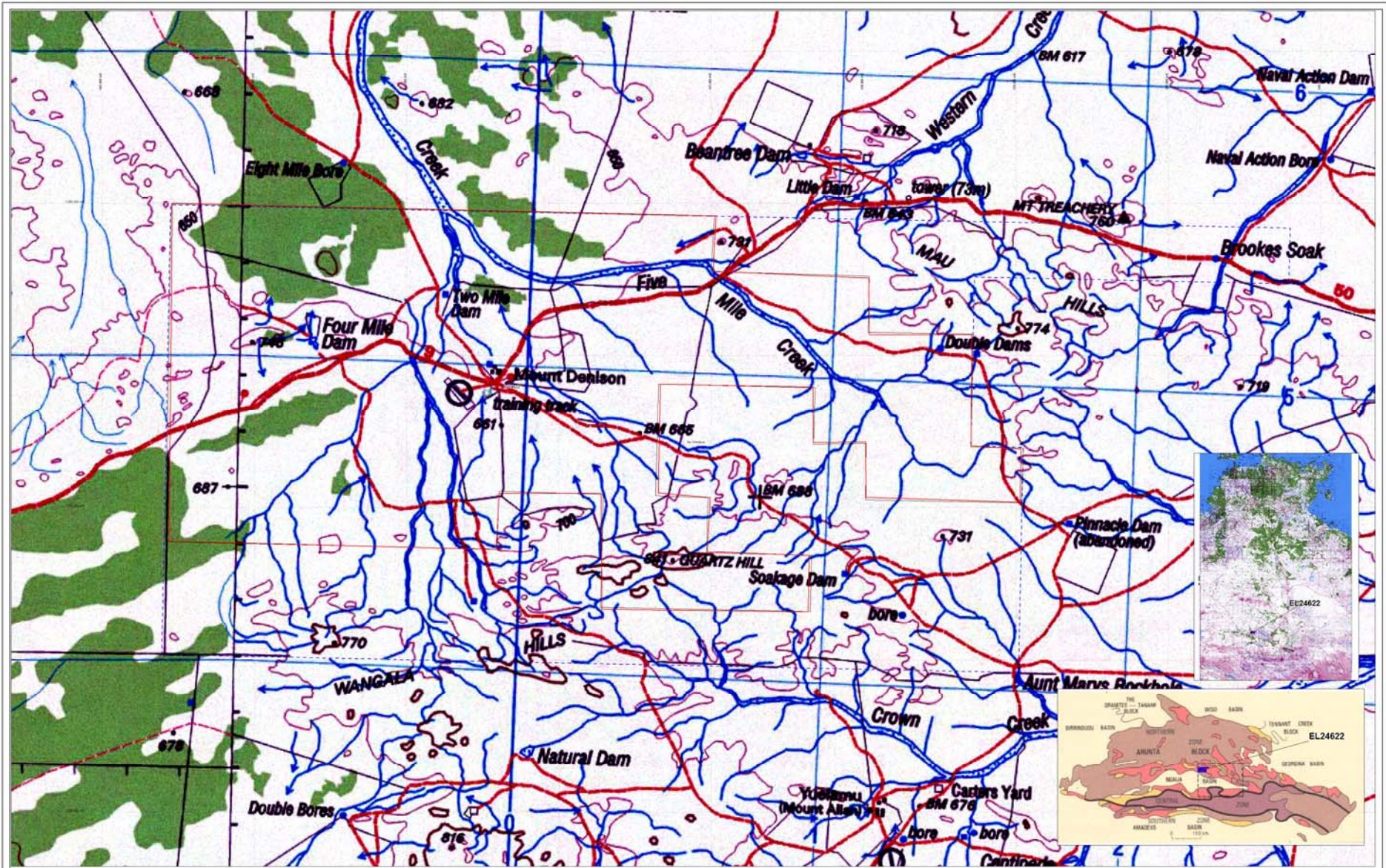
Australia and New Zealand Exploration Company 1979. Mount Denison and Reynolds Range Project

Exodus Minerals Limited, Normandy Gold Pty Ltd 1998 Beantree Project

Bureau of Mineral Resources General Geological 1976. Reconnaissance radiometric survey

Mining Corp Exploration NL 1968 General Geological Investigation



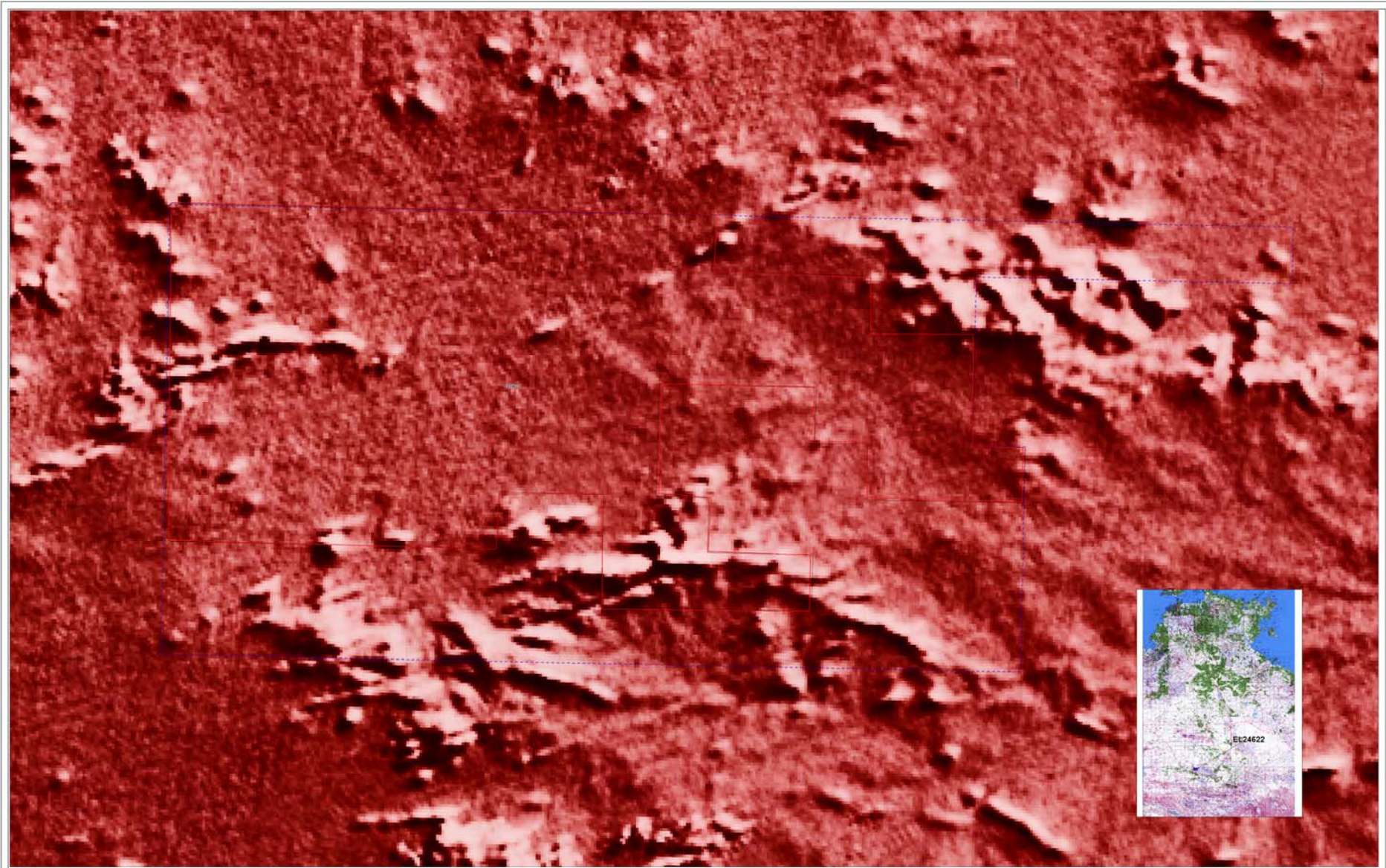


**MOUNT DENISON PROJECT EL24622, LOCALITY PLAN**

- Area to be surrendered
- Retained portion of tenement after surrender



**Epsilon**  
ENERGY LIMITED

|              |               |
|--------------|---------------|
| Project Name | Mount Denison |
| Project No.  | EL24622       |
| Scale        | 1:50,000      |
| Author       |               |
| Checked      |               |
| Approved     |               |
| Date         | April 2008    |



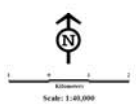
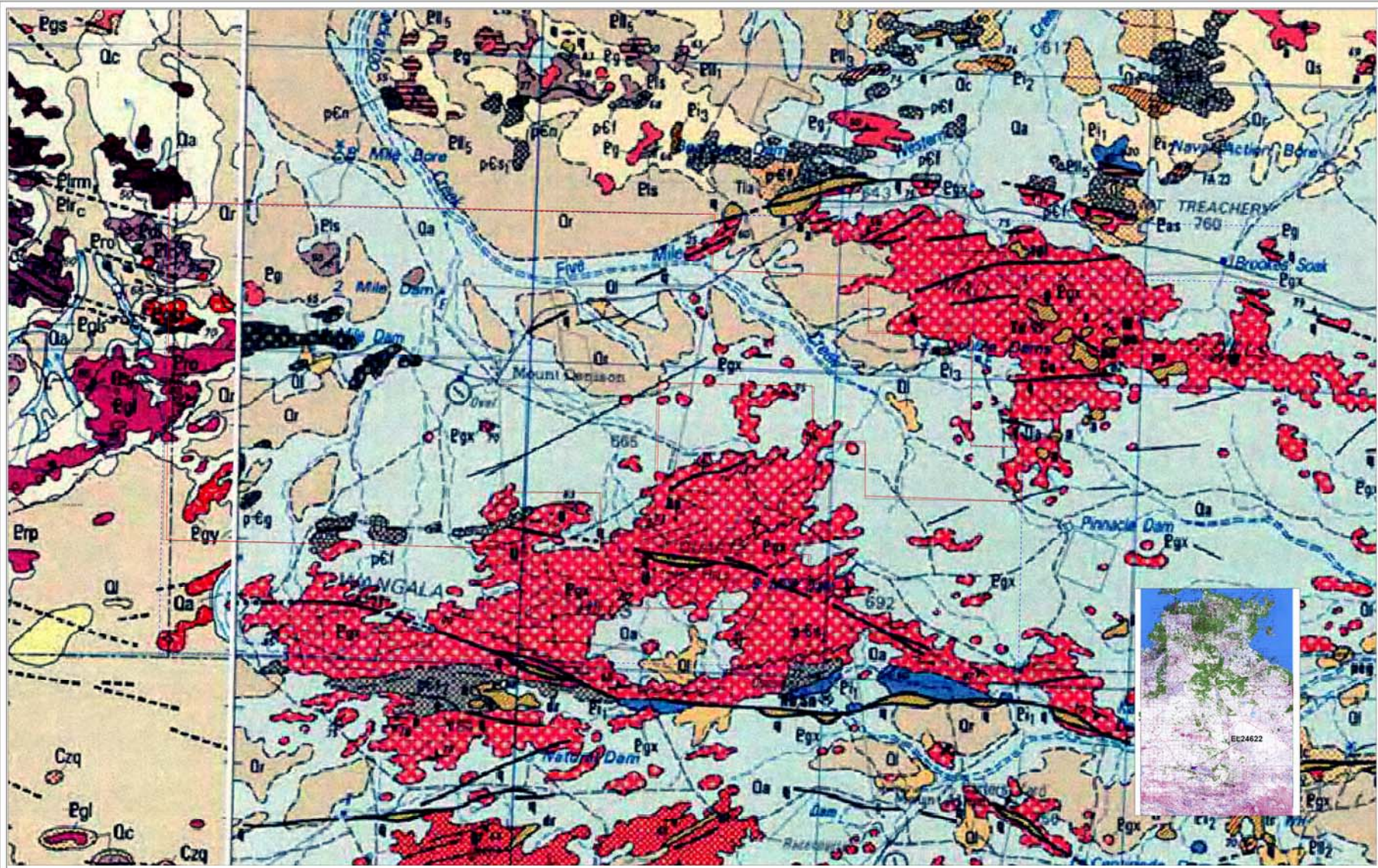
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### MOUNT DENISON PROJECT EL24622 on DTM

-  Area to be surrendered
-  Retained portion of tenement after surrender



|          |           |
|----------|-----------|
| Author:  | Date:     |
| Drawn:   | Revised:  |
| Checked: | Approved: |
| Project: | Scale:    |

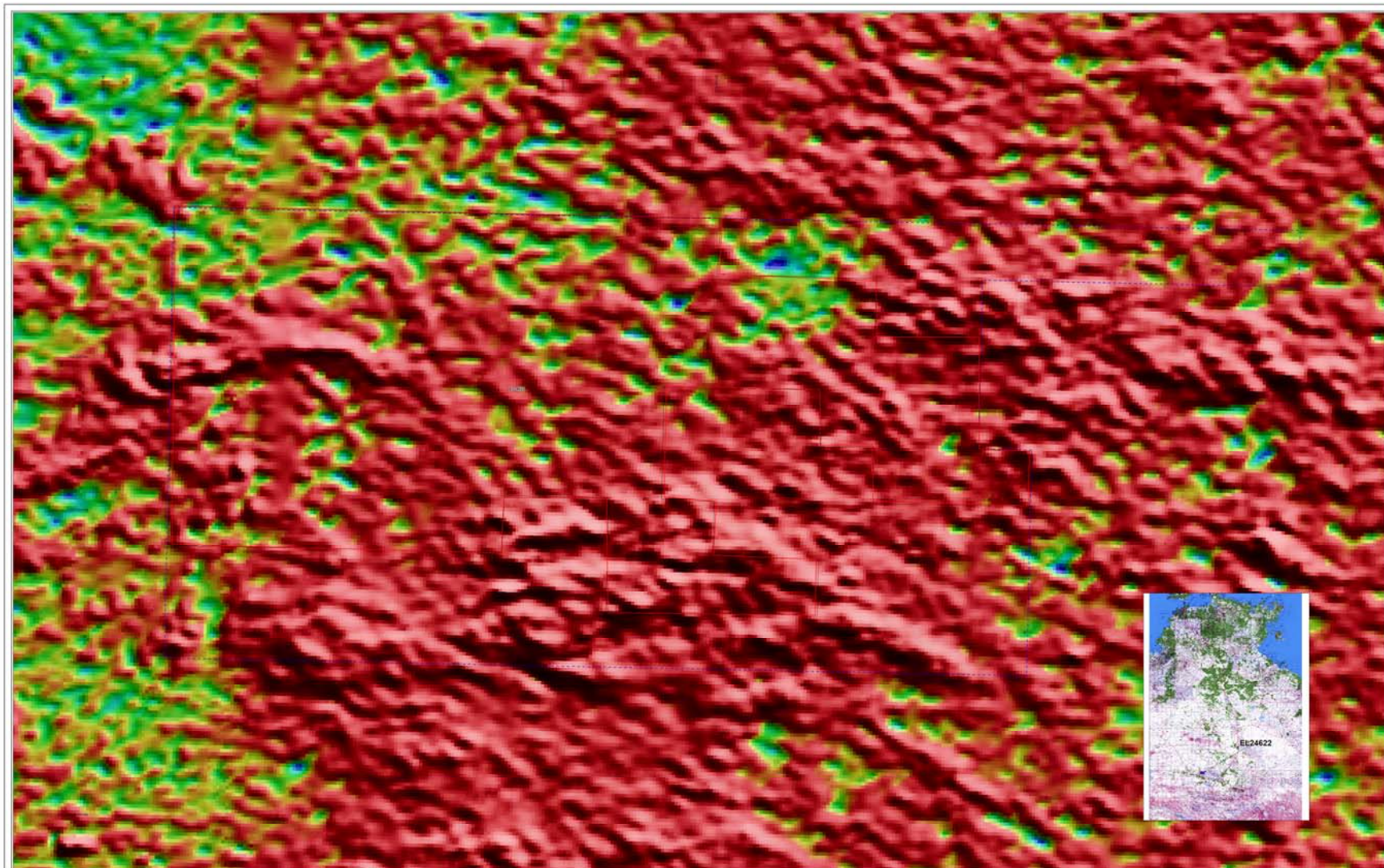


**MOUNT DENISON PROJECT EL24622 on SURFACE GEOLOGY**

- Area to be surrendered
- Retained portion of tenement after surrender

**Epsilon**  
ENERGY LIMITED

|             |             |
|-------------|-------------|
| Project No. | EC24622     |
| Revision    |             |
| Date        | 14 Feb 2008 |
| Author      |             |
| Checked     |             |
| Drawn       |             |
| Scale       |             |



**MOUNT DENISON PROJECT EL24622 on UCoI**

- Area to be surrendered
- Retained portion of tenement after surrender

**Epsilon**  
ENERGY LIMITED

|           |                     |
|-----------|---------------------|
| Author:   | John Fiddaway, 2008 |
| Date:     | 2008                |
| Project:  | Mount Denison       |
| Revision: | 001                 |