

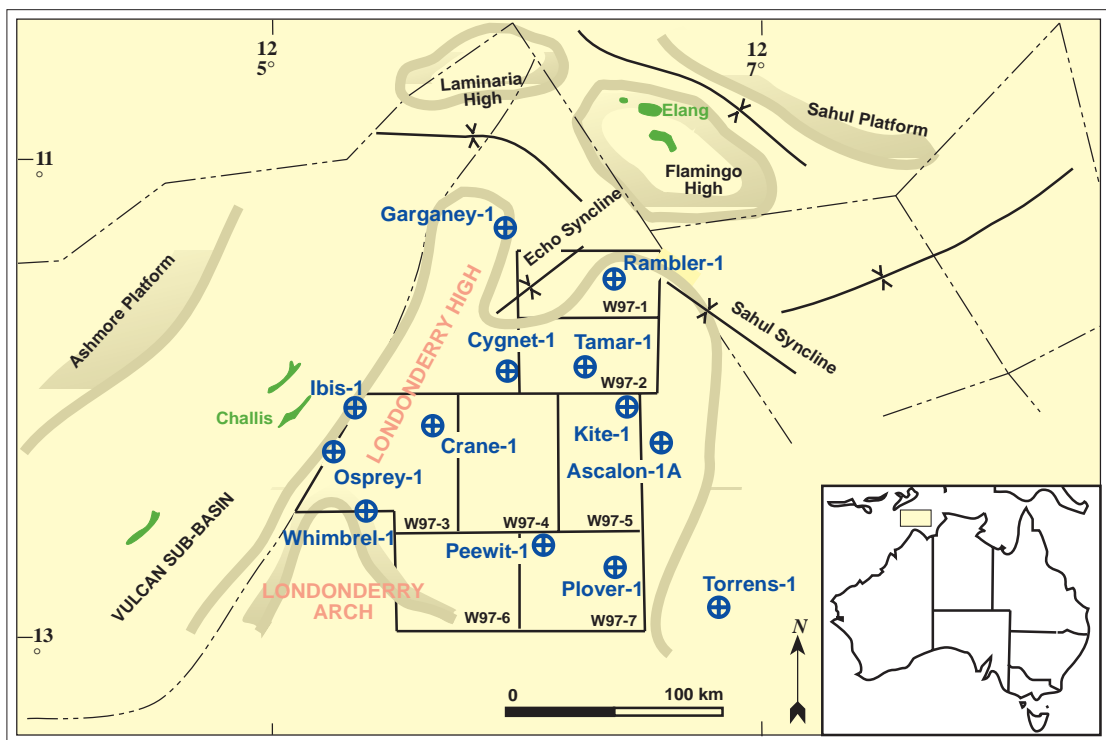


# LONDONDERY HIGH

*A non-exclusive study by Geotrack International*

New thermal history data has been obtained from a total of 44 AFTA samples and 64 VR samples in 13 wells on the Londonderry High in the western Bonaparte Basin.

This study reveals key aspects of the evolution of this platform area, including quantitative estimates of the timing and magnitude of maximum paleotemperatures, Middle Tertiary paleo-geothermal gradients and amounts of uplift and erosion.



THR“ (Thermal History Reconstruction) has been employed in 13 well sections to enable the direct determination of paleotemperature versus depth profiles, and thus the assessment of mechanisms of heating and cooling during paleo-thermal events. Our thermal history approach has also enabled constrained predictions of the maturation levels of key source rock units.

**These issues are vital to a rigorous evaluation of the hydrocarbon potential of the Londonderry High, and have been addressed by direct and quantitative assessment of thermal histories using new AFTA and VR results. New results have provided a thermal history framework from which the tectonic and maturation histories of this region have been assessed.**

An outline of the project conclusions are given on the reverse. The Final Report was completed in March 1998.

Comprehensive Report in two volumes - contains over 500 pages including colour figures, tables and data appendices: \$29,000.

# **LONDONDERRY HIGH WESTERN BONAPARTE BASIN**

## **THERMAL HISTORY RECONSTRUCTION IN THIRTEEN WELLS USING APATITE FISSION TRACK ANALYSIS AND VITRINITE REFLECTANCE**

### **Introduction and objectives:**

This report presents the results of a non-exclusive regional study, which utilises data from Apatite Fission Track Analysis (AFTA®) and Vitrinite Reflectance (VR) to identify, characterise and quantify any major episodes of heating and cooling which have affected the drilled sections in thirteen wells from the **Londonderry High** region of the **western Bonaparte Basin**. This information is used to reconstruct a thermal history framework from which the burial and uplift, and hydrocarbon generation history can be understood.

### **The main objectives of this regional study were:**

- 1) To determine the timing and magnitude of maximum paleotemperatures in each sample;
- 2) To determine the profile of maximum paleotemperatures in each well;
- 3) To characterise the mechanisms controlling heating and cooling in each paleo-thermal episode, where applicable;
- 4) To estimate, where appropriate, the amount of section removed by uplift and erosion;
- 5) To assess the regional variation in mechanisms of heating and cooling, and styles of thermal and burial histories; and
- 6) To assess the regional variation in the potential for hydrocarbon generation.

### **Preliminary conclusions:**

Two distinct paleo-thermal episodes were identified in this study. The first of these may reflect deeper burial with cooling due to uplift and erosion beginning some time between 50 and 25 Ma (Eocene-Oligocene), as constrained by AFTA. The second event was probably associated with localised heating in the Late Tertiary (possibly within the last 5 Ma), and was most likely due to the passage of hot fluids.

Detailed results for each of the study wells are available in the Final Report, as are discussions on the variations in the styles of the thermal, burial and maturity histories throughout the Londonderry High region. The thirteen study wells are: Crane-1, Cygnet-1, Peewit-1, Whimbrel-1, Ibis-1, Plover-1, Rambler-1, Kite-1, Tamar-1, Garganey-1, Osprey-1, Ascalon-1A and Torrens-1.

**Prices:** AUD\$29,000

**Group discounts available:**

2 companies: price x 1.6  
3 companies: price x 2.0  
4 companies: price x 2.4

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