

ASX Release

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PETRATHERM LIMITED
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Paralana Project Presentation to Society of Petroleum Engineers

Petratherm's Geophysicist, Ms Louise McAllister will later today present to the Society of Petroleum Engineers (Victoria and Tasmania branches) in Melbourne.

The Society of Petroleum Engineers is the professional body representing petroleum engineers in Australia.

Ms McAllister's presentation (attached) will focus primarily on technical aspects of the Paralana Geothermal Energy JV project and include new information gained from the recent and successfully drilled Paralana 2, four kilometre deep injector well.

Yours faithfully



Terry Kallis
Managing Director

ABOUT THE JOINT VENTURE PARTNERS:

Beach Energy (ASX: BPT) is an oil and gas company headquartered in Adelaide that farmed-in to the Paralana Project in January 2007. Beach can earn up to 36% of the project for \$30 million plus its equity share of project costs.

TRUenergy Geothermal is a wholly owned subsidiary of the CLP group, one of the largest publicly-listed power businesses in Asia Pacific. TRUenergy Geothermal farmed-in to the Paralana project in August 2008. TRUenergy Geothermal can earn up to 30% of the project for \$57 million.

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The Paralana – Engineered Geothermal Energy Project

Society of Petroleum Engineers

Presented by Geophysicist, Louise McAllister

Thursday, January 28, 2010

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Paralana
Geothermal Energy

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All amounts in Australian dollars (AUD) unless stated otherwise.

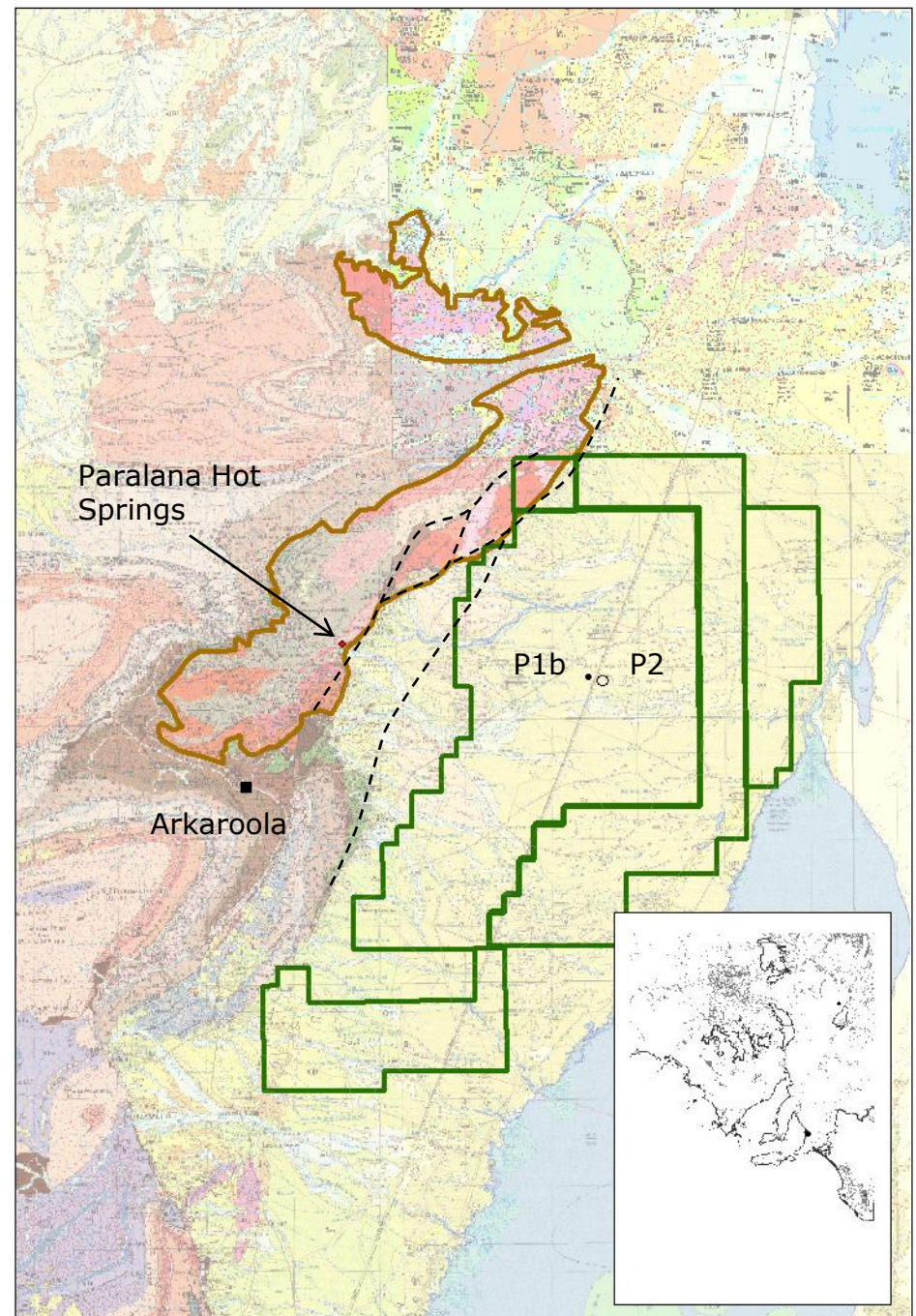


Why Paralana?

Evidence for Thermal Anomalism

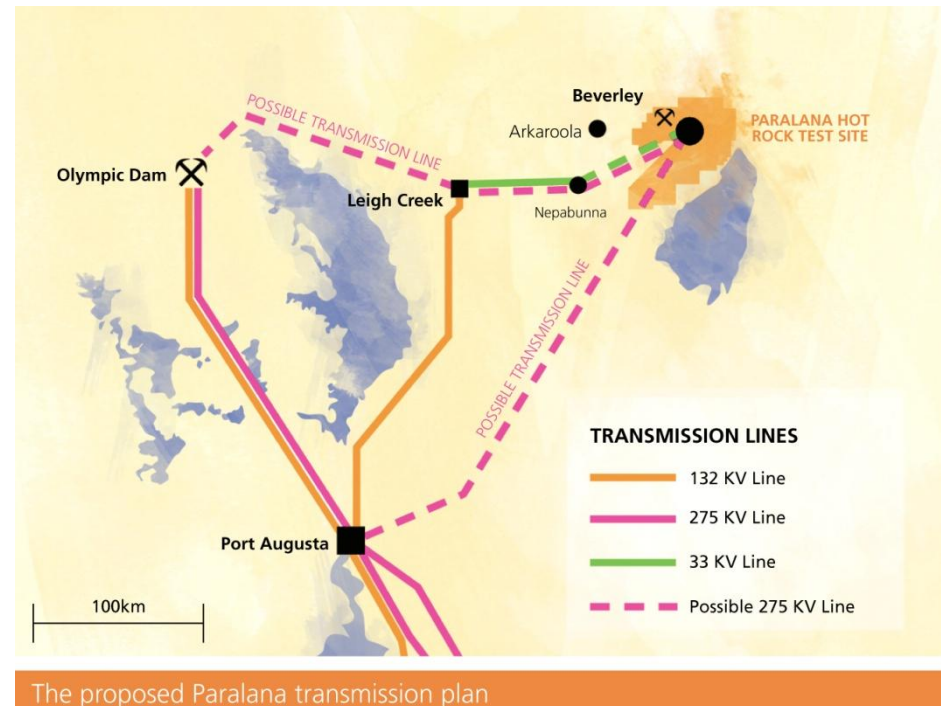
- > Hot Springs
- > Fossil Hydrothermal Breccias
- > Elevated groundwater temperatures
- > High heat flow (Mt Gee 126 mWm^{-2})
- > Poontana basin insulator

Potentially Commercial Viability at all stages



Paralana Project – Commercial Overview

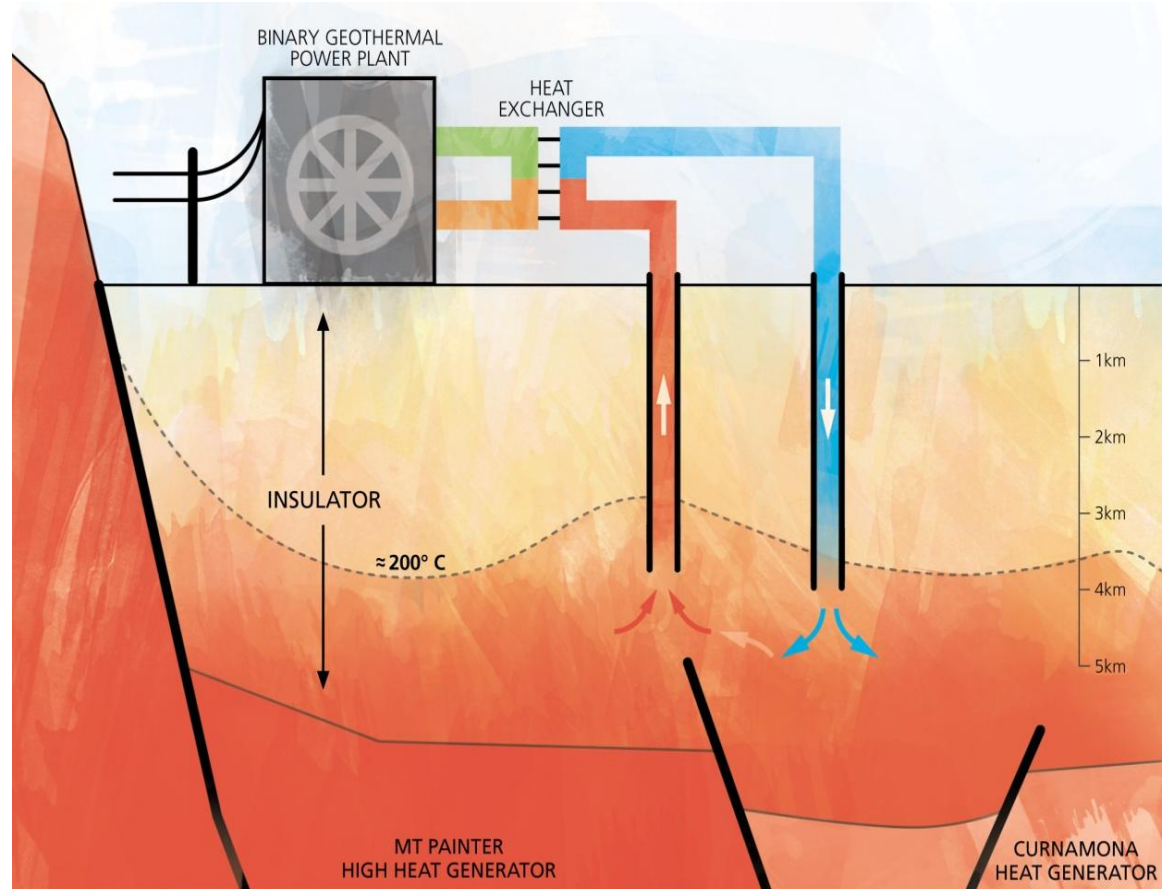
- > Potentially commercially viable at all stages. Small off grid market (5-30MWe) (Heathgate) followed by large on grid development (260 MWe+)
- > Expenditure well leveraged for proof of concept, then potentially fully funded to initial commercial demonstration scale 30MW plant
- > Funding and expertise from JV Partners, Beach Petroleum (up to 36 per cent for \$30m) and TRUenergy (up to 30 per cent for \$57m)
- > Strong Federal Government support - \$7 million geothermal drilling fund grant and \$62.762 million REDP grant



Development Model – Heat Exchanger Within Insulator

- > Higher Permeability
- > Chemically Stable
- > Lower Frac Challenge?
- > Adelaidean – bedding / joint surfaces

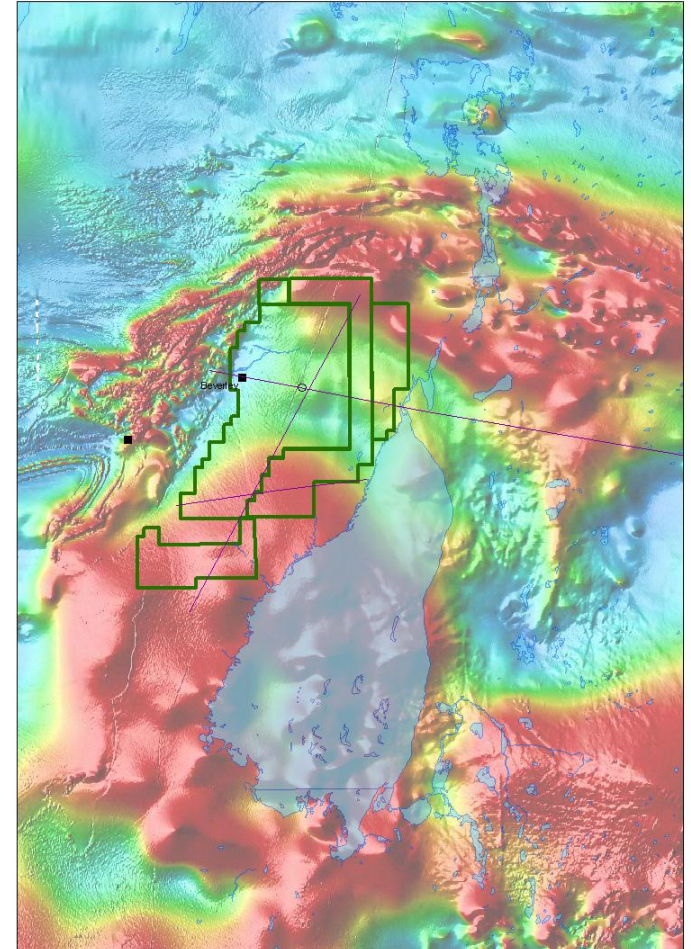
= Cheaper Power!



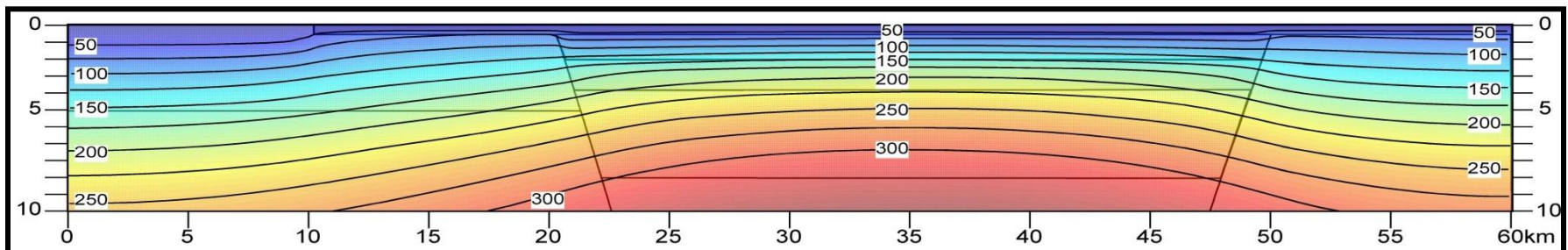
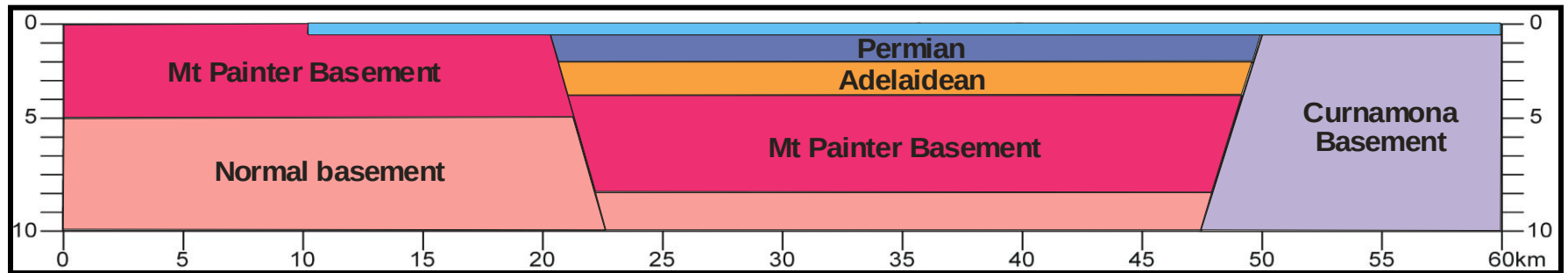
Initial Exploration Program

Paralana
Geothermal Energy

- Pre-competitive geophysical data
- Outcrop mapping
- 2D Reflection Seismic data
- Local gravity and MT surveys
- Heat flow modelling



Exploring for Heat – Paralana Project

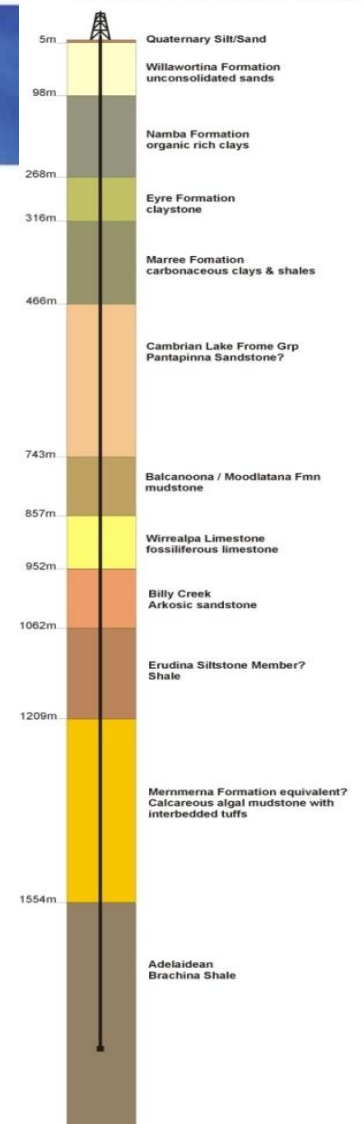


Early modelling indicated 200°C at approximately 3.6 - 4 km

Paralana 1b

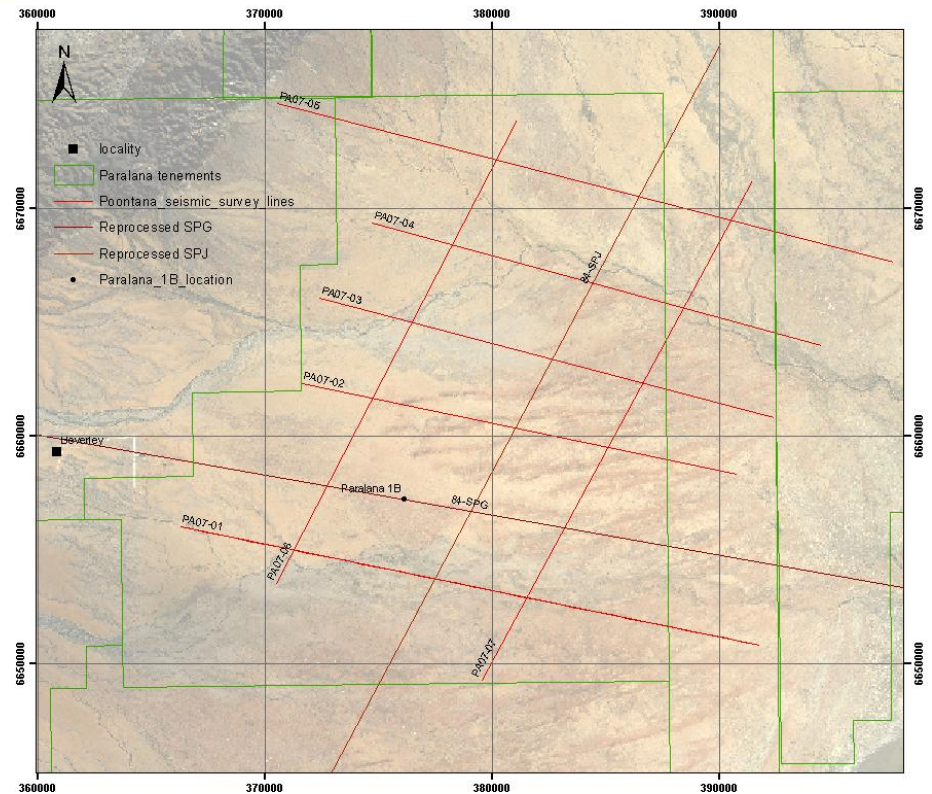
- > Drilled mid 2006
- > Depth = 1809m
- > BHT= 109°C
- > Confirmed stratigraphy

Paralana Geothermal Well - Stratigraphy

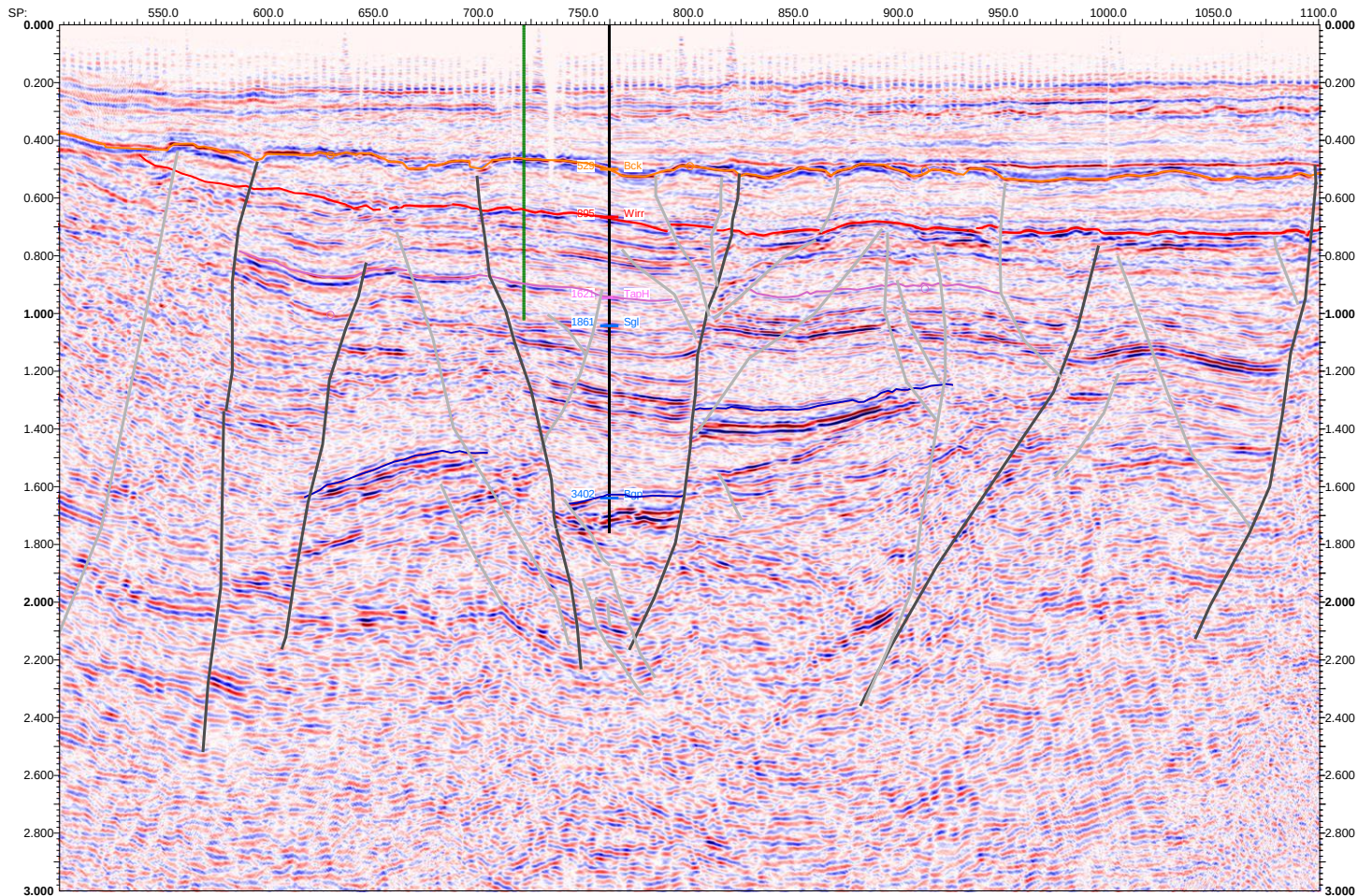


Further Exploration

- Poontana Seismic survey
- 162km of 2D reflection seismic



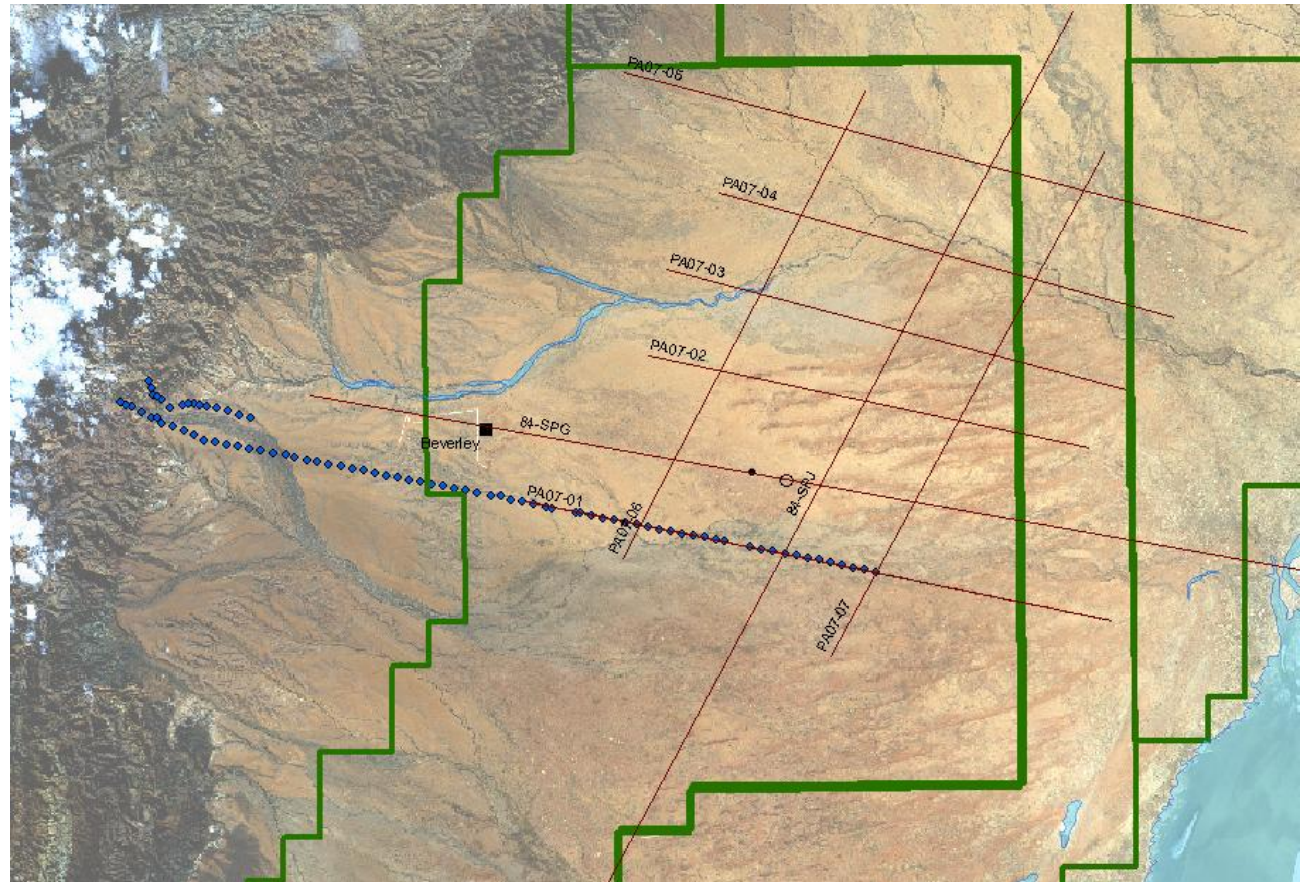
Poontana Seismic Survey



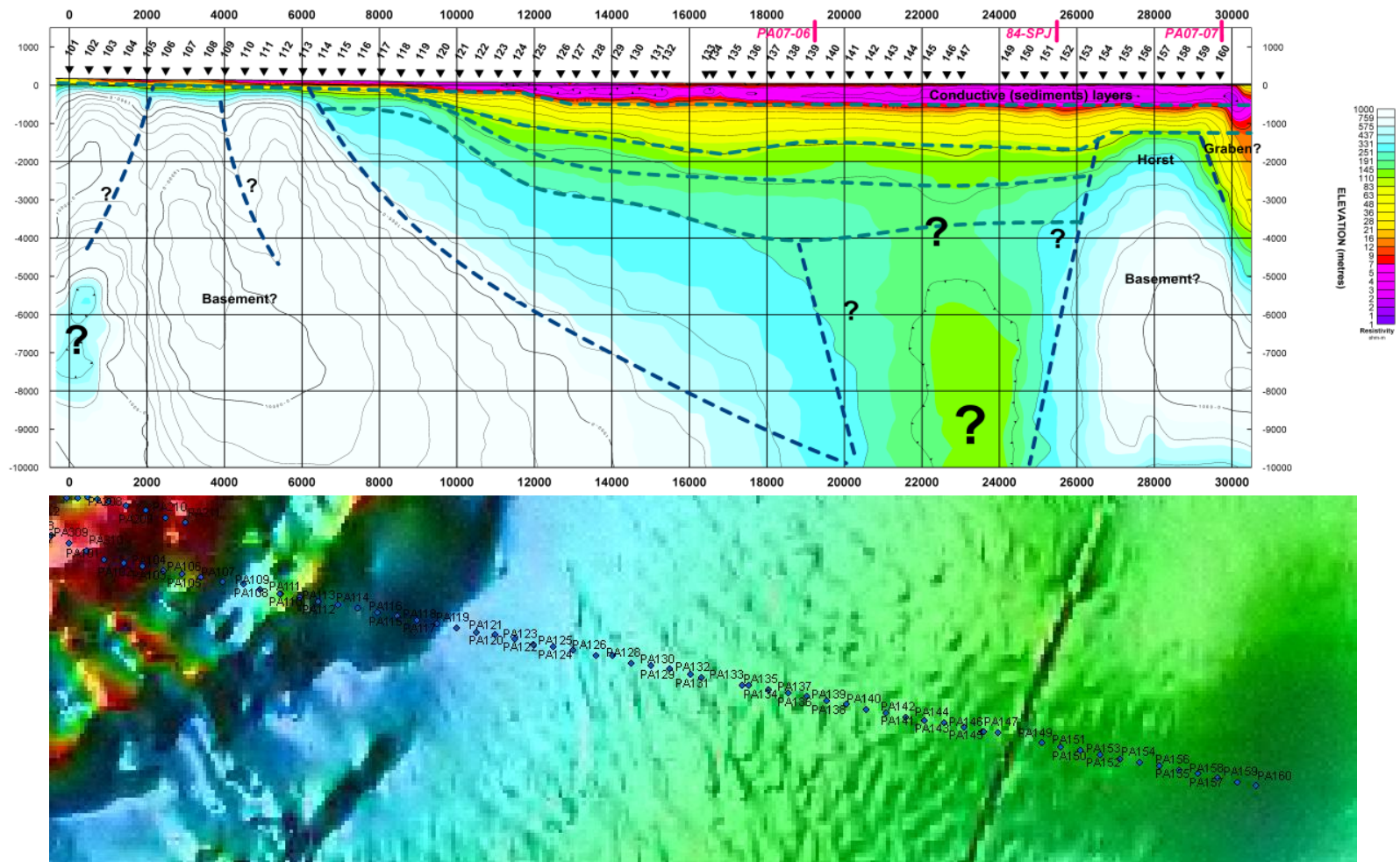
- › P2 located with deep graben
- › Confined by steeply dipping faults

Paralana MT Survey

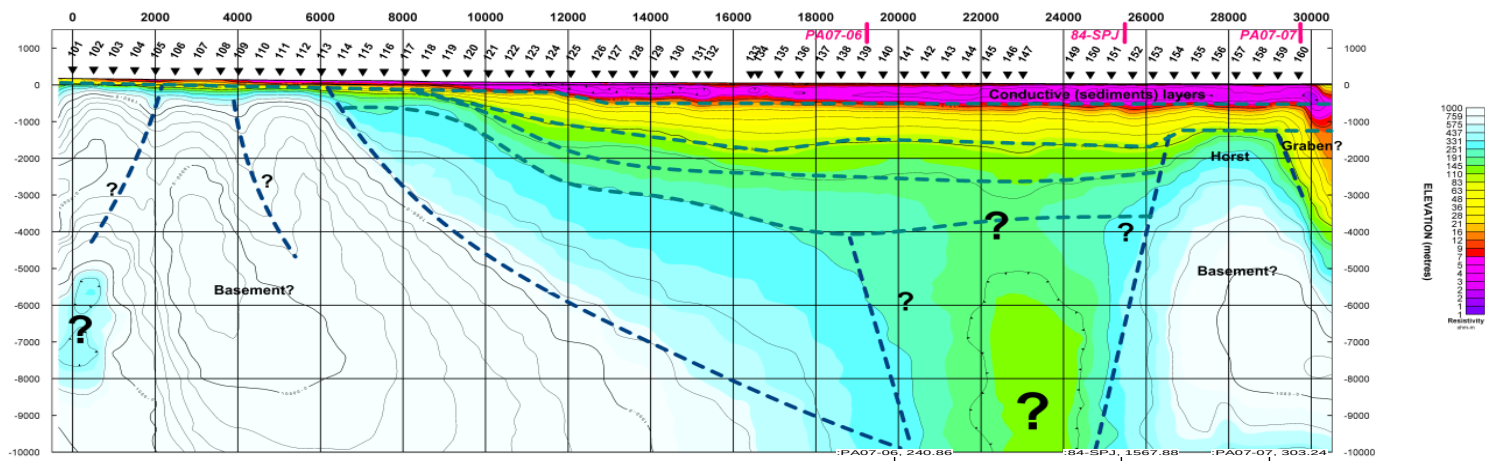
- › To determine depth to basement
- › Presence of fluids at depth
- › Confirm structural characteristics



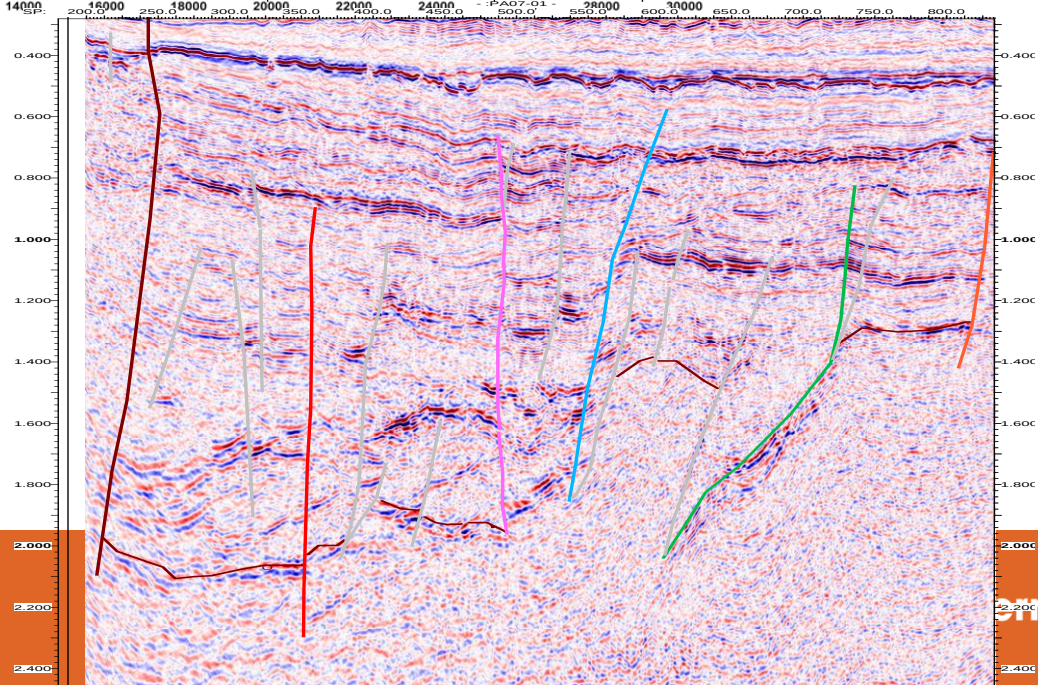
Paralana MT Survey



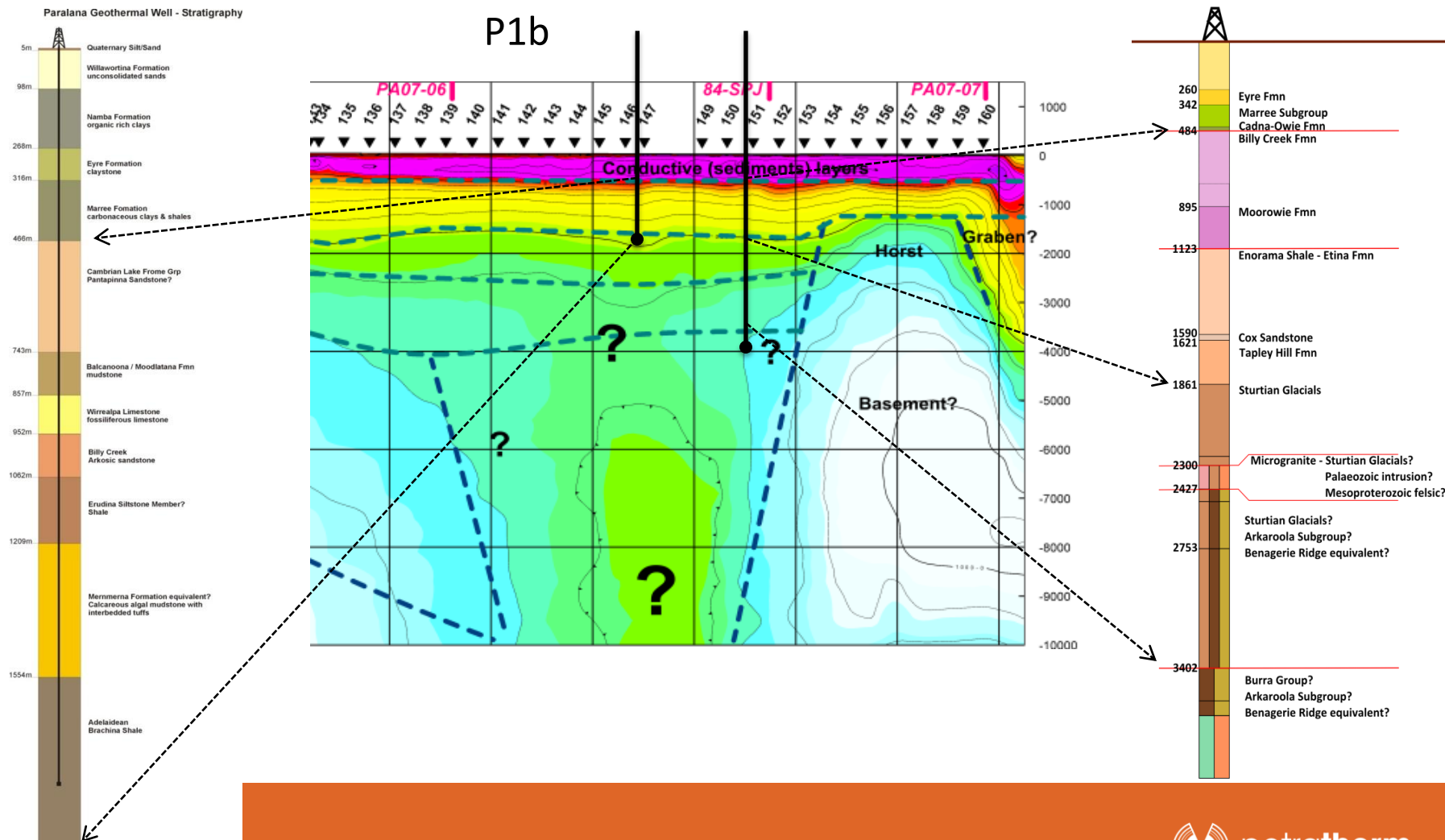
Paralana MT Survey



Good structural correlation is seen between the MT model and seismic data along coincident line. Note basement depth changes are mirrored.

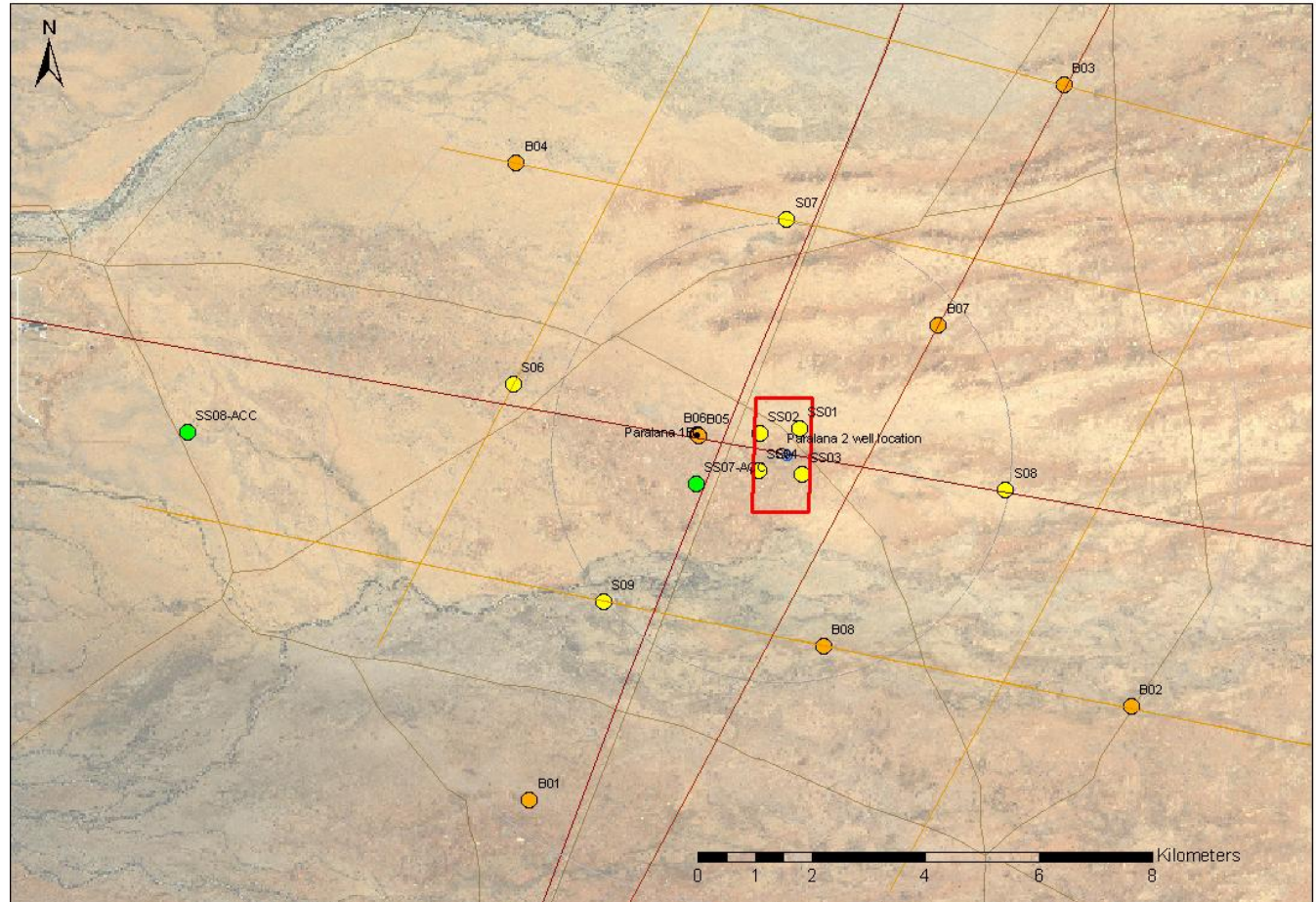


Paralana MT Survey



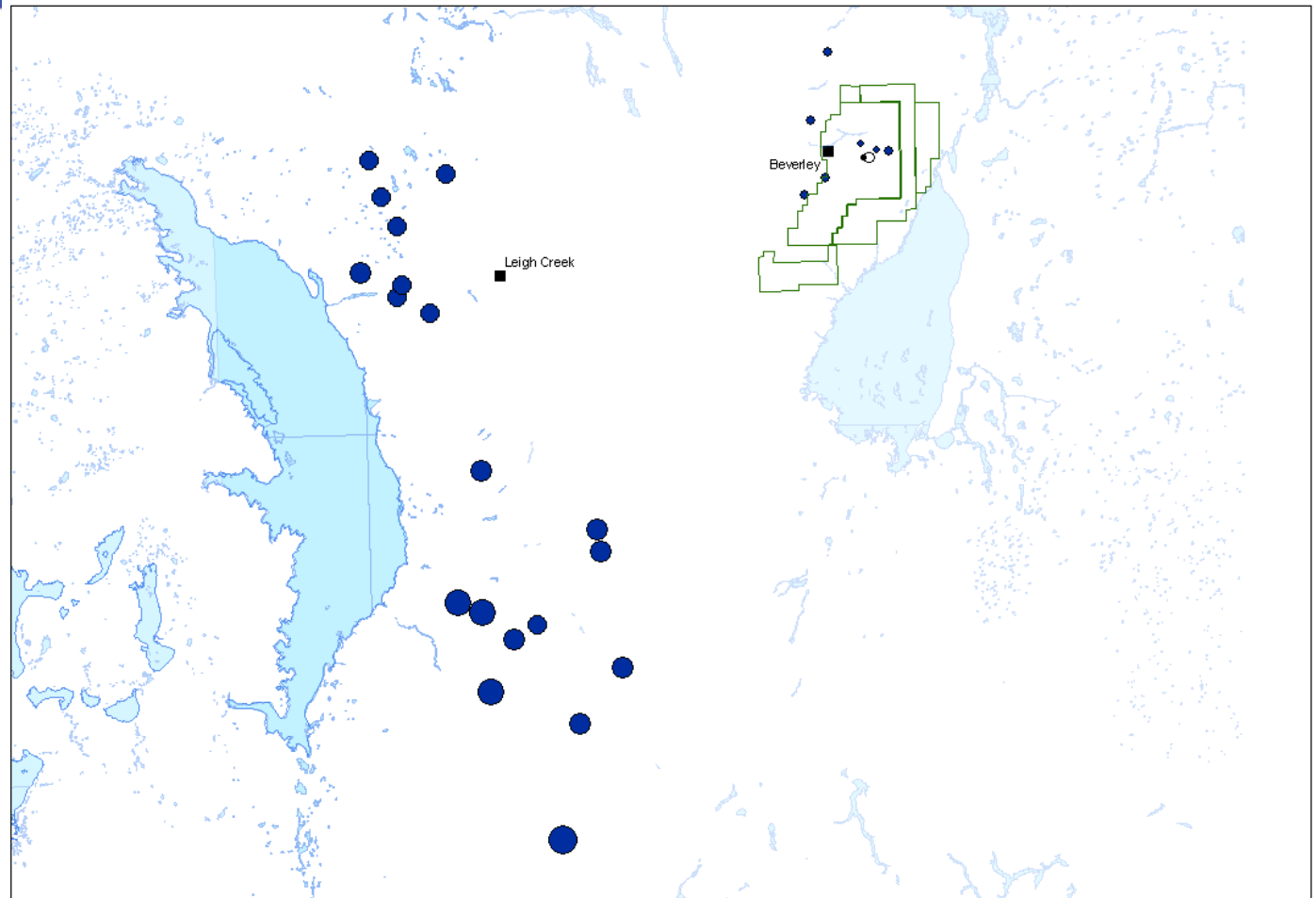
Passive Seismic Array

- › IESE (Institute of Earth Science and Engineering) NZ
- › 1 deep borehole sonde at 1790m in Paralana 1b
- › 6 borehole sondes at 200m
- › 8 surface seismometers
- › 2 accelerometers



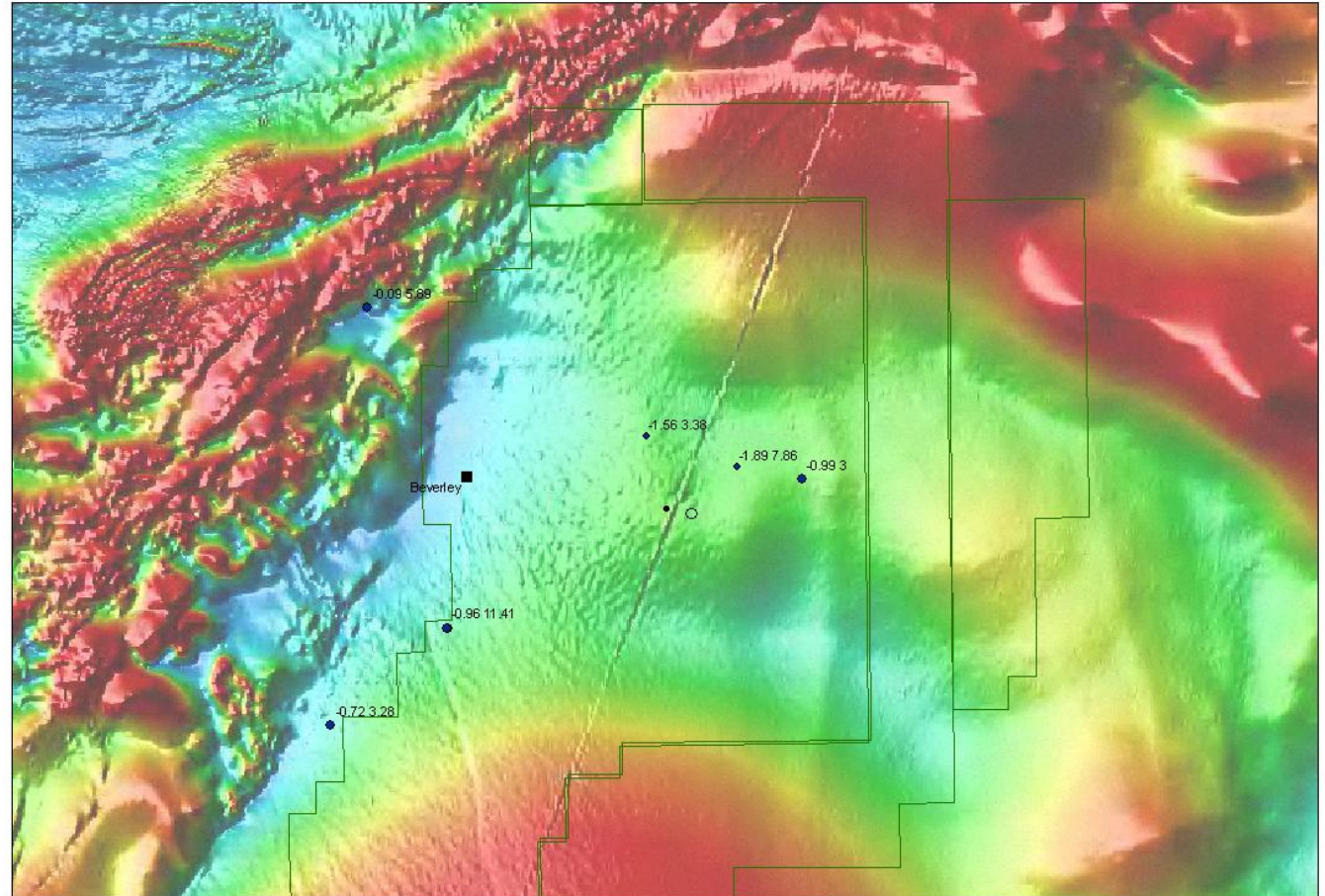
Regional and Local Seismic Events

- > Results from April 08 to June 09
- > Local and regional events
- > Relative ML of ML-1 to ML 4



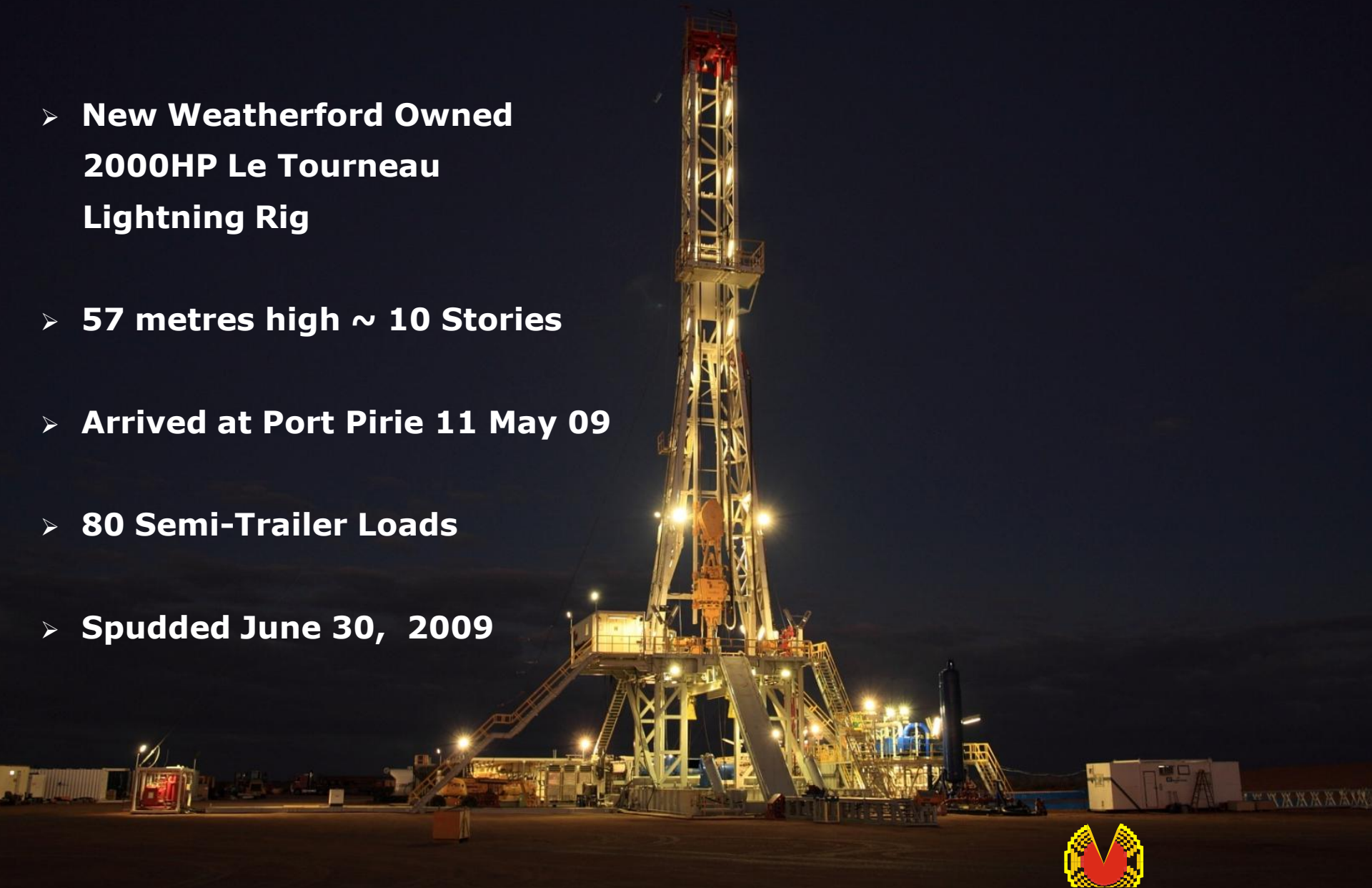
Background seismicity

- > Relatively small local events detected
- > Correlates faults within the Poontana Fracture Zone.



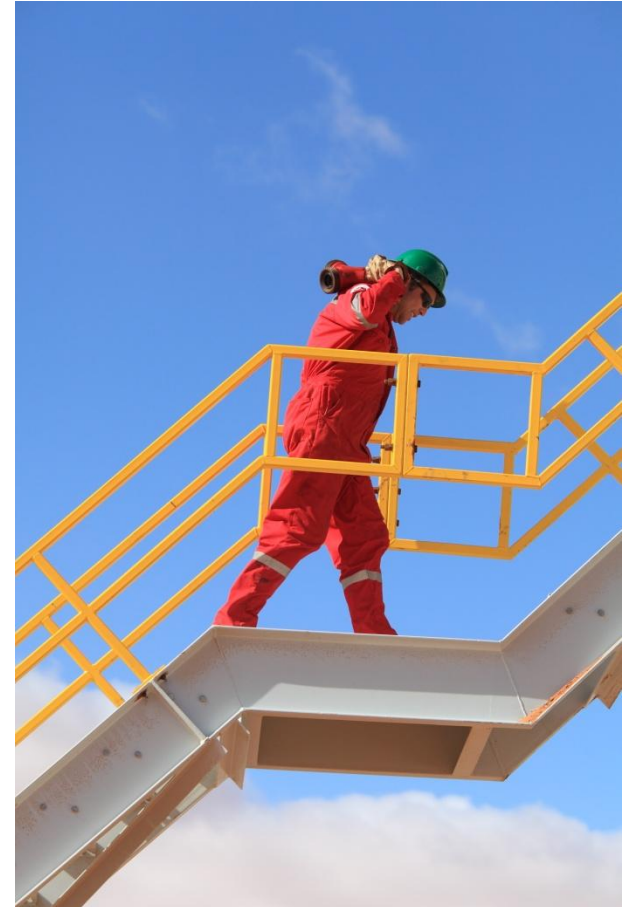
Paralana 2 – Drilling

- **New Weatherford Owned
2000HP Le Tourneau
Lightning Rig**
- **57 metres high ~ 10 Stories**
- **Arrived at Port Pirie 11 May 09**
- **80 Semi-Trailer Loads**
- **Spudded June 30, 2009**



Paralana 2 - Operations

- Petratherm/Beach – extensive stakeholder and community consultation – Adnyamathanha Community, Beverley Uranium Mine , Epic Pipe line, Arkaroola Village
- Beach Petroleum – managed drilling operations
- HSE - no lost time injuries
- Only minor shake down issues
- Highly experienced and well trained drill crew



Paralana 2 - Drilling

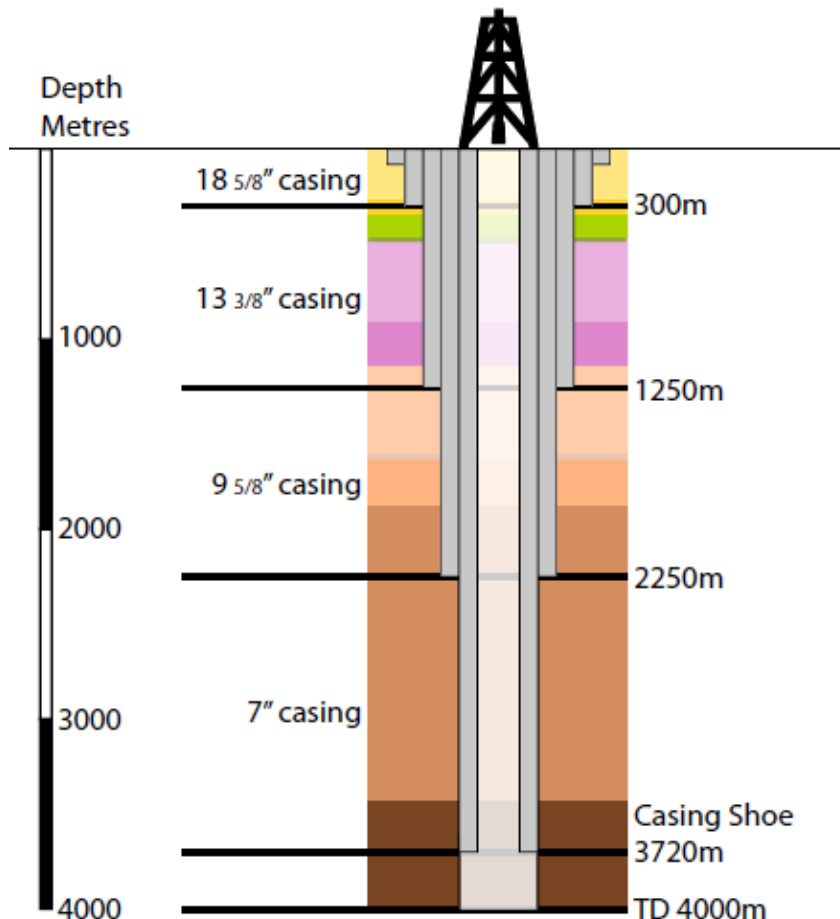
- Hard Rock Formations encountered in the top of the hole – slow ROP 1-3 m/hr
- Tested several BHA arrangements to optimize ROP
- Conservatively drilled to maximize likelihood of success
- Cost and Time overruns
- Only deep well within 90kms



Contingency Planning.....

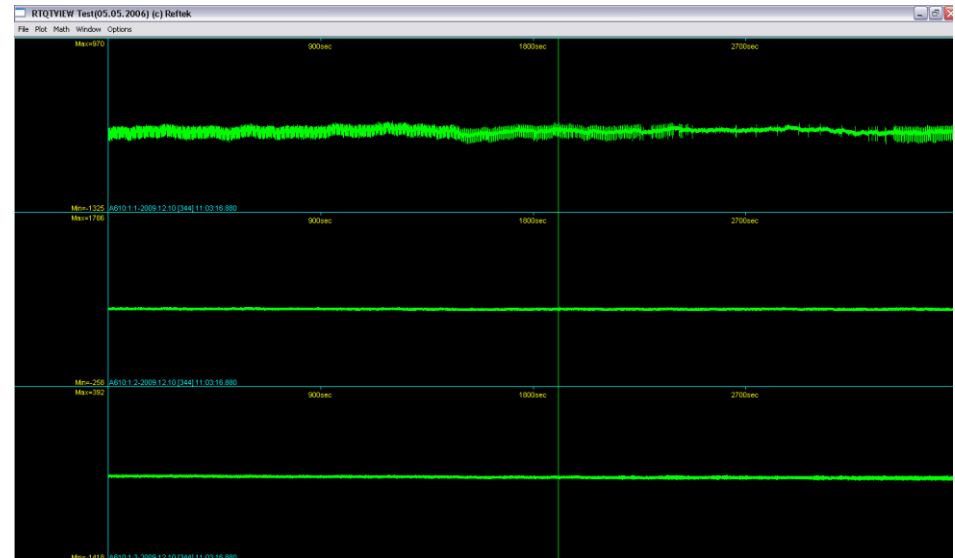
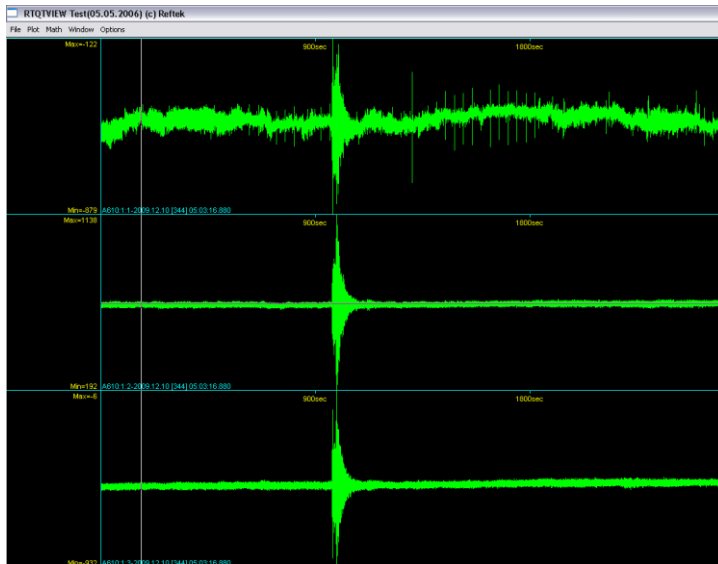


Paralana 2 - Drilling Completed to 4012 M – 9 Nov 2009



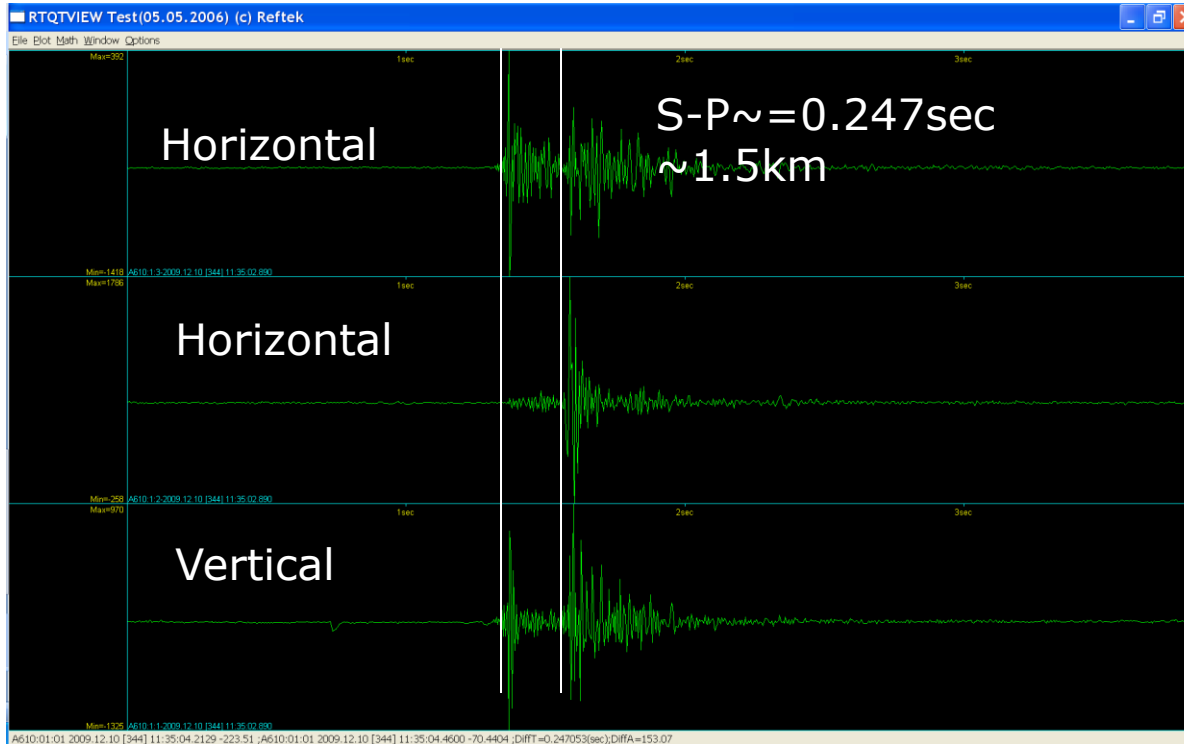
- > First well designed following low-risk, standard operating methods
- > Steady but slow drilling due to hard formations
- > Conservatively drilled to ensure success
- > Wireline and LWD logging undertaken
- > Well is cased and cemented to 3720m
- > Temperature readings to be taken shortly
- > Inflow zones encountered

Recent Micro-seismic activity



- Increased event detection since drilling began, most drilling related.
- Regional and local events detected by the array on 11th Dec 2009
- Regional event about 140km from the sensor, not detected by GA.
- Local event ML-1.5 to 0

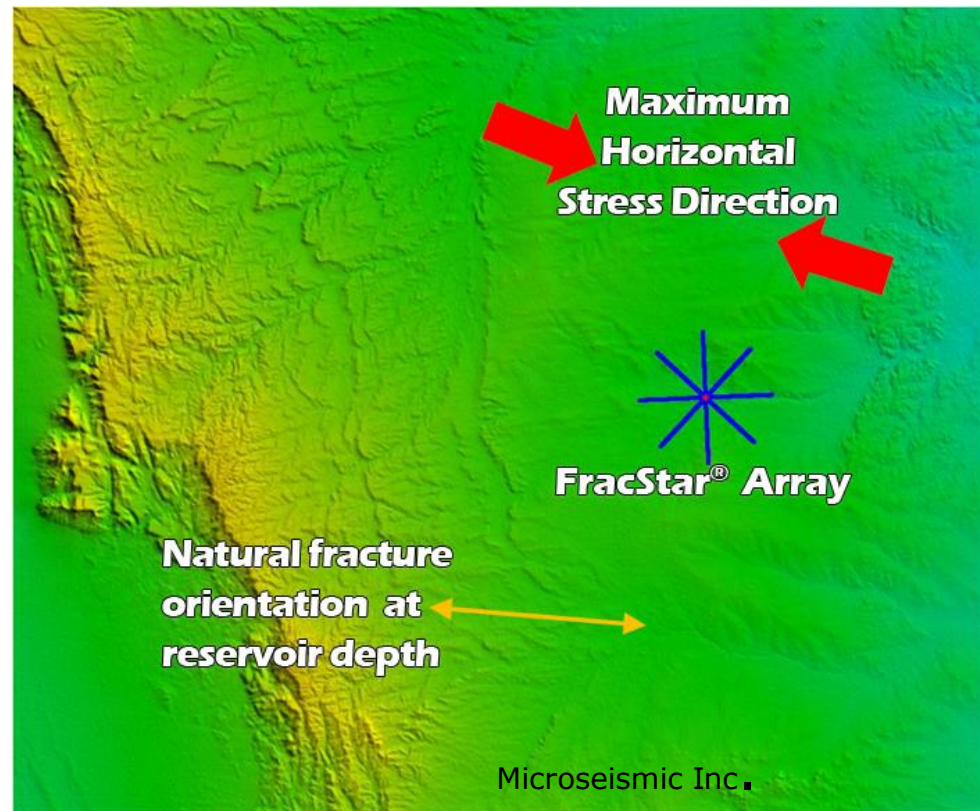
Recent Micro-seismic activity



- > MEQ event coincidental with casing cementing.

Future Work - Surface geophone array

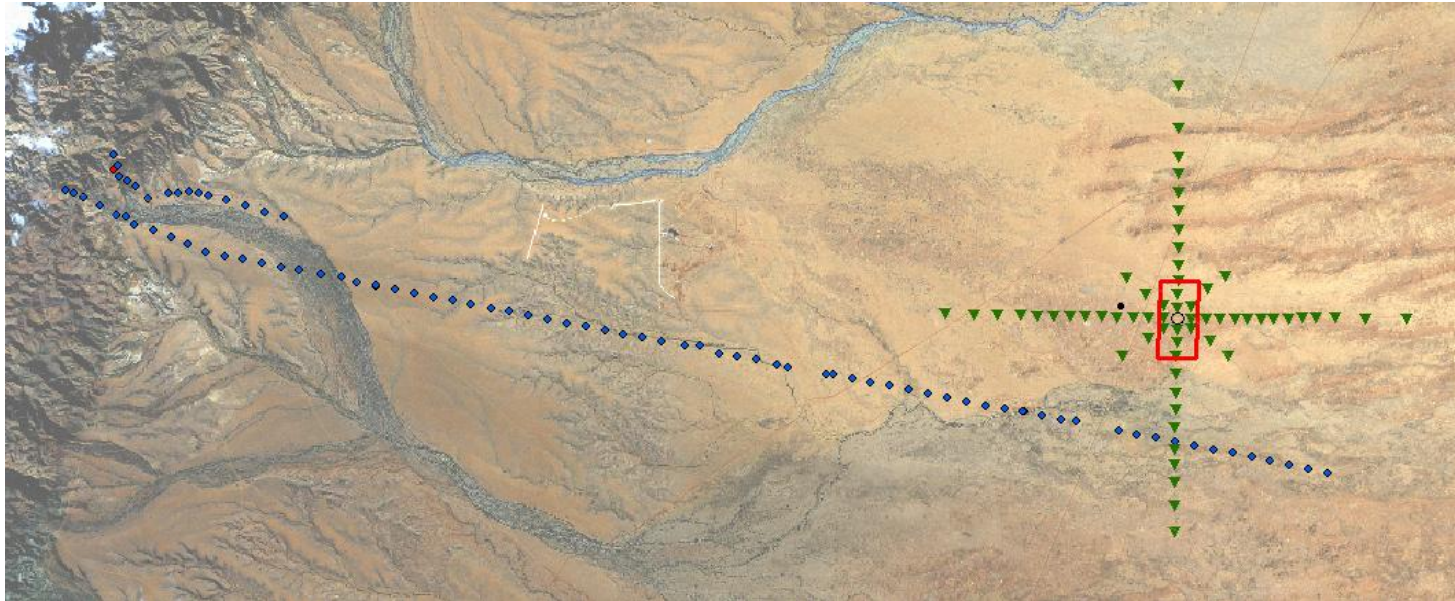
- > To ground truth method from use in EGS stimulations
- > To allow for new processing technique to be trialed.
- > "Star pattern"



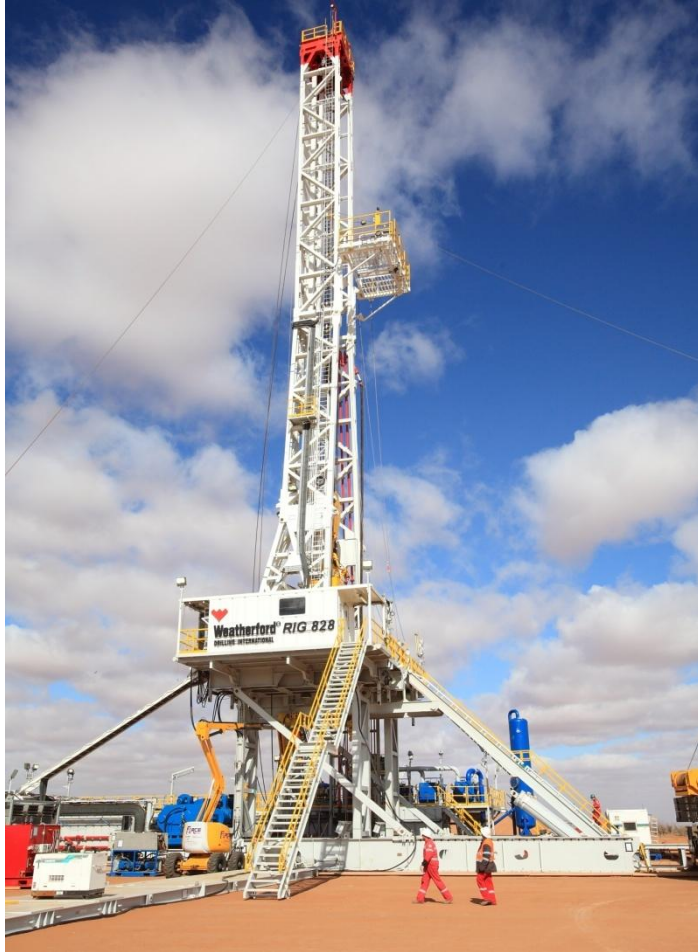
Future Work - Magnetotelluric Monitoring of Geothermal Fluids

Temporal coverage with 3 surveys

- > Survey **before** fracturing
- > Survey **during** fracturing
- > Survey **after** fracturing



Future Work Program



- > 1st Qtr 2010: CHL program, Mini frac program/fracture stimulation design
- > 2nd Qtr 2010: Multi-zone fracture stimulation
- > 3rd Qtr 2010: drilling of the Paralana 3 deep producer well
- > End 2010/ Early 2011: Circulation Test – Proof of Concept
- > Early 2011: Commission first stage power plant

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