



PART 3

BE08 ARAMAC SEISMIC SURVEY

SEISMIC SURVEY REPORT

ATP 813P – QUEENSLAND

Lines
BE08-07
BE08-08
BE08-11
BE08-12

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1.0 INTRODUCTION

During the period from the 5th to the 8th of October in 2008 Terrex Seismic of Bibra Lake, WA, acquired 64.06km of seismic data consisting of four lines. The data was recorded using a 20m station interval and 120 live channels. Vibroseis was used as the data source and these conducted sweeps between pegs at every second station creating 30 fold data. This seismic was the initial phase of seismic acquired by Blue Energy Limited in ATP 813P.

Surveying, chaining and pegging was conducted by Dynamic Satellite Surveys of Yeppoon Qld between the 27th of September and 4th of October. A report on their operations has been included as Appendix b of this report

The survey was processed by Fugro Seismic Imaging Pty Ltd., 69 Outram Street, West Perth WA 6005 between November 2008 and January 2009.

2.0 LOCATION

The survey is located within 60km to the north east of the town of Aramac which is approximately 60km north of Barcaldine in North Queensland. The survey area overlies a portion of the Galilee and Drummond Basins. It lies at the western edge of the Kobarra Trough and includes part of the Aramac Trough.

The main objective of the survey is to determine the depth and structure of the coals of the Aramac Coal Measures, the Bandanna Coal Measures and its equivalent the Betts Creek Beds.

3.0 GEOLOGY

The BE08 Aramac Seismic Survey was conducted in the central Galilee Basin of North Queensland. The target was the Bandanna Formation, Betts Creek Beds and Aramac Coal Measures, which form the top of the Permian in the Galilee Basin.

3.1 GALILEE BASIN

The Galilee Basin was initiated as an intra-cratonic sag basin controlled by extensional basement faults (Van Heeswijck 2004). It is underlain in the east by the Late Devonian to Early Carboniferous Drummond Basin. The Drummond Basin developed as a back arc basin within an active margin developed inboard of a westerly dipping subduction zone. In the west the Galilee Basin overlies crystalline basement possibly the Mount Isa Inlier. It in turn is overlain by the Jurassic Eromanga Basin in the south and in the west. The basin is continuous with the Bowen Basin over the Nebine

Ridge to the east and with the Cooper Basin over the Canaway Ridge to the south west.

The Galilee Basin is divided into northern and southern parts by the east west Barcaldine Ridge. The northern part is further subdivided by the emergent Manaroo Platform and its north easterly extension the Beryl Ridge into the Koburra Trough in the east and the Lovelle Depression in the west.

The Late Carboniferous to Late Triassic Galilee Basin overlies the Drummond Basin. There is no evidence for a structural hiatus between the Drummond Basin and the Galilee Basin with only localized regions of downlap and onlap (Van Heeswijk 2004).

Initial sedimentation of the Drummond Basin was associated with active back arc crustal extension and is reflected by the rift architecture of the basin floor (Johnson & Henderson 1996, De Caritat & Braun 1991) and recognized in field mapping of the Silver Hills Volcanics (Davis & Henderson 1996) and field mapping of the Star of Hope Formation. This was followed by thermal subsidence resulting in two cycles of sedimentation and the fluvial Bulliwallah Formation and the lacustrine Natal Formation (De Caritat & Braun 1991).

The sedimentation and structure of the Galilee Basin is closely related to the initiation and formation of the adjacent Bowen Basin (van Heeswijk 2004). Initial sedimentation is represented by the Lake Galilee Sandstone found in the Koburra Trough. Renewed lithospheric stretching is considered to have reactivated Drummond Basin basement faults resulting in north westerly trending structures such as the Hulton Rand Structure, Darriveen Fault and the Maranthena Monocline. North east trending basement faults parallel transfer faults within the Drummond basin such as the Cork Fault, Holberton Structure, Wetherby Structure, Elderslie Ridge, Beryl Ridge and Tara Structure. The Lake Galilee Sandstone was followed by glacial sedimentation of the Jericho Formation and the volcano-lithic sandstones of the Jochmus Formation.

At the end of the early Permian extensional tectonics resulted in deposition of the Aramac Coal Measures which have retained their thickest section in half grabens such as the Aramac Depression which occur adjacent to the Manaroo Platform (Hawkins & Green 1993). Subsequent compression resulted in uplift and erosion of the Aramac Coal Measures from eastern areas of the basin.

Late Permian deposition was sourced from the east with the Colinlea sandstone, the marine Peawaddy Formation and the Black Alley Shale, and the Bandanna Formation continuous across the Nebine Ridge from the Bowen Basin. Meanwhile in the north of the Koburra Trough and in the Lovelle Depression the Betts Creek Beds were being deposited with sediment sourced from the north. The Betts Creek Beds are a similar coal measure sequence.

In the Triassic similarly the Rewan Formation, the Clematis Sandstone and the Moolayember Formation have been deposited in the east and south contiguous with the same formations in the Bowen Basin. Meanwhile the Dunda Beds have been deposited in the Koburra Trough after the Rewan Formation while the Warang Sandstone has been deposited in the northern Koburra trough and in the Lovelle Depression during the Triassic.

Mid Triassic uplift occurred at the end of the Hunter Bowen Orogeny producing the unconformity marking the upper boundary of the Moolayember Formation (Van Heeswijck 2004). This resulted in the partial or total erosion of the Triassic succession over the Manaroo Platform and the Lovelle Depression and gave rise to steep westerly dips of the Betts Creek Beds near the Mingoar Monocline in the east.

A stable tectonic regime and intra-cratonic sag gave rise to the deposition of the Eromanga Basin sequence which onlaps the emergent Manaroo Platform.

3.1.1 Aramac Coal Measures

The Aramac Coal Measures are the lateral more distal equivalent of the Jochmas Formation. The Jochmas Formation, a braided stream fluvial deposit, progressively onlaps the underlying Jericho Formation toward the west. The coal occurs toward the top of the otherwise sandy section. Uplift and erosion have removed this sequence from many basement highs. It varies from zero to 160m thick

3.1.2 Betts Creek Beds/Bandanna Formation

The Betts Creek Beds are the lateral equivalent of the Colinlea sandstone and the Bandanna Formation. Sandstones derived from the east in the case of the Colinlea Sandstone and Bandanna Formation, and the west with the Betts Creek Beds have resulted in rhythmic sand, shale, coal, cycles of sedimentation. The Succession is 100 to 200m thick over the entire tenement area.

The top of the Betts Creek Beds and Bandanna Horizon is the P horizon of Shaw 1985. As in the Bowen Basin this is an easily recognizable marker horizon due to the impedance contrast between the Triassic Rewan formation above and the coal measures of these units.

Unfortunately there is little to distinguish this unit from the Aramac Coal measures below and they essentially form part of the same seismic facies characterised by strong parallel and subparallel reflectors. The increase in section adjacent to basement highs can be attributed to Aramac Coal Measures.

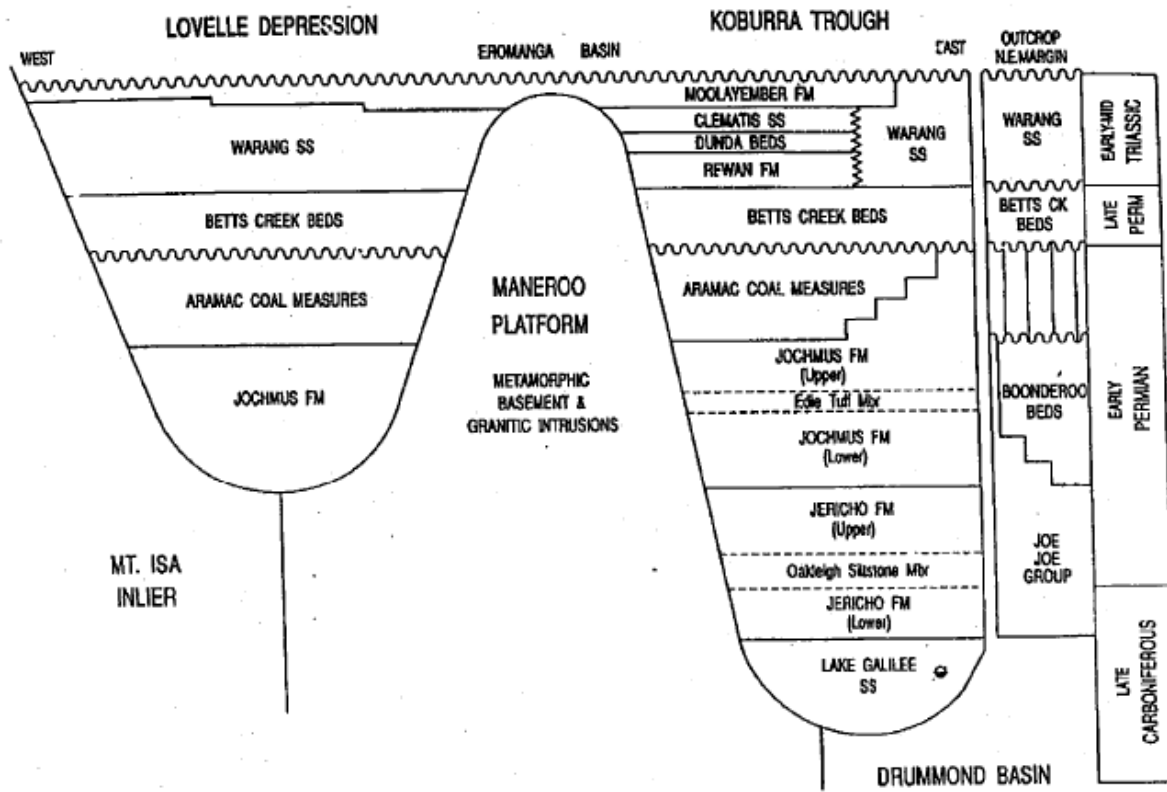


Figure 1 Stratigraphy of the Galilee Basin

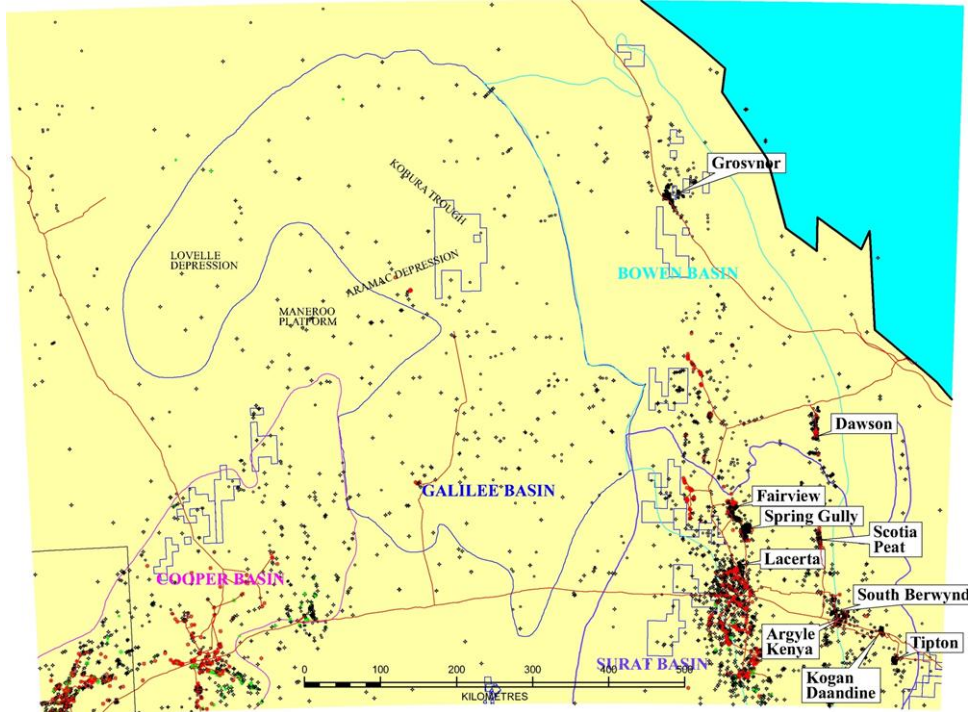


Figure 2 Structural setting of the Galilee Basin and adjoining basins

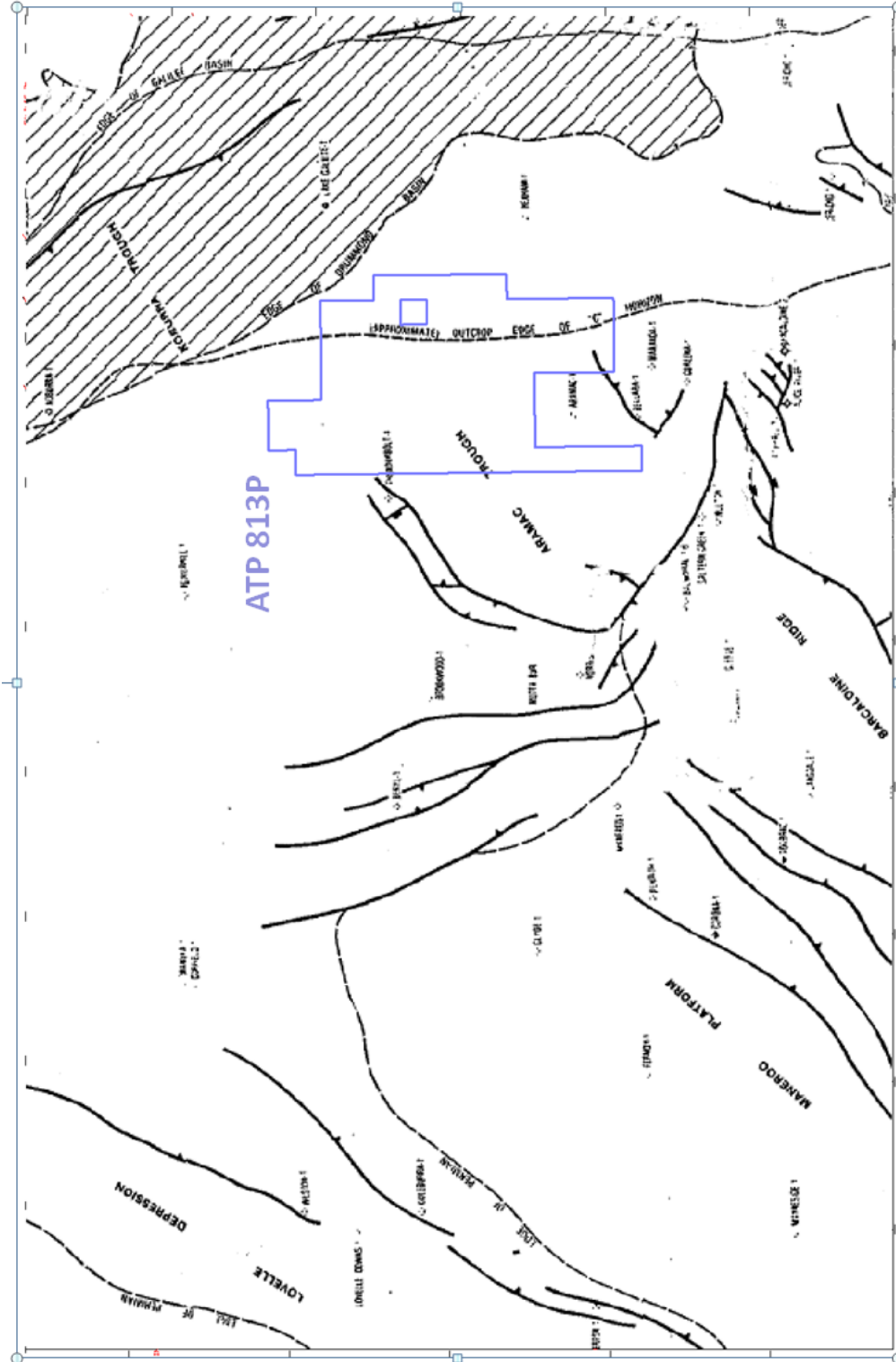


Figure 3 ATP 813P on structural features of the Galilee Basin

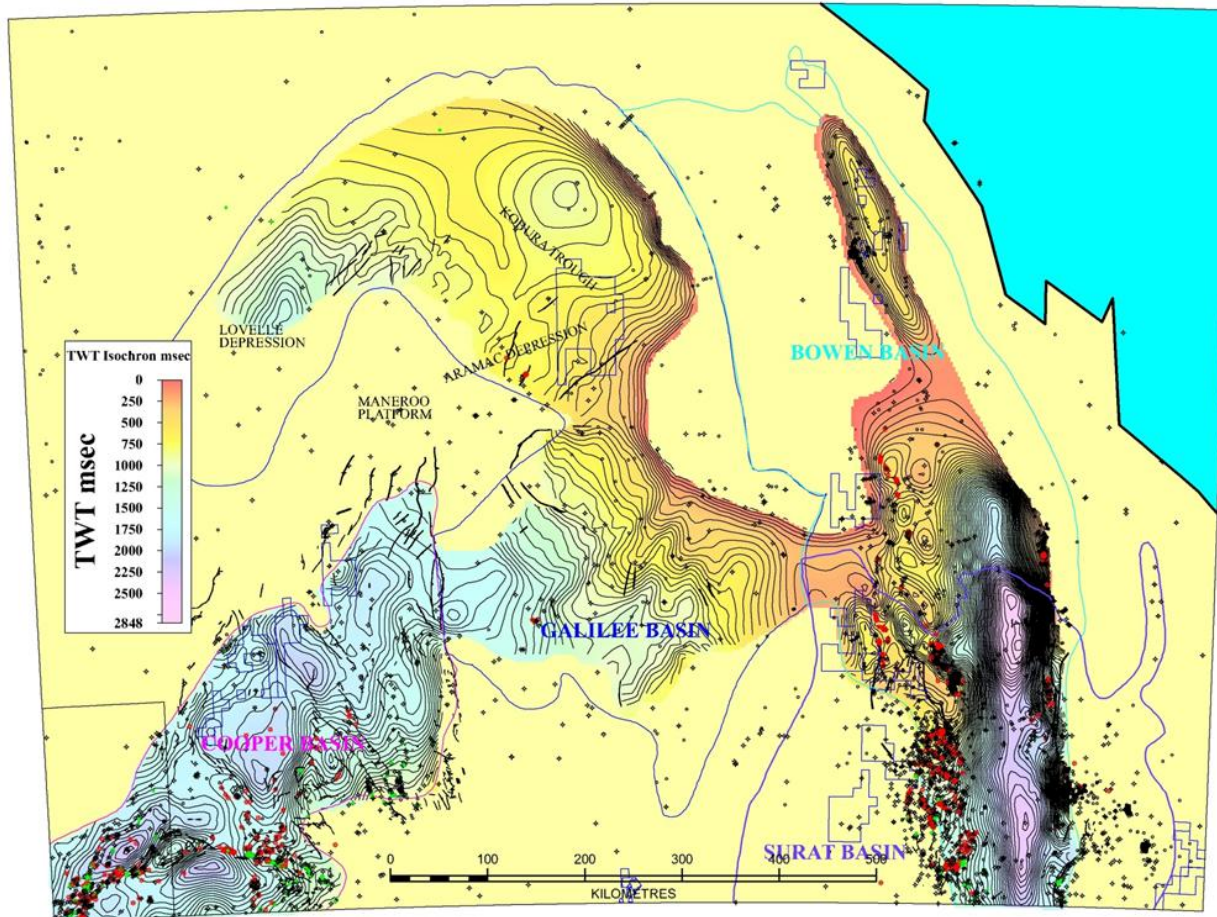


Figure 4 time structure map on the top Permian coal of the Bowen, Galilee and Cooper Basins

4.0 ATP 813P

The BE08 Aramac Seismic Survey consisted of four lines and was conducted on the eastern margin of ATP 813P.

ATP 813P consists of 74 graticular blocks or 3,774km² and was granted to Blue Energy as the sole title holder, for a twelve year term in February 2006. The acquisition of the BE08-Aramac survey complies with a work commitment made under ATP813P to the Queensland Department of Mines and Energy to undertake 100km of seismic survey.

4.1 PREVIOUS SURVEYS

The proximity to the Denison Trough and the conventional fields of that region have resulted in ample previous seismic coverage to the north and west of this survey. The seismic shot point basemap shows how these surveys integrate with the existing surveys. These surveys are listed below:

| Year | Survey | Prefix | Operator |
|------|---------------|--------|-------------------|
| 1967 | Galilee Basin | R | Highwal Oil & Gas |
| 1980 | Burgura | HOG80 | Leighton Mining |
| 1981 | Pendine | L81 | Leighton Mining |
| 1981 | Bellara | B81 | Leighton Mining |
| 1983 | Carmicheal | CAR82 | Canso Resources |

Table 1 previous seismic surveys

4.2 WELL CORRELATION

EEA Splitters Creek 1 was drilled to 1004m depth to intersect the Betts Creek Beds at 754m and the Aramac Coal Measures at 905m. This well was drilled as a coal bed methane well. A sonic log was run from 589 m to 1003m while a density log was run from surface to 1003m. The well is on seismic line L81-10A near station 1067.

APC Thunderbolt 1 was drilled to 1608m depth to intersect the Betts Creek Beds which were encountered at 881m. This well was drilled as a conventional petroleum exploration well. The well was drilled near station 326 on seismic line L81-8.

LMN Bellara 1 a conventional petroleum well, was drilled to 1387m depth to intersect quartzite basement at 1376m. The Bandanna Formation was encountered at 623m and the Aramac Coal Measures at 761m depth. A sonic and density log has been run from 157 to 1381m. The well was drilled near station 231 on line B81-06.

AOD Maranda 1 is a conventional petroleum exploration well drilled near station 1490 on seismic line L81-8. The well reached a depth of 1978m encountering the Bandanna Formation at 730m.

ENL Lake Galilee 1 is a conventional petroleum exploration well drilled to a total depth of 3406m into Devonian Drummond Basin rocks. It is situated near station 2340 on seismic line CAR82-25. A sonic and Density log has not been run.

EEA Fleetwood 1 is a coal seam methane exploration well drilled to a depth of 1237m. The Betts Creek Beds were intersected between 1039 and 1221 m. It is located near station 2720 on seismic line CAR82-23. A sonic lag has been run from 880 to 1235m and a density log from near surface to 1233m.

BUL Carolina 1 is a coal seam methane exploration well drilled to a depth of 1060m. The Betts Creek Beds were encountered at 800m where they overlie the Arac Coal Measures from 990 to 1010m. The well is situated near station 3520 on line CAR82-25. A sonic and density log were run from near surface to near total depth.

5.0 OPERATIONS

5.1 ACQUISITION

The data was acquired on the 5th and 8th of October 2008 by Terrex Seismic of Bibra Lake WA. They have provided an operations report which is included as Appendix F of this report.

| Line | Start VP | End VP | Km | Dates Shot |
|--------------|----------|--------|--------------|----------------------------------|
| BE08-07 | 101 | 990 | 17.78 | 7 th -8 th |
| BE08-08 | 101 | 1136 | 20.70 | 6 th 7 th |
| BE08-11 | 101 | 654 | 11.06 | 5 th |
| BE08-12 | 101 | 823 | 14.44 | 6 th |
| TOTAL | | | 63.98 | |

Table 2 line statistics

5.2 BIRD DOGGING

Field operations were conducted with the help of field supervisor Mark Kneipp. His report on operations has been included in Appendix I of this report

5.3 PROCESSING

The data was processed by Fugro Seismic Imaging Pty Ltd., 69 Outram Street, West Perth WA. They have provided a processing report which is included as Appendix K of this report.

5.4 INTERPRETATION

The top of the Permian section is one of the most distinctive horizons seismically because of the presence of coals in the Bandanna Formation and Betts Creek Beds. The acoustic impedance contrast of these coals with the overlying horizons, devoid of coal, provides the high amplitude reflectors. This horizon is usually mapped as the P horizon by other workers.

The top of the Aramac Coal Measures is less distinct as these sit immediately below the above coal measures and appear to be a continuation of the high amplitude parallel to subparallel reflectors of the Bandanna Formation and Betts Creek Beds.

6.0 PROSPECTS AND LEADS

The survey is based on Coal Bed Methane exploration requirements where potential closures with potential for free flowing gas are not the targets. What is required is to determine the structural nature of the top coal surface.

The top of the Permian dips toward the west and the north toward the Manaroo Platform and Lovelle Depression. There are boundary faults along the margin of the Manaroo Platform down thrown to the east into the basin. There are several north east trending ridges and faulting resulting from reactivation of basement structures. The depths range from around 500m south of Splitters Creek to 1100m in the north of the prospect.

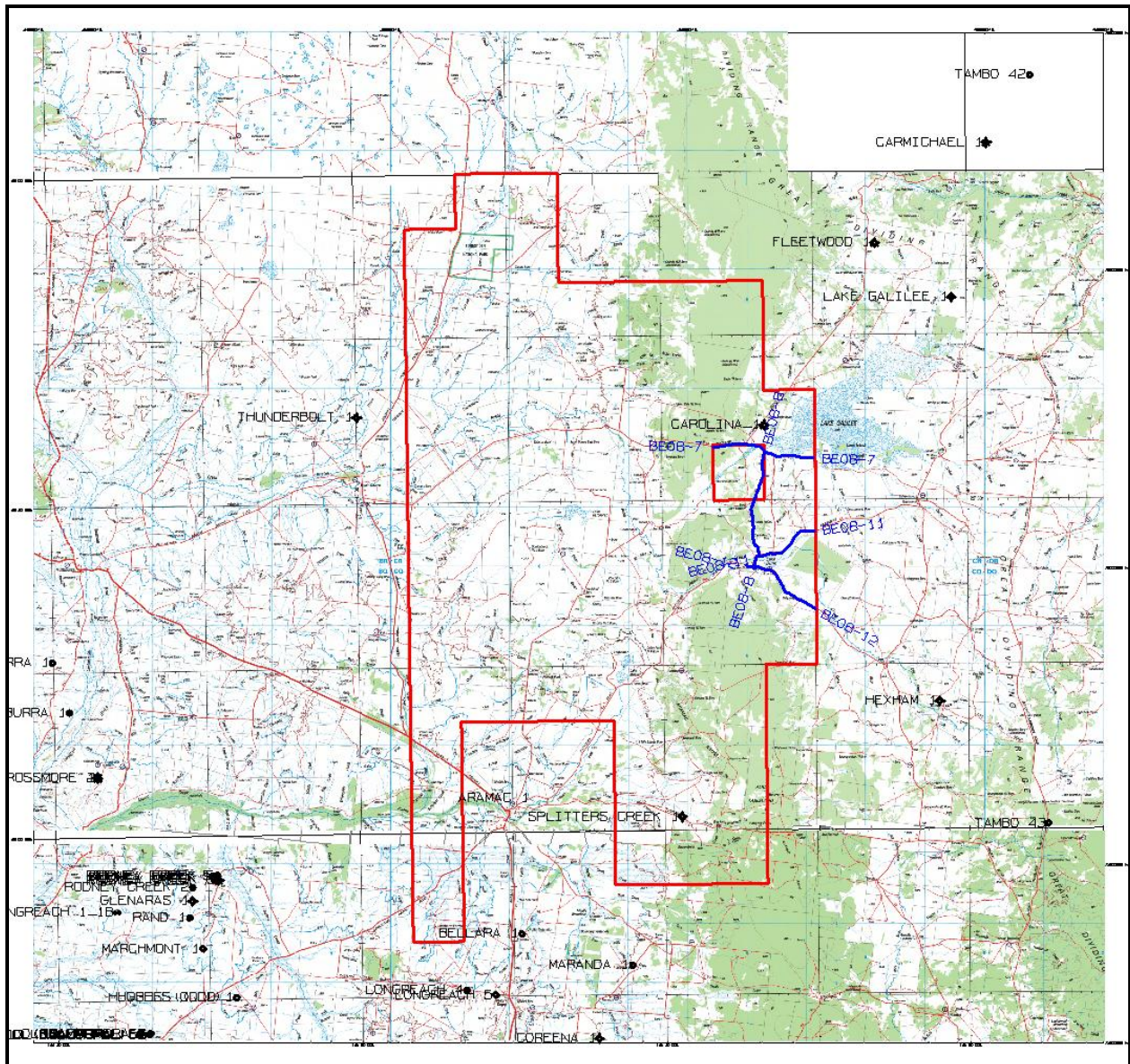


Figure 5 Shotpoint basemap of the BE08 Aramac seismic survey and nearby wells

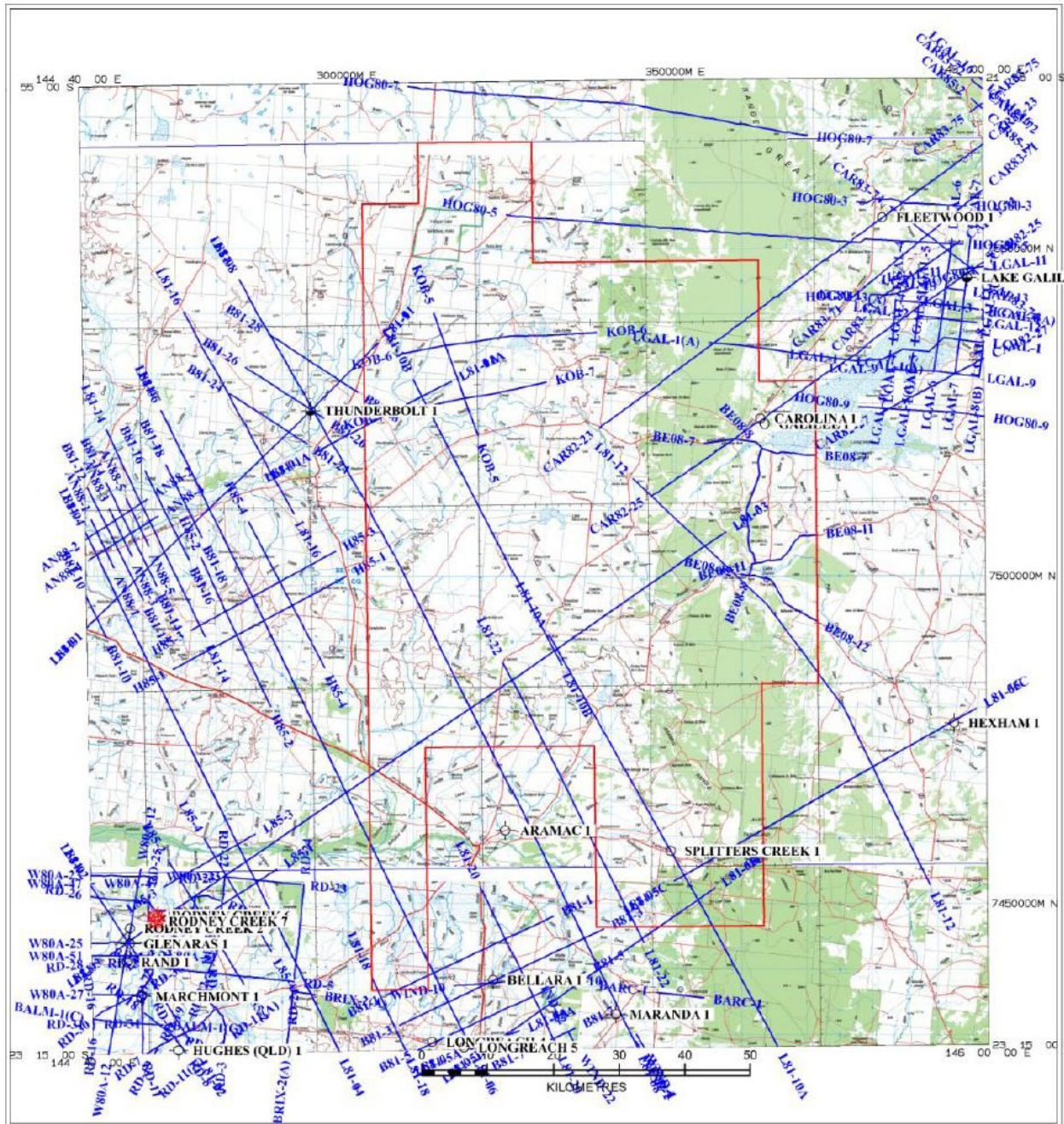


Figure 6 Shotpoint basemap showing the BE08 Aramac seismic surveys and existing wells and surveys within ATP 813P

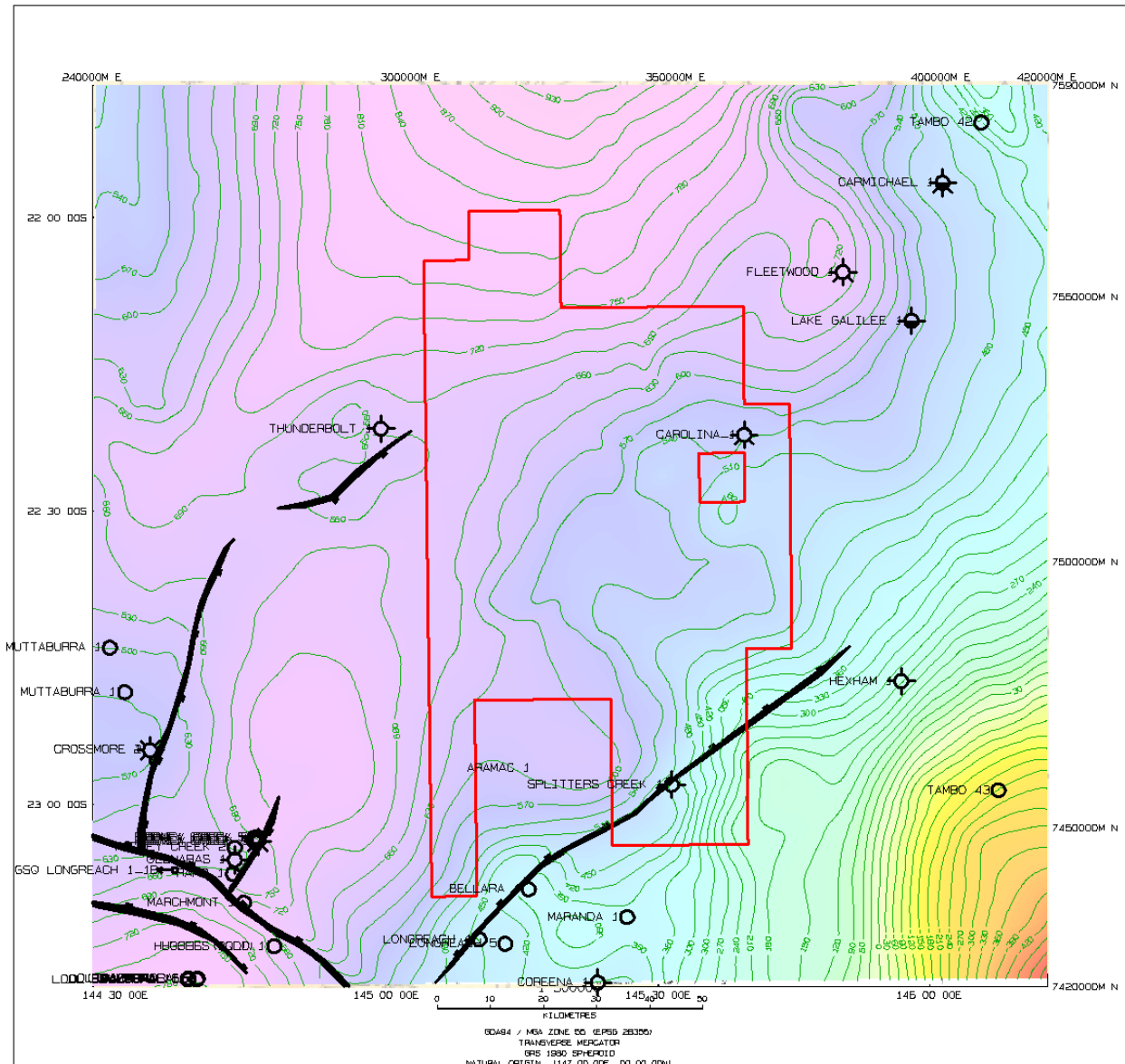


Figure 7 depth to sea level datum of the top Bandanna/ Betts Creek Beds

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8.0 INTERPRETED SECTIONS