



12 October 2012

Companies Announcement Office  
Australian Securities Exchange Limited  
10th Floor, 20 Bond Street  
SYDNEY NSW 2000

### **ADVENT ENERGY LTD – SHALE GAS DATA RELEASE**

MEC Resources Limited (ASX:MMR) is pleased to advise that investee company Advent Energy Ltd (“Advent”) has released further data on its shale gas study in Exploration Permit 386 (“EP386”) and Retention Licence (“RL1”) in the onshore Bonaparte Basin, northern Western Australia .

Advent’s 100% interests in EP386 and RL1 are held by wholly owned subsidiary Onshore Energy Pty Ltd. Advent’s major shareholders remain MEC Resources (ASX: MMR), BPH Energy (ASX: BPH), Talbot Group and Grandbridge (ASX: GBA).

Advent has identified significant shale areas in EP386 and RL1 and is continuing to assess these resources.

The following data illustrates detail from that study showing results from the re-analysis of the well logs from prior drilling in Advent’s areas using enhanced computer processes.

The EP386 exploration permit covers an area of 2,568 square kilometres while RL1 covers an area of 166 square kilometres within the onshore portion of the Bonaparte Basin in Western Australia and the Northern Territory respectively.

#### **SHALE GAS**

- The attached study released by Advent indicates significant potential upside in prospective shale gas resources with estimated unrisks original gas in place (OGIP) in the range from 19 TCF to 141 TCF for the 100% Advent owned EP386 and RL1;
- The thickness of the prospective shale gas play varies from 300m to over 1500m;
- In addition to the existing gas discoveries in conventional petroleum reservoirs, composite wireline and mudlog gas display of these wells have consistently indicated the presence of continuous elevated gas shows. Source rock analyses on core, sidewall core and cuttings samples have indicated the presence of source rocks with up to 4.3 % Total Organic Content and mature for gas and oil generation; and
- Advent has calculated a risked recoverable of 9.6 TCF for the shale gas areas of the Bonaparte permits of EP386 and RL1.

#### **CONVENTIONAL GAS**

- Multiple petroleum targets are present in EP386 & RL1 area;
- Review of various conventional petroleum exploration and appraisal wells in the study area has been undertaken by Advent as part of its ongoing assessment of the commercial production opportunity for existing gas discoveries in the area. Production testing of Waggon Creek-1 is presently continuing; and
- Proven conventional gas resource: Upgraded assessment (“Best Estimate”) of conventional prospective resources in EP386 of 355.9 Bcf gas.

Planning is underway for CNG/LNG commercialisation of these conventional resources. Further technical detail is available in the attached report.

Yours sincerely,



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**About MEC Resources**

ASX listed MEC Resources (ASX: MMR) invests into exploration companies targeting potentially large energy and mineral resources. The Company has been registered by the Australian Federal Government as a Pooled Development Fund enabling most MEC shareholders to receive tax free capital gains on their shares and tax free dividends.

**About Advent Energy**

Advent Energy Ltd is an unlisted oil and gas exploration company held by major shareholders MEC Resources (ASX: MMR), BPH Energy (ASX: BPH), Grandbridge (ASX: GBA) and Talbot Group Investments. Advent holds a strong portfolio of near term development and exploration assets spanning highly prospective acreage onshore and offshore Australia in proven petroleum basins. Advent Energy's asset base also incorporates both conventional and unconventional petroleum targets.

*Notes: In accordance with ASX listing requirements, the geological information supplied in this report has been based on information provided by geologists who have had in excess of five years experience in their field of activity. MEC is an exploration investment company and relies on the resource and ore reserve statements compiled by the companies in which it invests. All Mineral Resource and Reserve Statements have been previously published by the companies concerned. Summary data has been used. Unless otherwise stated all resource and reserve reporting complies with the relevant standards. Resources quoted in this report equal 100% of the resource and do not represent MEC's investees' equity share.*

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### Bonaparte Basin Resources Investigation

Advent has identified significant shale areas in Exploration Permit ("EP386") and Retention Licence ("RL1") and is continuing to assess these resources.

A study released by Advent indicates significant potential upside in prospective shale gas resources with an estimated unrisks original gas in place (OGIP) in the range from 19 TCF to 141 TCF for the 100% Advent owned EP386 and RL1. The thickness of the prospective shale gas play varies from 300m to over 1500m.

The EP386 exploration permit covers an area of 2,568 square kilometres while RL1 covers an area of 166 square kilometres within the onshore portion of the Bonaparte Basin in Western Australia and the Northern Territory respectively. EP 386 contains the Waggon Creek-1 gas discovery, the Bonaparte-2 gas discovery, the Garimala-1 gas discovery and the Vienta-1 gas discovery. RL1 contains the Weaber Gas Field and both permits are 100% owned and operated by Advent through its wholly owned subsidiary Onshore Energy Pty Ltd.

Conventional gas has been discovered from different aged rocks at various depths in the study area. In Waggon Creek-1, gas with a stabilised flow rate was tested from shallow marine sands of Upper Milligans Formation at depths ranging of 380m KB to 620m KB, while in Bonaparte-2, the gas flowed from Lower Milligans Formation sands at a depth of 1437-1468m KB. In the Garimala-1 gas discovery, gas flowed from Langfield Group sands at a depth of 2380-2400m KB. In the Vienta-1 gas discovery, gas produced from Upper Devonian Ningbing Group sands within the interval from 1320m to 1430m KB. In the Weaber Gas Field, the key reservoir is the Enga Sandstone of the Langfield Group.

It should also be noted that liquid hydrocarbon exists in EP386 as oil was extracted from limestone of Ningbing-1 core sample and oil was recovered from the Upper Milligans sand on DST#3 at Waggon Creek-1. These validate the onshore Bonaparte Basin as an active hydrocarbon province with near-term commercial production development opportunities.

Review of various conventional petroleum exploration and appraisal wells in the study area has been undertaken by Advent as part of its ongoing assessment of the commercial production opportunity for existing gas discoveries in the area. In addition to the existing gas discoveries in conventional petroleum reservoirs, composite wireline and mudlog gas display of these wells have consistently indicated the presence of continuous elevated gas shows over the lower part of the Milligans Formation shale and mudstone dominated sedimentary sequence. Source rock analyses on core, sidewall core and cuttings samples from the Milligans Formation shale and mudstone within the EP386 and RL1 areas by previous operators have indicated the presence of moderately rich source rocks with up to 4.3% Total Organic Content ("TOC") and mature for gas and oil generation. Subsequent petrophysical analysis of the composite logs has indicated TOC may be up to 8%. The kerogen type of the Milligans Formation source rocks suggests they are more gas prone.

Attached are slides from this study

It is noted:

- In Bonaparte-1, the total gas increased from a background gas of around 2% to over 8% over the interval of approximately 1050m covering the lower part of the Upper Milligans Formation and the Lower Milligans Formation. The elevated gas show interval is associated with the shale/mudstone sedimentary sequence (high GR) having relatively lower resistivity log responses. The calculated TOC from logs can be up to 8%.
- In Garimala-1, the total gas increased from a background gas of around 10 units to more than 100 units over the interval of approximately 1650m covering Upper Milligans Formation and the Lower Milligans Formation. The elevated gas show interval is associated with the shale/mudstone sedimentary sequence (high GR) having relatively lower resistivity log responses. The calculated TOC from logs in Garimala-1 can be up to 5%.
- In Weaber-4, the total gas increased from a background of around 30 units to more than 100 units over an interval of approximately 600m covering Upper Milligans Formation and the Lower Milligans

Formation. The elevated gas show interval is associated with the shale/mudstone sedimentary sequence (high GR) having relatively lower resistivity log responses. The calculated TOC from logs in Weaber-4 can be up to 7% with average over 2%.

On completion of a comprehensive, integrated study encompassing seismic re-interpretation of the recently reprocessed and previously processed seismic data, geological and engineering data review and other relevant geochemical analyses results obtained from previously drilled petroleum exploration wells within EP386, RL1 and their close vicinity, the following conclusions have been made:

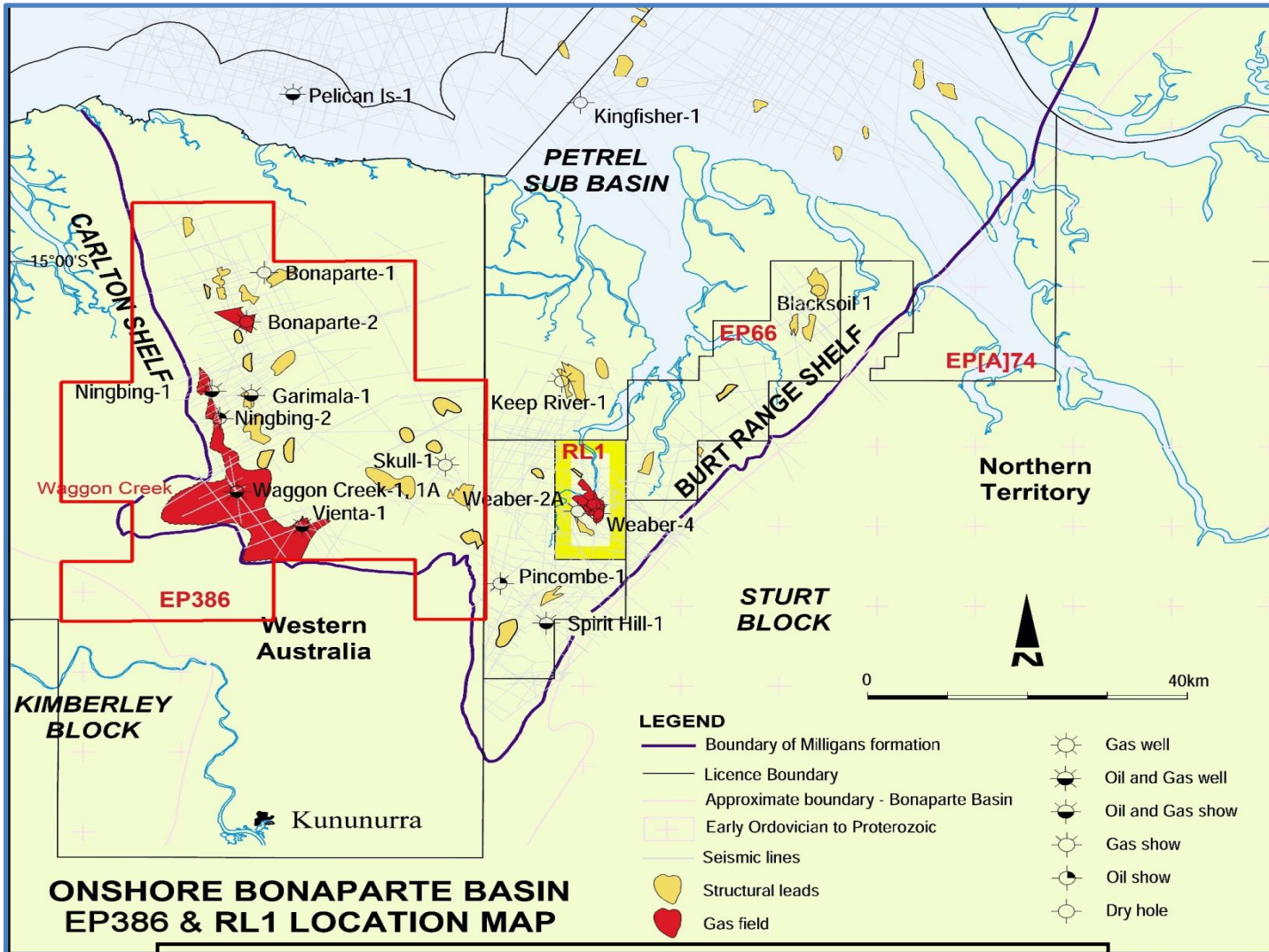
- ❑ Multiple petroleum targets are present in EP386 & RL1 area:
  - Proven conventional gas charged sandstone reservoirs in nearshore marine area of the Milligans Formation;
  - Unconventional gas-condensate shale play in the shallow marine areas of Milligans Formation; and
  - Unconventional tight gas sandstone and limestone reservoirs in the Langfield, Ningbing & Cockatoo groups below the Milligans Formation.
- ❑ The Lower Milligans Formation shale dominated sedimentary sequence is prospective for a shale gas play with considerable upside potential:
  - Marine shale with moderate organic richness: TOC of up to 4.33% measured from selectively collected cuttings and cores/sidewall cores samples in wells within or in close proximity of EP386 and RL1. Wireline log calculated TOC values calibrated to measured TOC values, where available, have indicated the presence of higher TOC source rocks within the Lower Milligans Formation section in many wells within the study area. The thickness of the prospective shale gas play varies from 300m to over 1500m. This indicates significant upside in prospective shale gas resources; and
  - Unrisked OGIP for EP386 & RL1 is calculated to be in the range from c. 19 TCF to 141 TCF. These estimates are preliminary and additional shale gas play specific data would further firm up the shale gas resource potential of this play.

Additional study results include:

- Advent has calculated a risked recoverable of 9.6 TCF shale gas for its 100% held Bonaparte Basin permits; and
- Proven conventional gas resources within EP386 has an upgraded assessment (“Best Estimate”) of **conventional prospective resources in EP386 of 355.9 Bcf gas.**

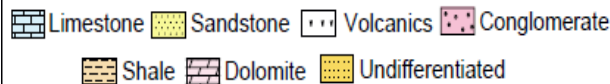
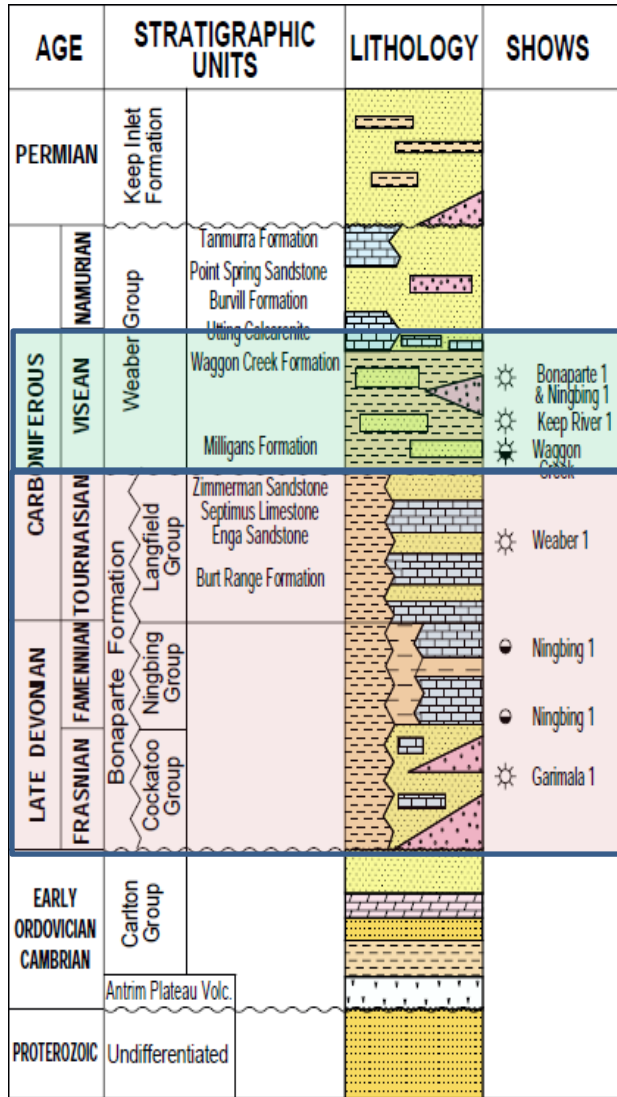
Planning and discussions are underway for CNG/LNG commercialisation of conventional resources.

# EP386 & RL/1: Advent Energy's 100% Ownership



**Advent Energy EP 386: 634,567 Acres = 2568 sq km**  
**RL 1: 41,019 Acres = 166 sq km**  
**Thermally Mature, Thick Source Rock (>500m)**  
**Large Unconventional Resources Complex (Oil & Gas)**  
**Many Large Structures With Conventional Gas Discovery**

# Onshore Bonaparte Basin: Key Information



**BONAPARTE BASIN  
PALAEOZOIC STRATIGRAPHY COLUMN**

## Carboniferous Milligans Formation: Tight Gas, Shale Gas & Liquid Hydrocarbon Potential

- Key gas-prone source rocks
- Over 500m marine shale/mudstone
- TOC up to 4.3%
- Mature for oil and gas generation
- Elevated gas shows while drilling through the shaly and silty section
- Gas produced in conventional sandstone reservoirs from Waggon Creek-1 & Bonaparte-2 in EP386
- Oil recovered from Waggon Creek-1 on DST

## Carboniferous Langfield Grp + Devonian Ningbing Grp & Cockatoo Grp: Tight Gas & Liquid Hydrocarbon Potential

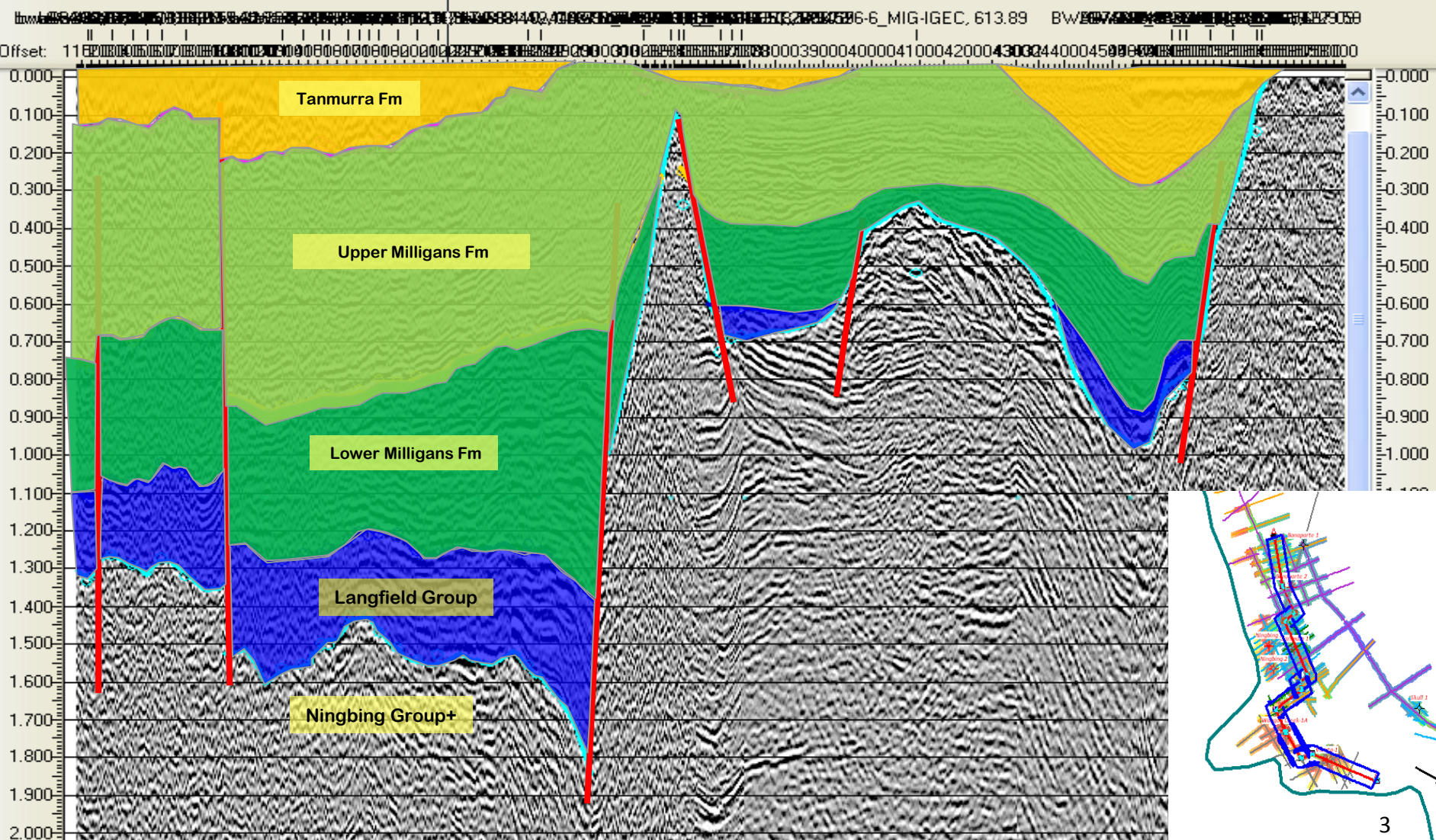
- Stacked-carbonate and sandstone reservoirs
- Devonian source rock mature for oil and gas generation
- Gas produced from Weaber gas field in RL1 and Ningbing-1, Vienta-1 and Garimala-1 wells in EP386
- Oil sample extracted from core of Ningbing-1

# EP 386: Key Deposition Centres in EP386

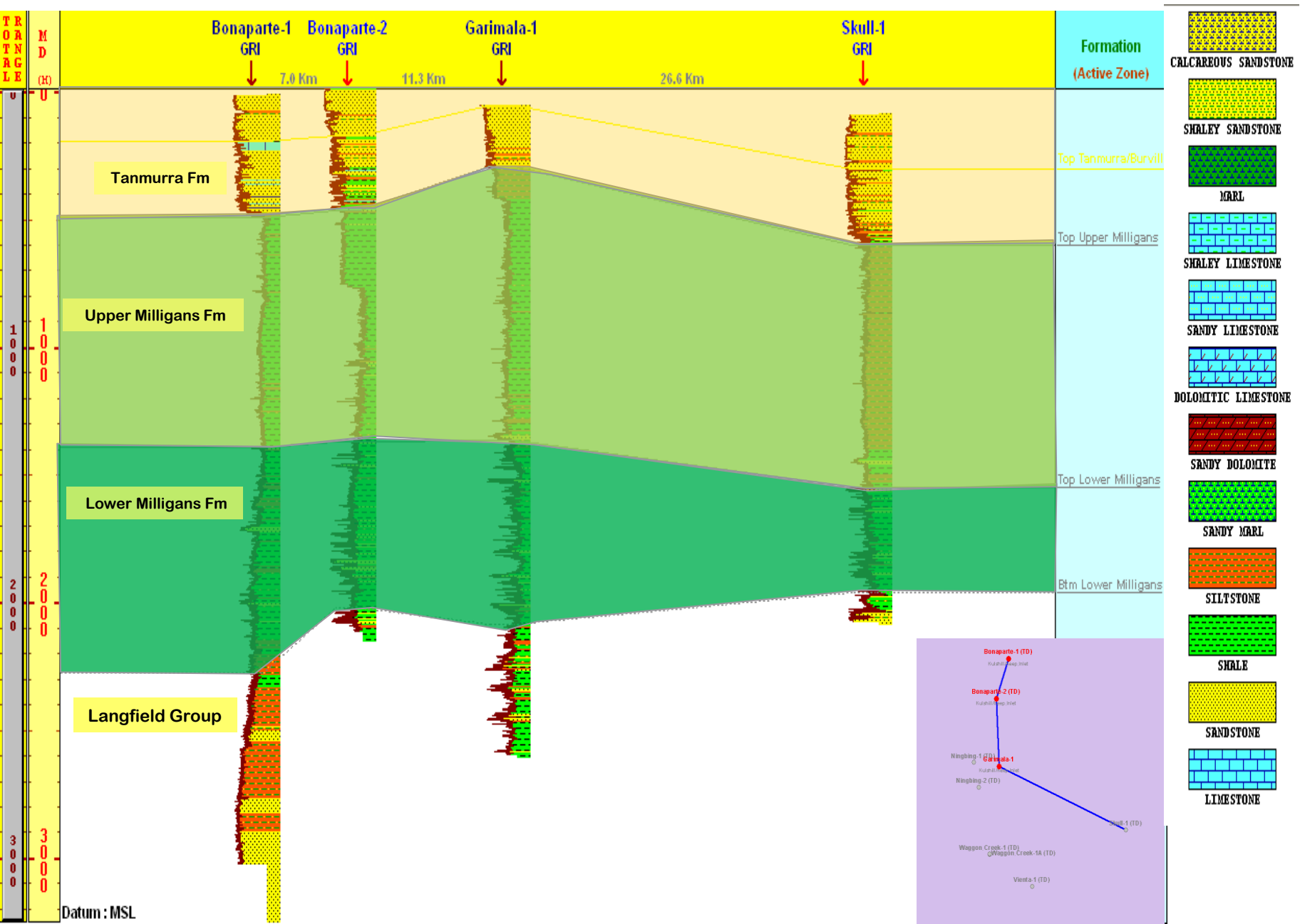
Moogarooga Deep

Waggon Creek Deep

Vienta Deep

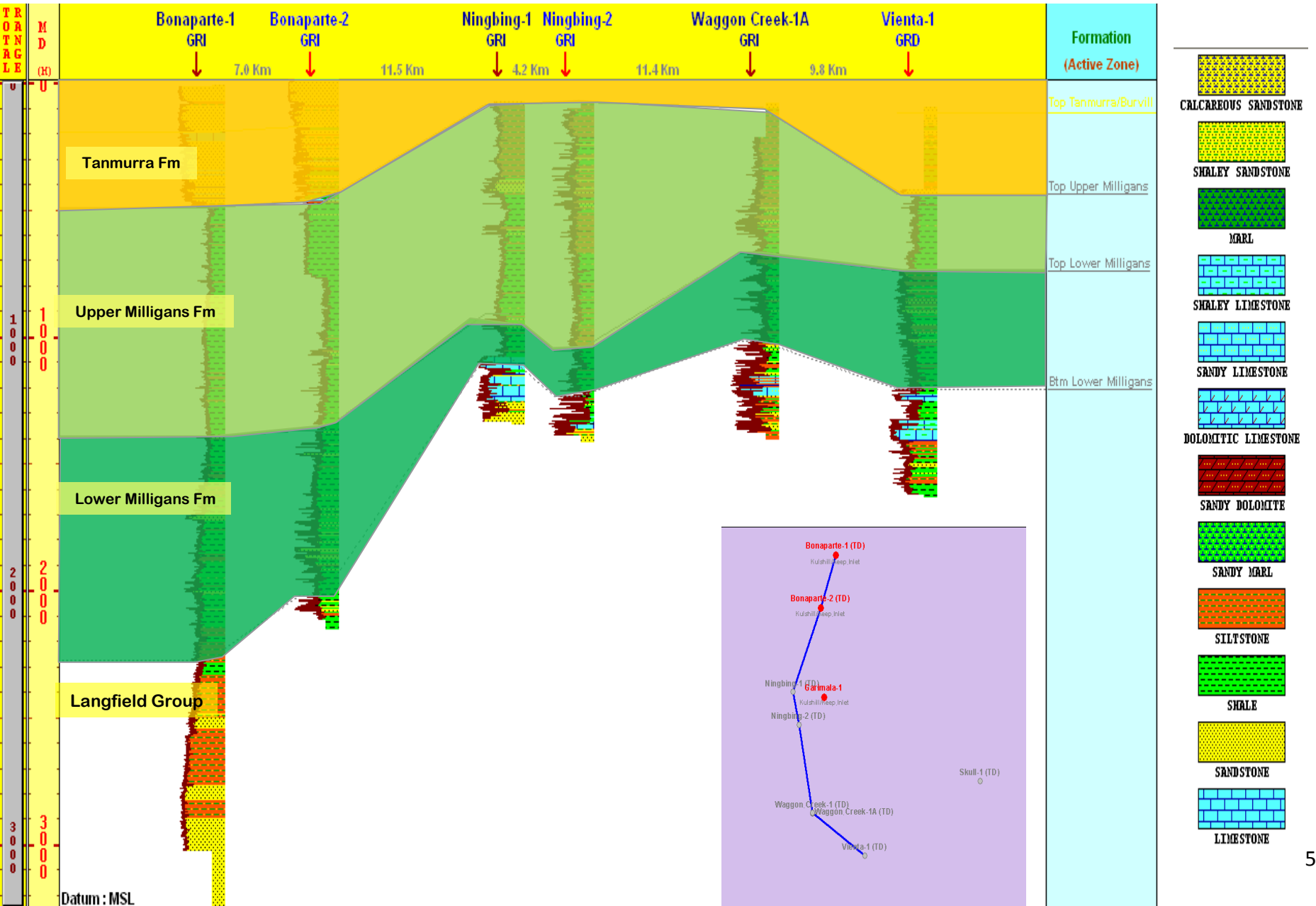


# EP 386: Well-Well Correlation in EP386



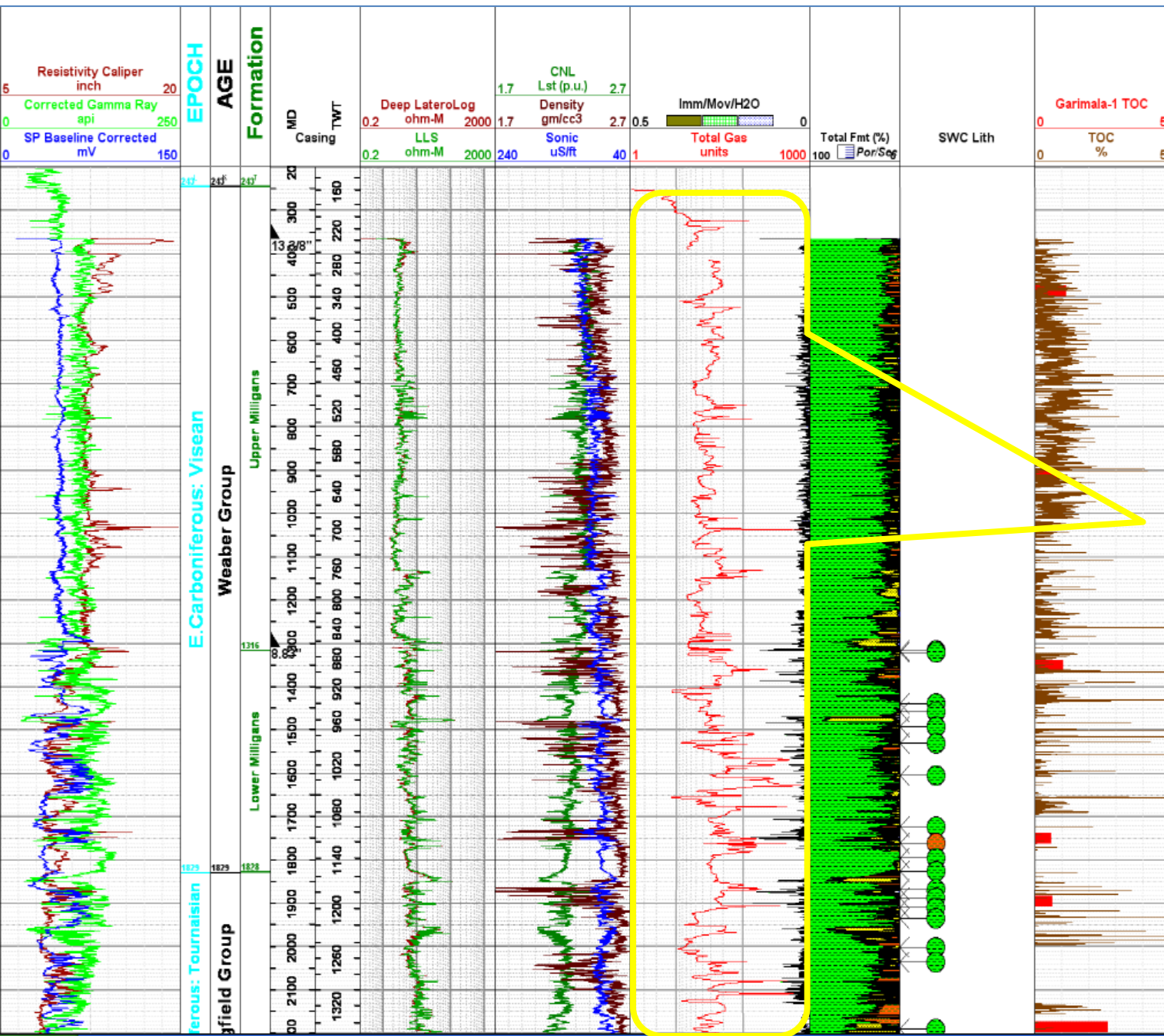


# EP 386: Well-Well Correlation in EP386



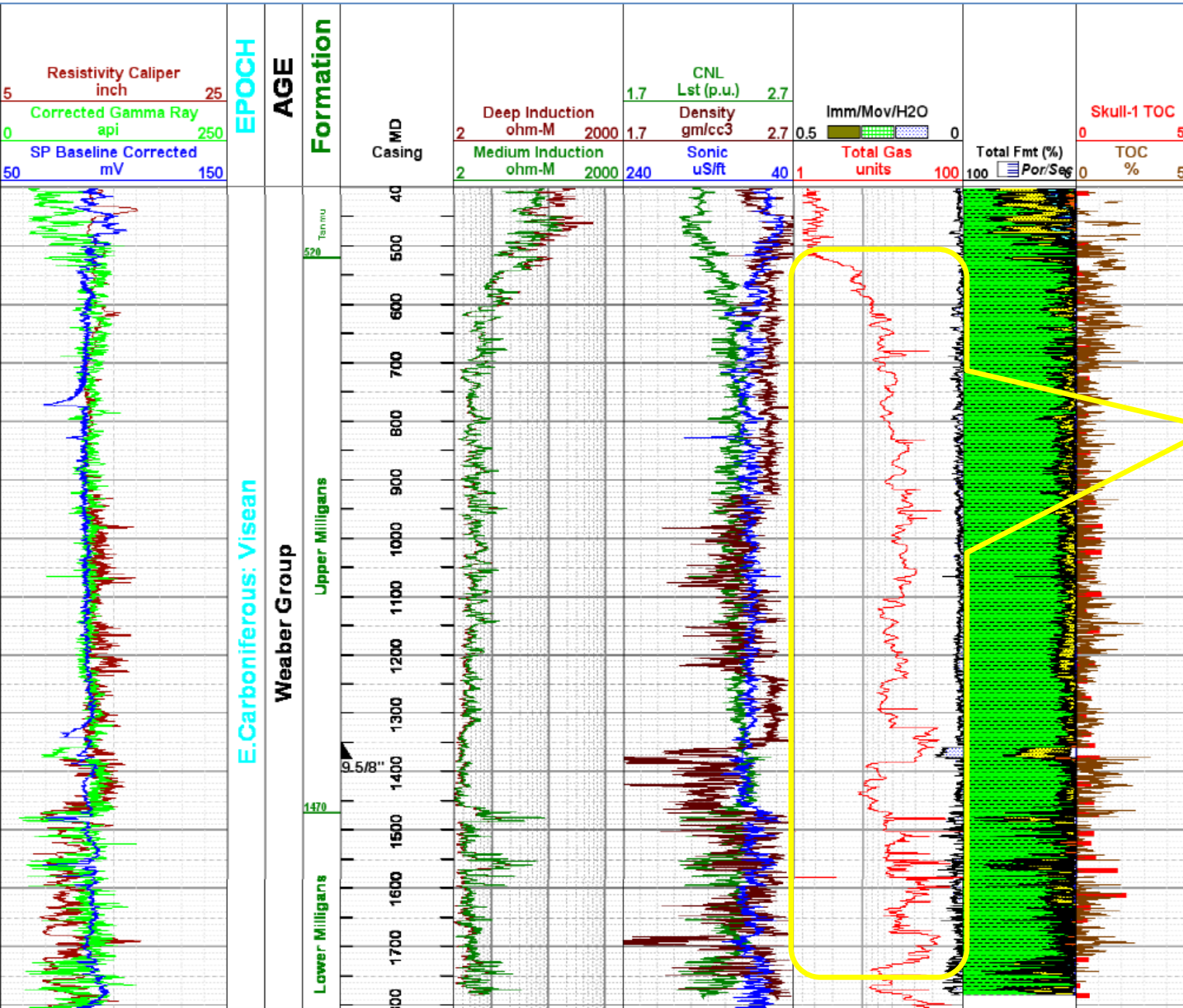


# Garimala-1: Elevated Gas Shows over Milligans-Langfield Section



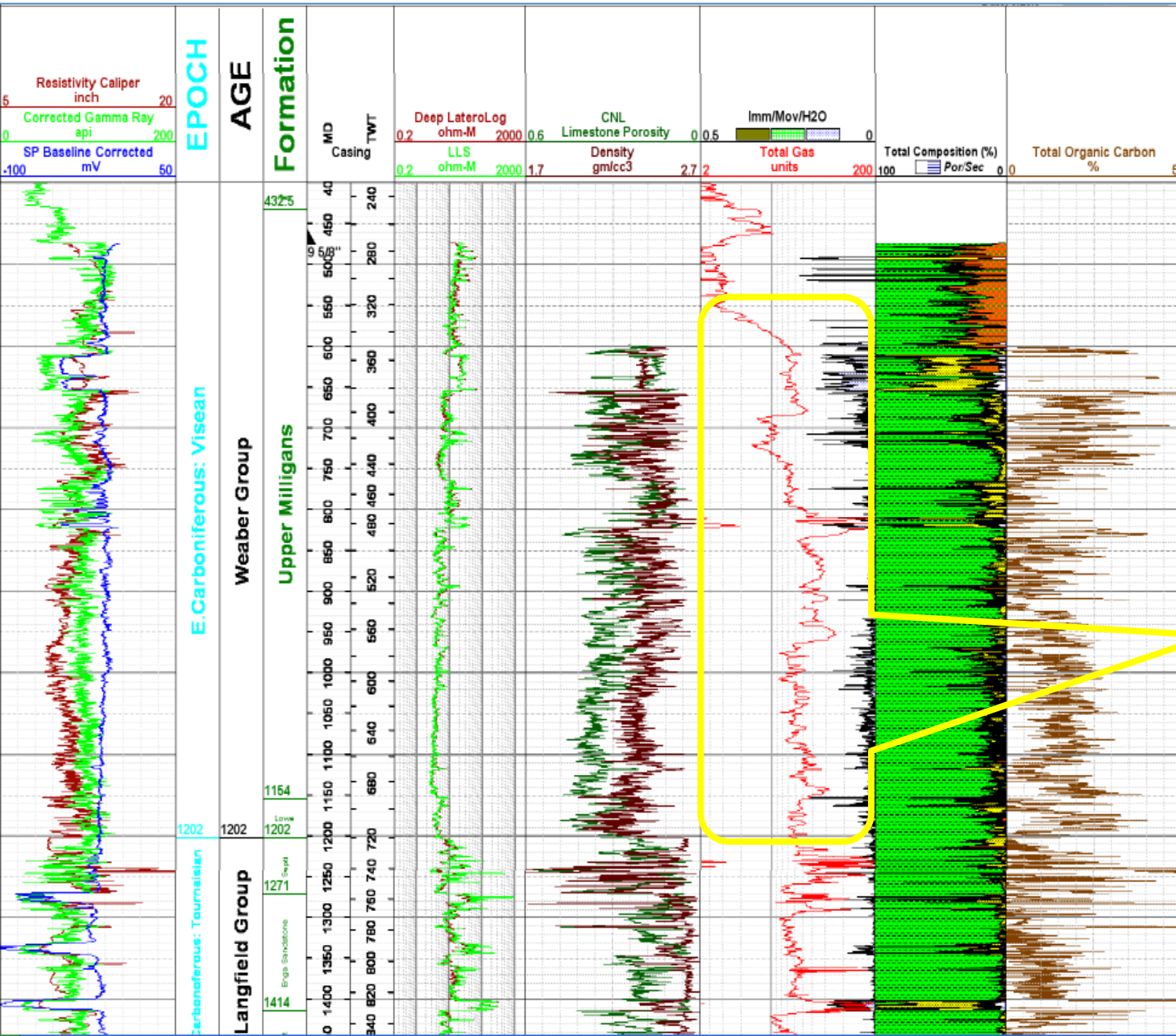
Elevated gas shows over 1700m in shale/siltstone section. TOC from Lab matched well with computed value from logs and maximum TOC value can be up to 5%(right column).

# Skull-1: Elevated Gas Shows over mid-Upper & Lower Milligans Section



Elevated gas shows over 1300m in shale/siltstone section. TOC from Lab matched well with computed value from logs and maximum TOC value can be up to 3%(right column).

# Weaber-4: Elevated Gas Shows over Upper & Lower Milligans Section



Elevated gas shows over 600m in shale/siltstone section. TOC from Lab matched well with computed value from logs and maximum TOC value can be up to 5%(right column).