

Relinquishment Report

for

Licence P.1047
Part Block 20/3c and
Blocks 20/7b and 20/8



Nexen Petroleum U.K. Limited

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1 - Introduction

Licence Number:	P.1047	
Licence Round:	20 th Round – Awarded 25 July 2002	
Licence Type:	Traditional	
Block Numbers:	20/03c, 20/7b and 20/8	
Equity Holdings:	Nexen Petroleum UK Limited (Operator)	40.0%
	Bow Valley Petroleum (UK) Ltd	25.0%
	Shell U.K. Limited	17.5%
	Summit UK Oil limited	17.5%

Licence Work Programme Summary:

Firm commitments:

- 1 firm well within one year of 25 July 2002 on the Joppa Prospect to 60m into the pre-Jurassic or 3200m, whichever is the shallower
- 429 km² (full fold) of new proprietary 3D seismic within two years of 25 July 2002
- 200 km² of pre-stack depth migration processing
- 200 km² of special processing (Inversion of AVO products)

Contingent commitments:

- 1 contingent well within three years [of July 25 2002] to test the Jedburgh Lead, to be drilled to a depth of 3353m or 365m into the Jurassic, whichever is shallower
- 1 contingent well within three years [of July 25 2002] to test the Jackton Lead, to be drilled to a depth of 3200m or 60m into the pre-Jurassic, whichever is shallower

Part of Block 20/3c and all of blocks 20/7b and 20/8 of Licence P.1047 were relinquished on 24th July 2006 at the end of the Initial Term of the Licence. Part of block 20/3c around the 20/3-4 Marten Discovery was retained by the Group under the P.1047 Licence (Figure 1).

The P.1047 Licence, Blocks 20/3c, 20/7b and 20/8, was awarded at the 20th Round (2002) to EDC (Europe) Ltd (Operator), Entreprise Oil plc and Bow Valley Petroleum (UK) Limited. The firm work programme on Licence P.1047 has been completed with the drilling of the 20/7b-5 Joppa well and the acquisition, in 2003, of a 3D survey that covers the licence.

P.1047 was first evaluated by Nexen Petroleum UK Limited in early 2005 using the 2003 3D that had been traded with Noble and this enabled an initial technical review to be taken and Nexen became the operator of the Licence on 25th April 2005. A comprehensive data acquisition and technical studies (3D seismic acquisition, regional 3D merging and reprocessing, burial history modeling, structural reconstructions, and reservoir distribution analysis) have been integrated into the evaluation of the Licence. The southern half of the licence was downgraded because of the negative results from the Joppa 20/7b-5 well and the basin modeling work indicated that the Kimmeridge Clay in the Peterhead Graben was not sufficiently mature to generate significant volumes of hydrocarbons.

A major reprocessing project incorporating several of the legacy 3D datasets to produce a seamless 1300 sq km regional dataset that extended across the entire northern portion of P.1047 was delivered in October 2005. From the most recent evaluation of the reprocessed data, all of the identified structures on P.1047 have significant technical risks associated with them and the Licensees demonstrated that it was unlikely that any further technical work would help mitigate those risks.

2 - Exploration Activities

2.1 - 20/7b-5 Joppa Well results

Exploration well 20/7b-5 was drilled by EDC (Europe) Ltd in May 2003. The objective of the well was to evaluate the reservoir and hydrocarbon bearing potential of the “Joppa Prospect” at Top Early Volgian level. Secondary prospectivity was also recognized at the

shallower Middle Volgian level. The Joppa prospect was interpreted as a purely stratigraphic trap in the form of a large basin floor fan pinching out to the north, west and south-west, with dip closure to the east and south-east. The Joppa prospect was located in the Peterhead Graben and the analogue was seen as the Buzzard Field located in the adjacent graben to the north.

The 20/7b-5 well was plugged and abandoned with oil shows. It penetrated only thin sandstone stringers and siltstone in the Middle Volgian Ettrick Formation and tight sandstone stringers in Early Volgian Buzzard Formation. Minor oil shows were seen in both formations, comprising dull to bright yellow fluorescence and rare light brown oil staining was observed.

Nexen traded the well results in 2003 on behalf of the P.986 group.

2.2 - 3D seismic acquisition

In 2003 EDC (Europe) Ltd shot a new seismic survey, which outline is shown in Figure 2. Nexen Petroleum UK Limited traded the seismic data early 2005.

2.3 - Regional 3D merging and reprocessing

A major reprocessing and merging project incorporating several of the legacy 3D datasets to produce a seamless 1300 sq km regional dataset that extended from just east of the Buzzard Field, was undertaken across P.1047 and into Blocks 20/4 and 20/5. Merging and reprocessing of the Aker 1999/EDC 2003/Shell 1992 Quad-Quad surveys over licence P.1047 by CGG was completed and the final 3D volume was received in May 2006. In total 8 surveys were used in the project, includes the following 3D surveys: Aker 1999, EDC 2003, Shell 1992 Greater Ettrick, Shell 1997 GoldenEye, Amerada 1996, Nexen 2004, Arco 1997 and the WesternGeco 20/5 spec survey (Figure 3).

The reprocessing of the data show mixed results over P.1047. Fault imaging and resolution of the Upper Jurassic have been improved in the EDC 2003 survey, mainly by noise attenuation, whereas the data quality has not been improved in the 20/3c area.

2.4 - Basin Modelling

1-D Basin modelling study of the Peterhead Graben was carried out using data from wells 20/7b-5 and 20/8-2, as well as data from the Buzzard and Ettrick fields. Extract

analysis performed on 20/7b-5 and 20/8-2 indicates that the shows present in both wells are correlated with an early mature source rock.

In the Peterhead Graben, the Kimmeridge Clay Upper Hot Shale is in the early mature window and has not expelled hydrocarbons. The Lower Hot Shale is in the Mid-mature window and the onset of the oil expulsion window is calibrated at 10,300 ft (Figure 4). The Heather Formation is not considered a source rock in the area.

The modelling showed that only ~145 mmbbls of oil were expelled from the Lower Hot Shale of the Kimmeridge Clay Fm. in the deepest part of the basin. The Peterhead Graben is not considered mature enough to have sourced any significant accumulation.

The northern part of the Peterhead Graben, north of the 20/8-1 & 20/8-2 ridge, has more probably access to the Etrick basin kitchen in the north, which is mature for oil generation and expulsion and which is interpreted as the kitchen area for the Etrick Field and the 20/3-4 Marten Discovery.

2.5 - Semi-regional 3D structural reconstruction and reservoir distribution study

Regional well data and tie to biostratigraphic markers show that two Upper Jurassic reservoirs are present in the licence area. They are the Buzzard Sandstone (Late Kimmeridgian-Early Volgian) and the Etrick Sandstone (Middle Volgian).

The aims of the 3D structural reconstruction study were to better constrain the reservoir distribution using structural modelling and sedimentological techniques to model sediment distribution at key time stages. In 2005, Midland Valley carried out a 3D structural reconstruction over the Buzzard-Etrick and Peterhead grabens using 6 regional depth converted surfaces. The decompacted and restored surfaces were used in the turbidite flow modeling using D. Waltham's (Royal Holloway University of London) software. It showed that the most likely source for the Etrick sands was located west of the Buzzard field. The Buzzard field area was probably a by-pass area during the Middle Volgian and the main depocentre is located in the Etrick graben. The well developed Buzzard sands in the Buzzard field area are sourced from the Grampan Spur in the west. The source of The Buzzard and Etrick sands present in the northern part of the Peterhead graben (20/7-2, Figure 5) is uncertain, however the current interpretation is that the sands are sourced from the west and become more distal in the east (20/3-4 area). In the southern part of the licence, no major sand fairway is thought to be developed in the centre and southern part of the Peterhead graben (Figure 6).

3 - Prospectivity Analysis

The mapping of the merge 3D datasets has led to the identification of three leads:

Blackbird Lead

The Blackbird feature is a three way dip closure in the hanging wall of the main Ettrick Graben bounding fault. The crest of the structure is located in Block 20/2a with a low relief structural closure extending into Block 20/3a. At the time of the 20th Licencing Round Application in 2002, this feature, then known as the Jedburgh lead, was envisaged to extend south into the footwall of the Ettrick Graben bounding fault in Block 20/3c and the north western corner of Block 20/8. However, the recent seismic interpretation indicates that the extent of the structure into the footwall is no longer viable because of the presence of updip water wet Ettrick sands in wells 20/7-2 and 20/7a-4.

Allington (“Jackton”)

The Allington feature is located in the Peterhead Graben, south of Wells 20/7-2 and 20/7a-4 (Figure 7). It appears to be coincident with two features mapped at the time of application that were known as Jackton and Johnshaven. The feature is mapped as a thickening of the Ettrick section that is associated with erosion of the underlying Early Volgian section (Figure 8). Within the thickening it is possible to identify mounding and onlaps which might suggest the presence of sand. Given the erosional base the feature could well be a feeder system for the sands seen in Wells 20/7-2 and 20/7a-4. However, an analogous seismic package was tested by both the Joppa 20/7b-5 and Flint 20/11-1 wells and only found a series of tight sand stringers in the Ettrick and Buzzard intervals which were water wet. Therefore it is clear that the presence of “mounded” seismic character is not indicative of reservoir presence at the Allington lead. Allington relies exclusively on stratigraphic trapping as there is no structural component, and separation from the Joppa feature to the south is difficult to identify. Allington is in the Peterhead Graben where detailed basin modeling of the quality and burial history of the Kimmeridge Clay formation indicates that the basin has not had significant generation or migration of hydrocarbons. The Allington Lead has got multiple high risk elements and the overall chance of success is estimated to be less than 10%.

Walmer

Located midway between 20/8-1 and 20/3-4, Walmer is a hanging wall play. At Base Cretaceous level it is possible to map two small low relief closures (Figure 9), but it is clear from the seismic and the resulting Upper Jurassic isopach that there is very little accommodation space for sands of either Ettrick (Middle Volgian) or Buzzard (Early Volgian) age. There is a very obvious thinning of the Upper Jurassic section southwards away from the 20/3-4 Marten well location. The thickness of the Upper Jurassic at the Walmer location is very similar to that seen at the 20/8-1 location where no sands were encountered. In the event of reservoir sands being present there is an additional risk associated with cross fault seal as the Upper Jurassic section is juxtaposed against the Zechstein and Rotliegendes section which could compromise the required fault seal. So here risks associated with reservoir presence and fault seal downgrade and eliminate the Walmer lead.

Figure 1: Location Map

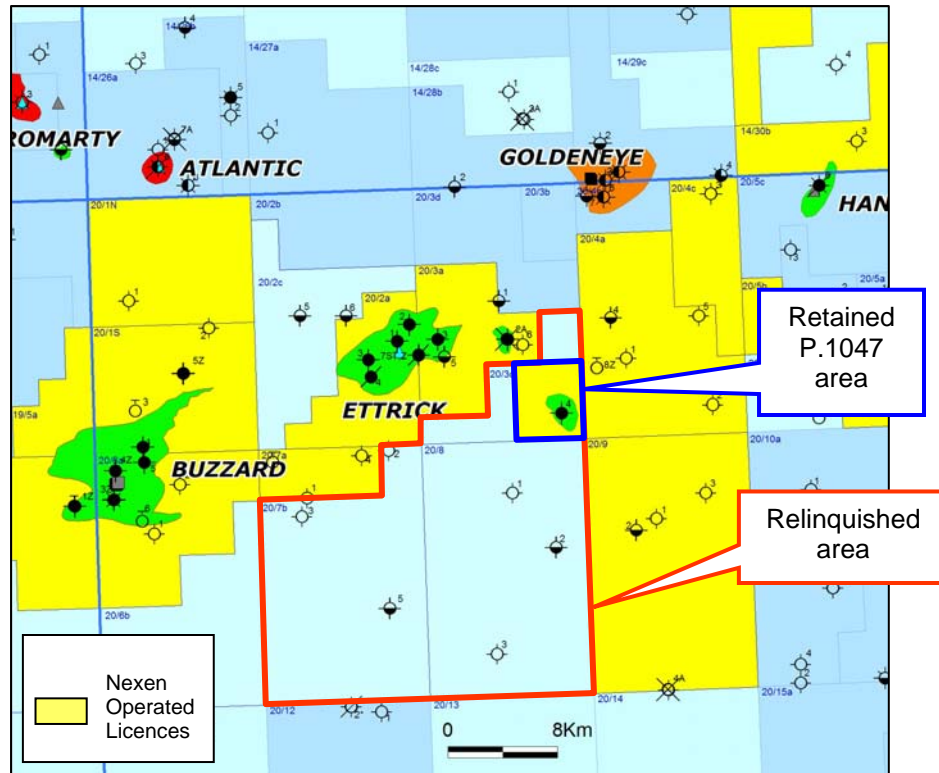


Figure 2: EDC 2003 3D Seismic Survey Outline

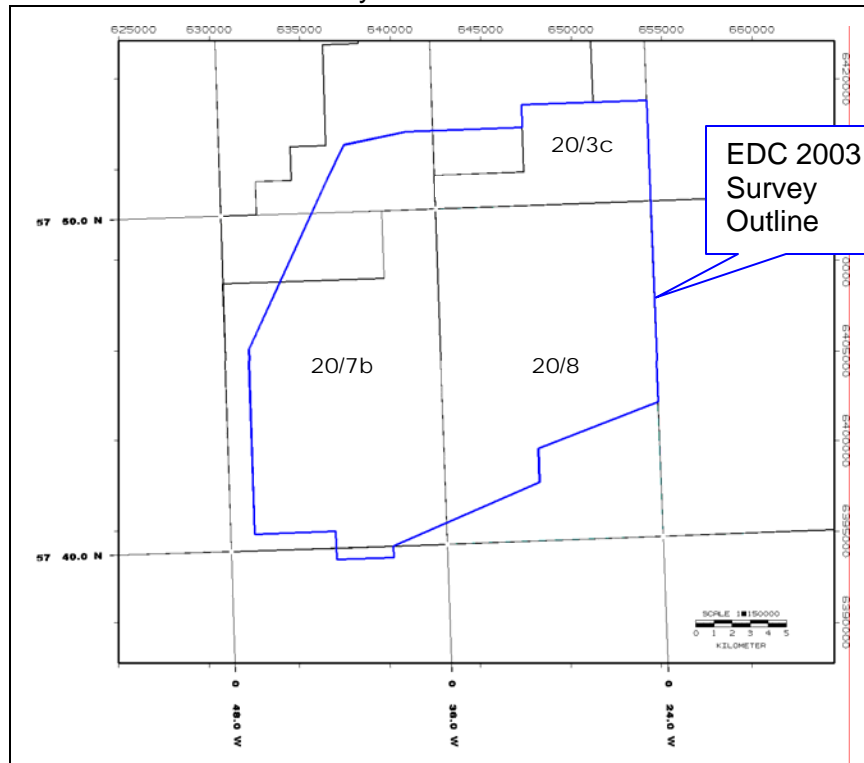


Figure 3: 3D Merging and Reprocessing Project - Survey Mosaic

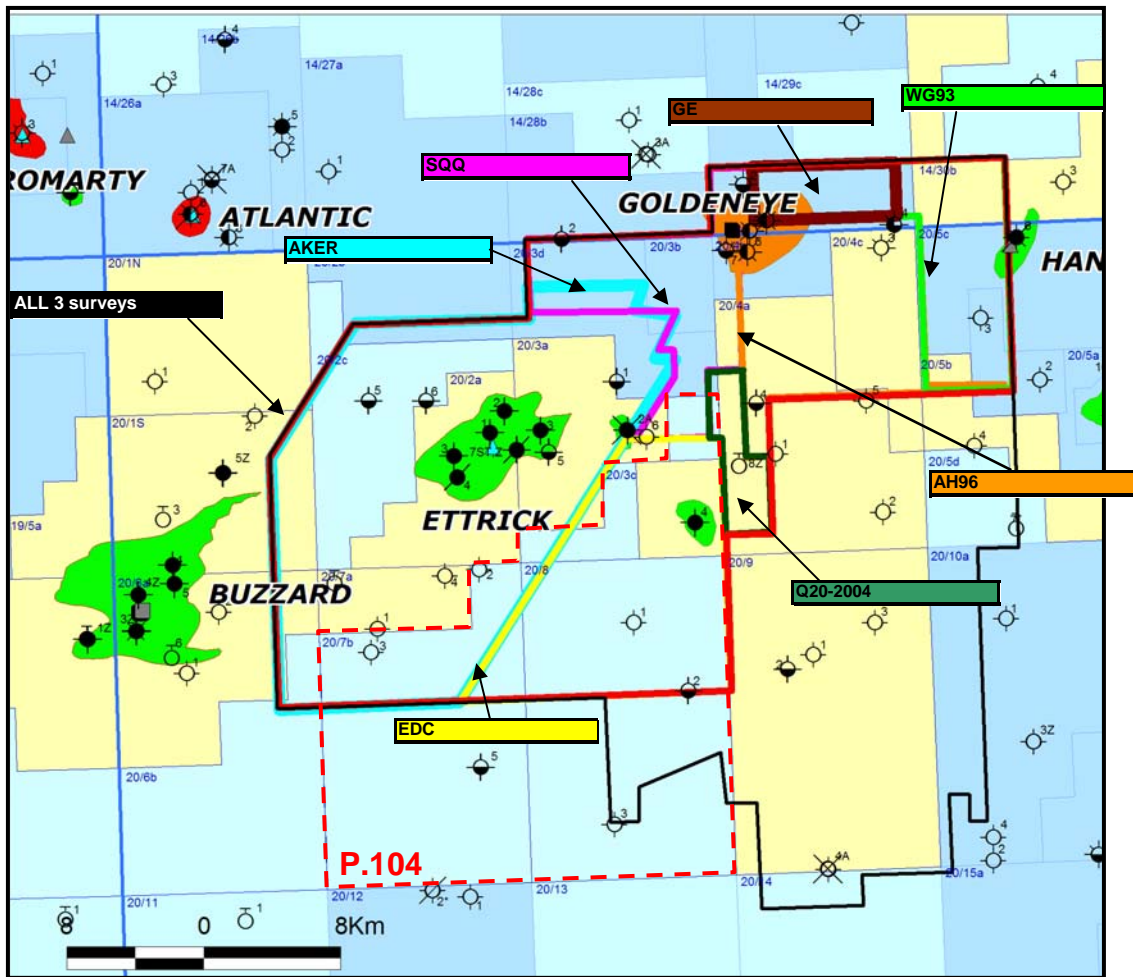


Figure 4: Kimmeridge Clay Lower Hot Shale Onset of Oil Expulsion Window
(on Base Upper Jurassic Depth Map, 3D View)

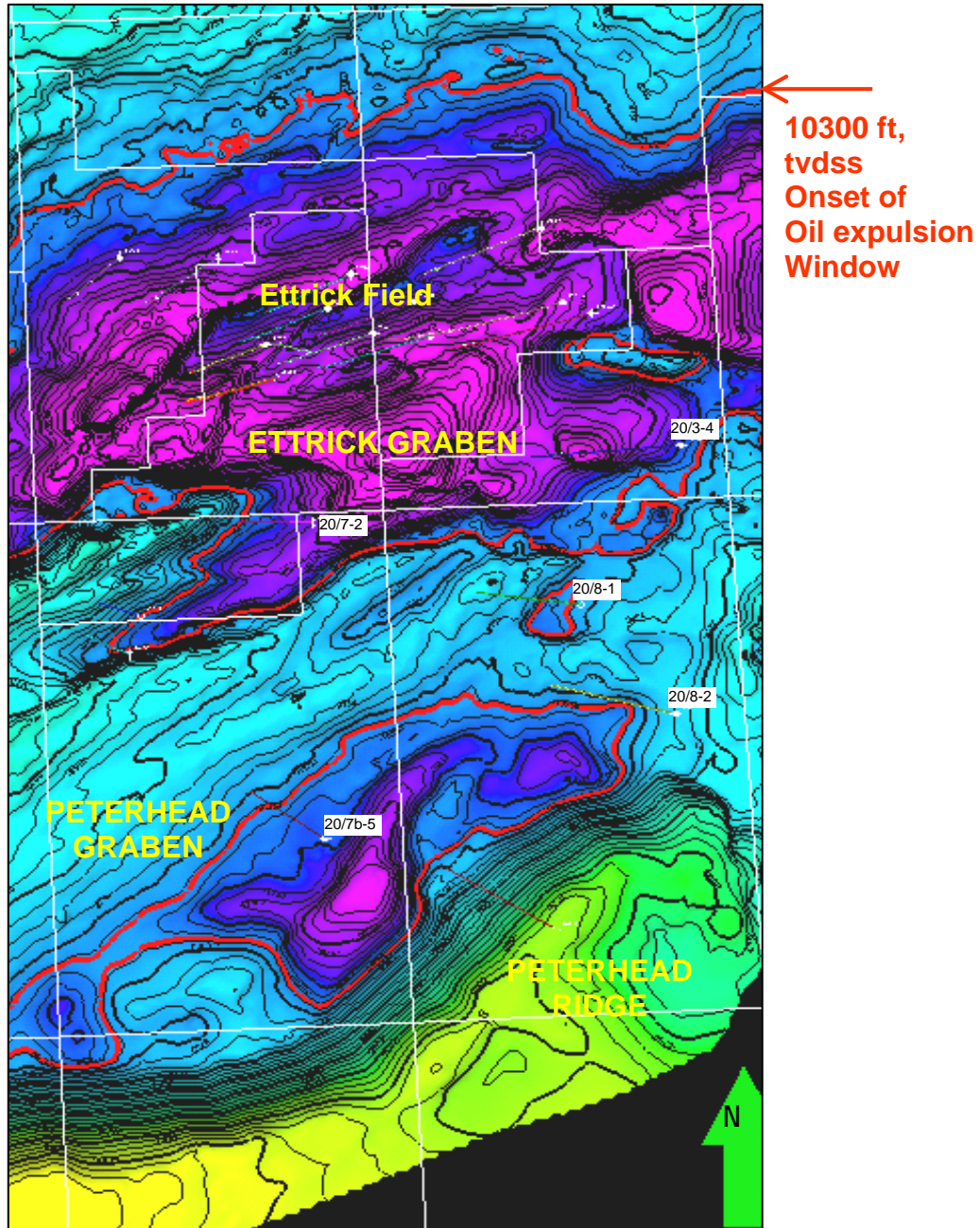


Figure 5: North-South Upper Jurassic Well Correlation

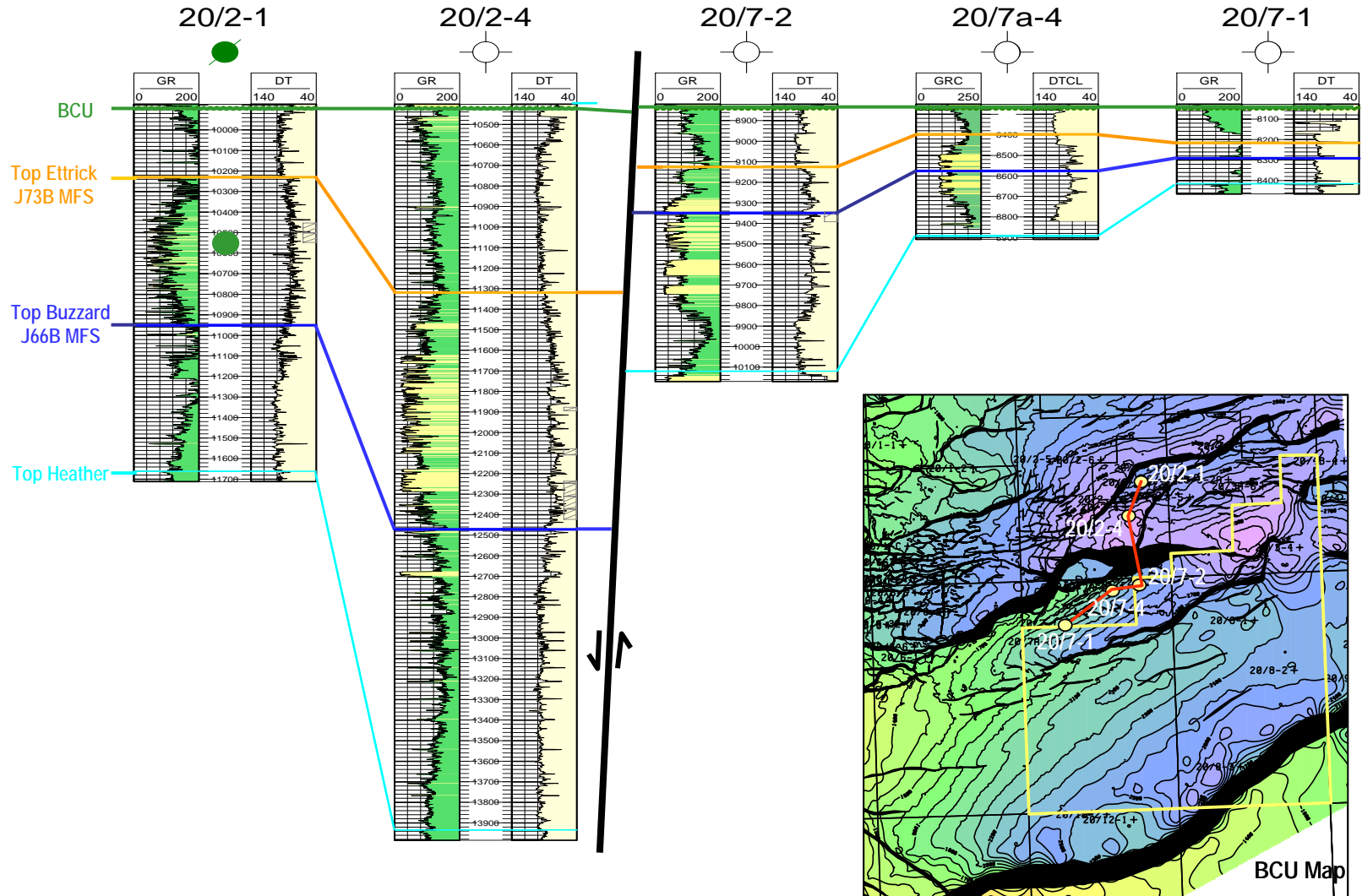


Figure 6: West-East Upper Jurassic Well Correlation – Peterhead Graben

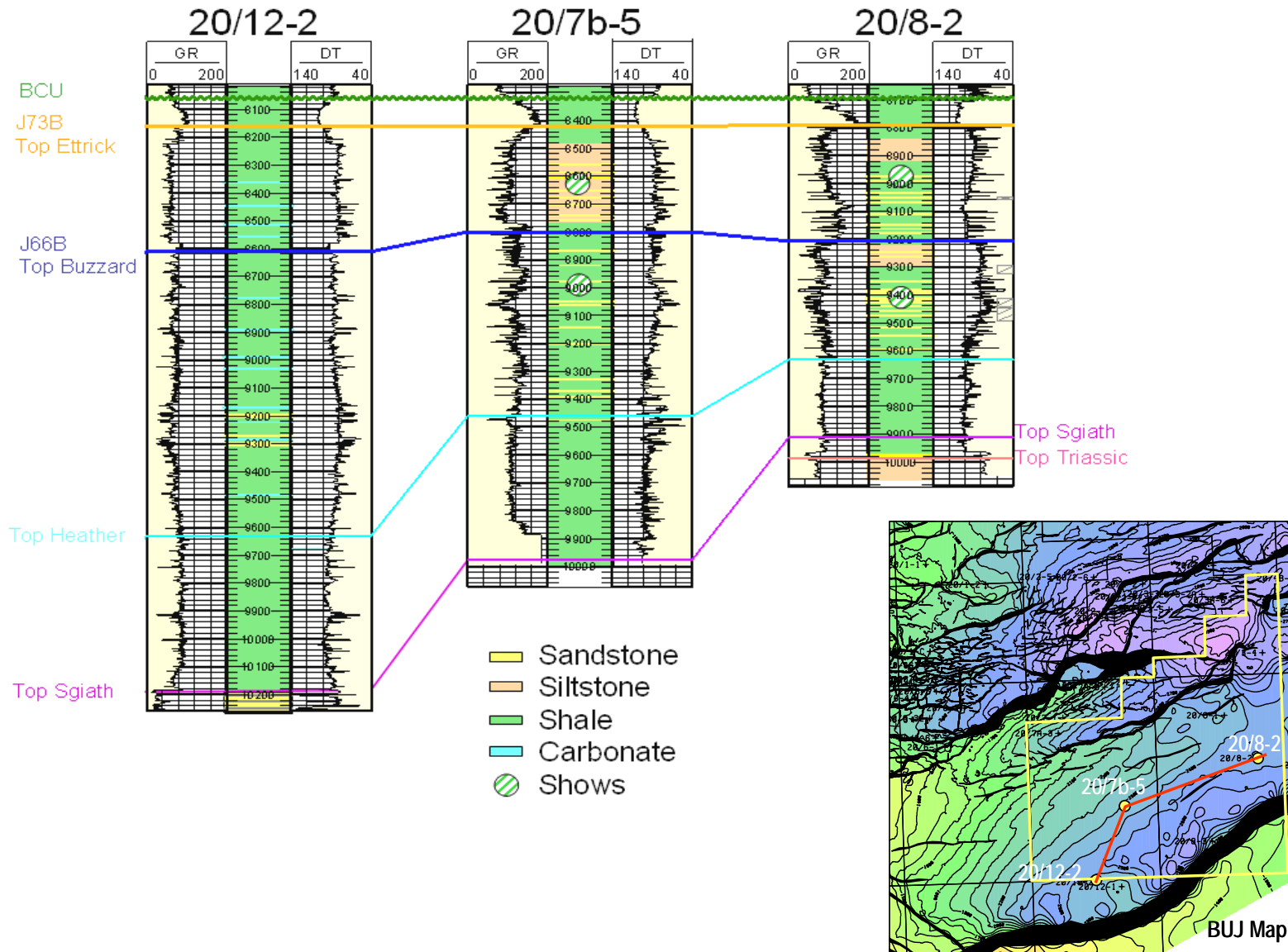


Figure 7: Allington Lead, Top Early Volgian Depth Map

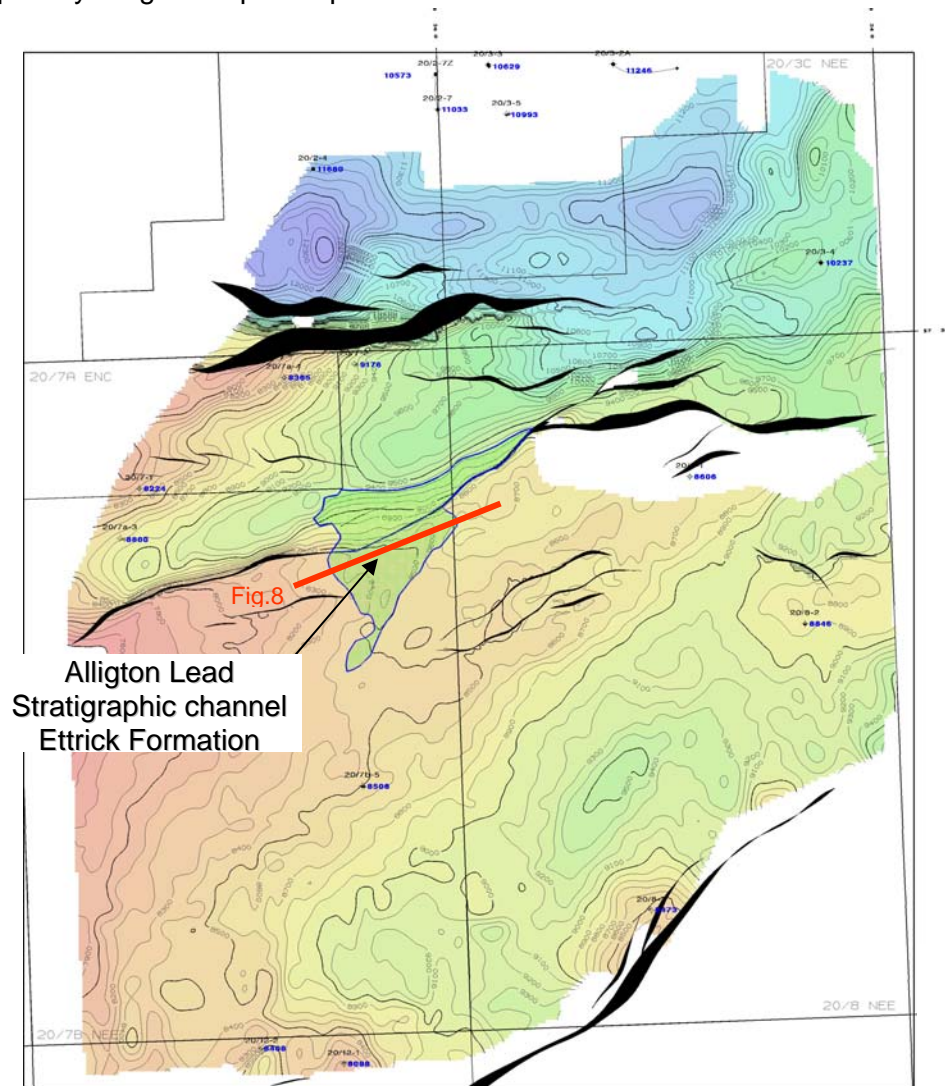


Figure 8: West-East Seismic Section through Alligton Lead

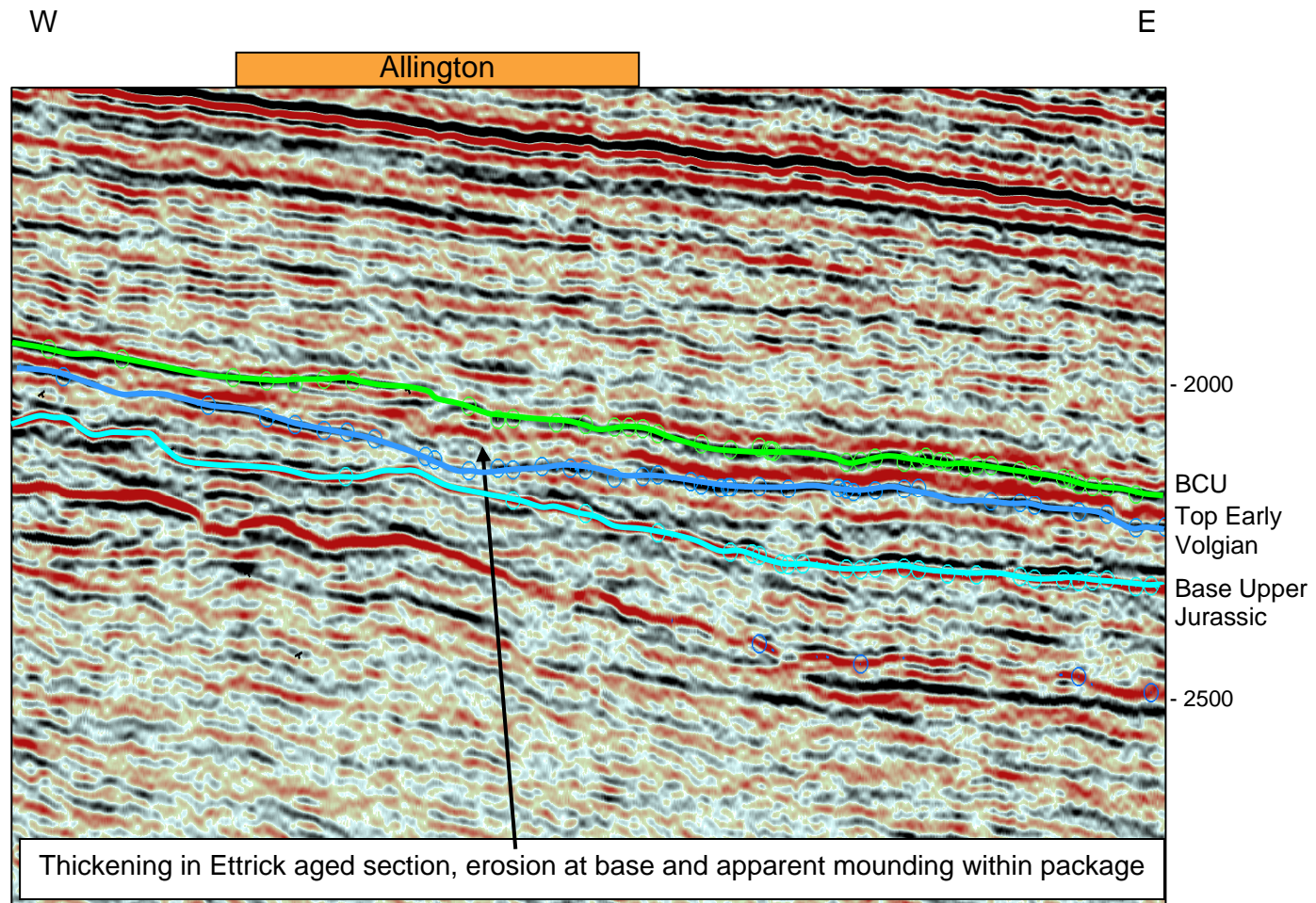


Figure 9: Walmer Lead – Base Cretaceous Time Map

