LICENSE L2/10
RELINQUISHMENT REPORT

DECEMBER 2015

LICENSE NUMBER: 2/10

LICENSE TYPE: OPEN DOOR

LICENSE GRANTED ON: 5TH JUNE, 2010

OPERATOR: TOTAL E&P DENMARK B.V. (80%)

JV PARTNER: NORDSØFONDEN (DNSF) (20%)

nordsøfonden

TOTAL
COMMITTED TO BETTER ENERGY

Introduction

The exploration objective license 2/10, held by Total E&P Denmark (TEPDK) (Operator, 80%) and Nordsøfonden (20%) since 5th June 2010, was the Alum Shale formation (mid-Cambrian to mid-Ordovician).
The L2/10 license area is covered by 850 km of poor to fair quality 2D seismic, and wells outside the license calibrate the Alum Shale presence or erosion. In August 2013, TEPDK conducted an airborne gravity gradient (AGG) and magnetic survey over 5719 km^2, covering the entire L2/10 license area, and extending to the north, south and west to calibrate 2D seismic lines where Paleozoic tilted panels are clearly interpreted (northern area), the well Slagelse-1 which encountered the Alum Shale (south-western area) and the Precambrian basement high (southern area).

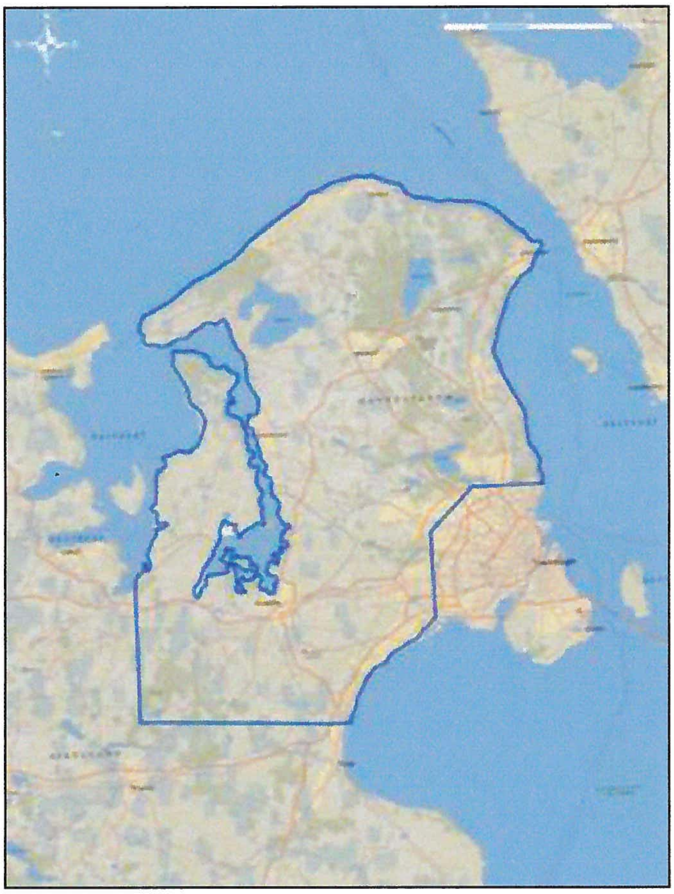

Figure 1 - 2/10 License area (2289 km^2)

The geosciences studies have been carried-out in-line with work programme obligations, are summarized in Figure 2, includes a regional assessment of the Alum Shale play potential and more specifically on L2/10, seismic, gravity and magnetic studies that were integrated into a structural study. For an environmental and societal assessment, a land-use study was also conducted at Total headquarters based on satellite data.
This report synthesizes the results of the regional Alum Shale play assessment, describes the L2/10 geophysical and structural studies conducted and the implications in terms of L2/10 Alum Shale prospectivity. At the end of the report, a quick look of the remaining prospectivity in Denmark is presented, with main focus on the area south of L2/10.

- **License awarded June 5th 2010**
- **TEP Denmark BV 80% (Op.) - DNSF 20%**
- **Geoscience studies**
  1. Key wells studies in collaboration with GEUS & Total Labs on Billegrave-2, Skelbro-2, Terne-1, Slagelse-1, Sommerodde-1 & Swedish wells, including:
     - Organic geochemistry (TOC, Rock-eval, Maturity)
     - Mineral geochemistry (XRF, XRD)
     - Stratigraphy
  2. Funding & scientific collaboration of the GASH project
  3. Burial & thermicity modelling: Terne-1, Slagelse-1 & Vendsysell-1
  4. Seismic interpretation
  5. Seismic velocity study → 3D velocity model construction
  6. Structural study
  7. Gravity and magnetic study (modelling and interpretation)
  8. Alum fraccability study (almost completed)
  9. Seismic acquisition feasibility
  10. + Stake-holders mapping on L2/10
  11. + L2/10: Land use mapping from remote sensing
- **Data (wells – seismic - reports)**
  1. Acquisition through GEUS of 31 wells
  2. Participation (funding) of log acquisition on Sommerodde-1
  3. Acquisition of ~450 seismic lines in DK through GEUS
  4. Acquisition through GEUS of key reports on Paleozoic
- **Geophysical acquisition: AGG**

  (Airborne Gravity Gradient and magnetic survey) – Summer 2013 – Cost: 1.4M€ - Surface: 5 719km² (L2/10: 2289 km²)

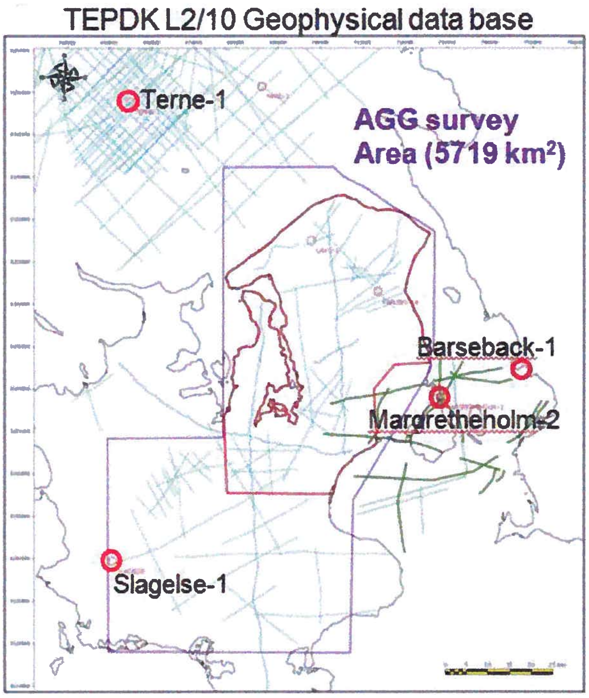

Figure 2 Summary of license 2/10 exploration studies.

• REGIONAL GEOLOGICAL SETTING

1.1. Geodynamic setting

L2/10 is located on the Baltica plate. Main regional structural elements are:

- The Caledonian deformation front, which lies ~100 km to the south of L2/10 and marks the suture of the Tornquist Ocean, with a subduction starting possibly in early Ordovician and finished by late Silurian.
- The Ringkøbing Fyn High (RFH), which is a zone of basement high and thickened crust linked with the Caledonian suture. Within the RFH, the Alum Shale has great risks of being eroded.
- The Sorgenfrei Tornquist Zone (STZ), a major crustal fault zone that passes just north of L2/10. The STZ has been active as a zone of rifting possibly since Vendian (late Precambrian) times (Lassen, 2005). Rifting is clearly evidenced from late Carboniferous-Early Permian times until Early Cretaceous (Mogensen, 1995). In Late Cretaceous – Early Tertiary, the STZ was inverted during a dextral transpression episode, resulting in a significant uplift of STZ series, particularly in the Terne-1 area, where a major thrust fault bounding the STZ is observed in the seismic. At Terne-1, the total uplift since the Early Cretaceous is estimated to be at least 1700 m (Michelsen & Nielsen, 1993). In the L1/10 area, the relative uplift of STZ series compared to surrounding areas is less significant (only ~200 m relative uplift is observed at base upper Cretaceous on L1/10).
- The Northern Danish Basin, or Northern Permian Basin, located to the East of L2/10, where Paleozoic and Precambrian basement reach depths > 10 km.

As a preliminary remark, this geological setting already reveals the main risks that affect L2/10 in terms of Alum Shale prospectivity, and that will be detailed in this report. Indeed, L2/10 is located:

- at the northern termination of the RFH, implying an erosion risk of the Alum Shale,
- at the western border of the Northern Permian Basin, implying a depth risk,
- and outside the STZ where the thickest series of Alum Shale have been found.

1.2. The Alum Shale Play

The Alum Shale formation has been encountered at a few wells and outcrops in Denmark (Terne-1, Slagelse-1 & three scientific wells in the island of Bornholm) and in Sweden, summarized in Figure 3. The Alum Shale formation is made of dark black, organic rich and carbonaceous mudstone. The Alum Shale was deposited from mid Cambrian until mid Ordovician (end of Tremadoc) on the tectonically stable Baltoscandian platform. Five key elements have controlled the Alum Shale deposition: a relative flat craton, limited sediment influx, a relatively high latitude paleogeographic position (relatively cold water), low quantity of oxygen in water and a global deepening of the basin from Cambrian to mid Ordovician.
Maturation occurred during Silurian times, reaching 100% transformation ratio, as sediments accumulated coming from the Caledonian front to the south (risk of over mature play), and was followed by a major uplift (2-4 km, risk of gas escape) during the Hercynian orogeny.

[redacted]

The thickest series of Alum Shale (e.g. Terne-1, 180m Alum Shale) have been found within the Sorgenfrei Tornquist Zone (STZ, Figure 10). This is consistent with the interpretation that the STZ is an ancient rifting zone, as suggested by possible Late Precambrian synrift sequences observed within the STZ (Lassen, 2005).

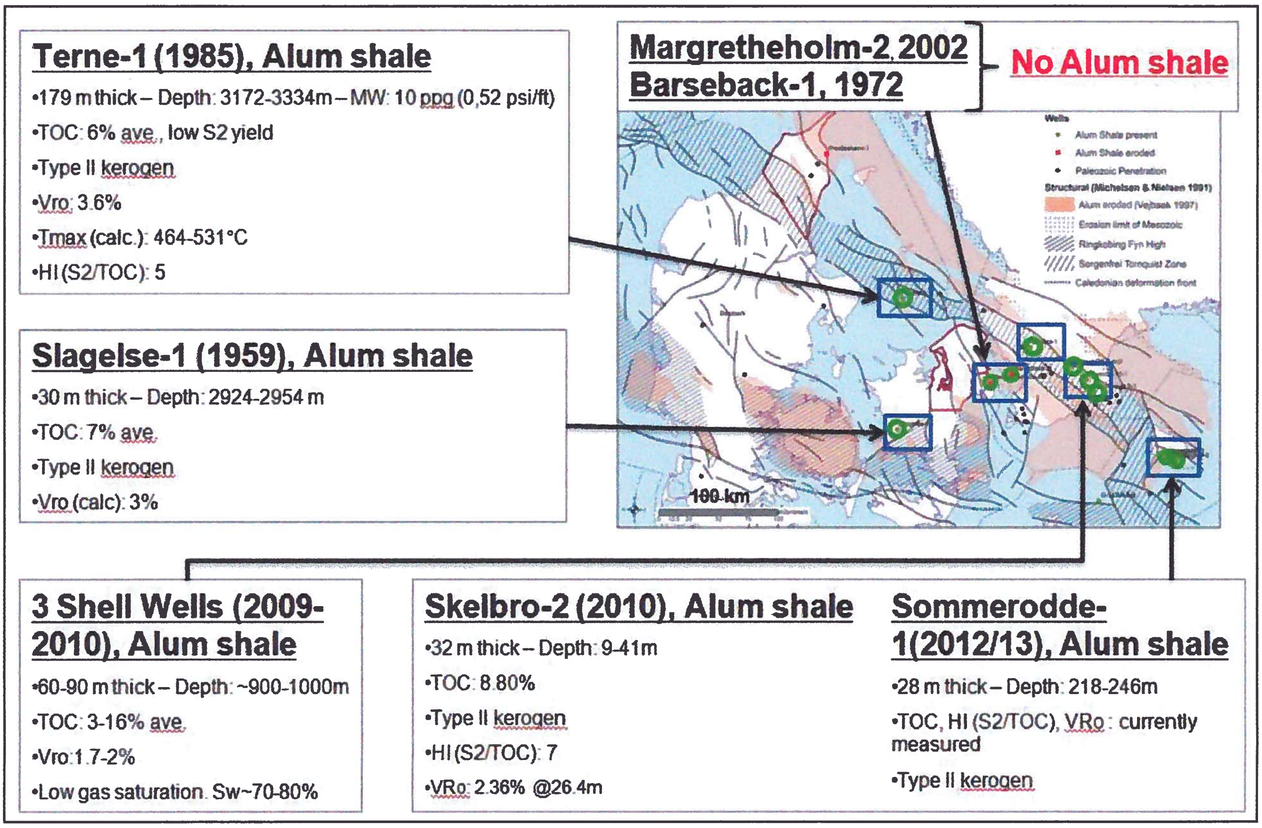

Figure 3 – Alum Shale formation - Denmark and Sweden – Key wells and data

• GEOPHYSICAL DATABASE

The geophysical database of relevance for license 2/10 is summarized in Figure 4.

1.3. Wells

Only 2 wells are located on L2/10, and they stopped in the Triassic: Lavö-1 (Operator Dapco, 1959), and Karlebo-1A (Operator Tethys Oil, 2006).
The key wells are 4 offset wells located within 50 km of the license that calibrate the presence or erosion of Alum Shale in the area:

- Terne-1 (Operator Amoco, 1985) that encountered 180m of Alum Shale and stopped in Precambrian Gneiss
- Slagelse-1 (Operator Gulf Oil, 1959) that encountered 30m of Alum Shale (Upper section eroded) and stopped in the Precambrian
- Margretheholm-2 (Operator Dong, 2003), a geothermal well that encountered Triassic series directly on Precambrian Gneiss (Alum Shale eroded).
- Barseback-1 (Operator Olje Prospektering AB, 1972) that stopped in Precambrian basement, and where the Alum Shale is eroded (information from Vejbaek, 1997).

For the velocity study, 6 wells with velocity information (sonic log and/or checkshot) within 200 km of L2/10 were used for calibration of the velocity model: Karlebo-1A, Margretheholm-1A, Rönde-1, Saeby-1, Terne-1, and Növling-1.

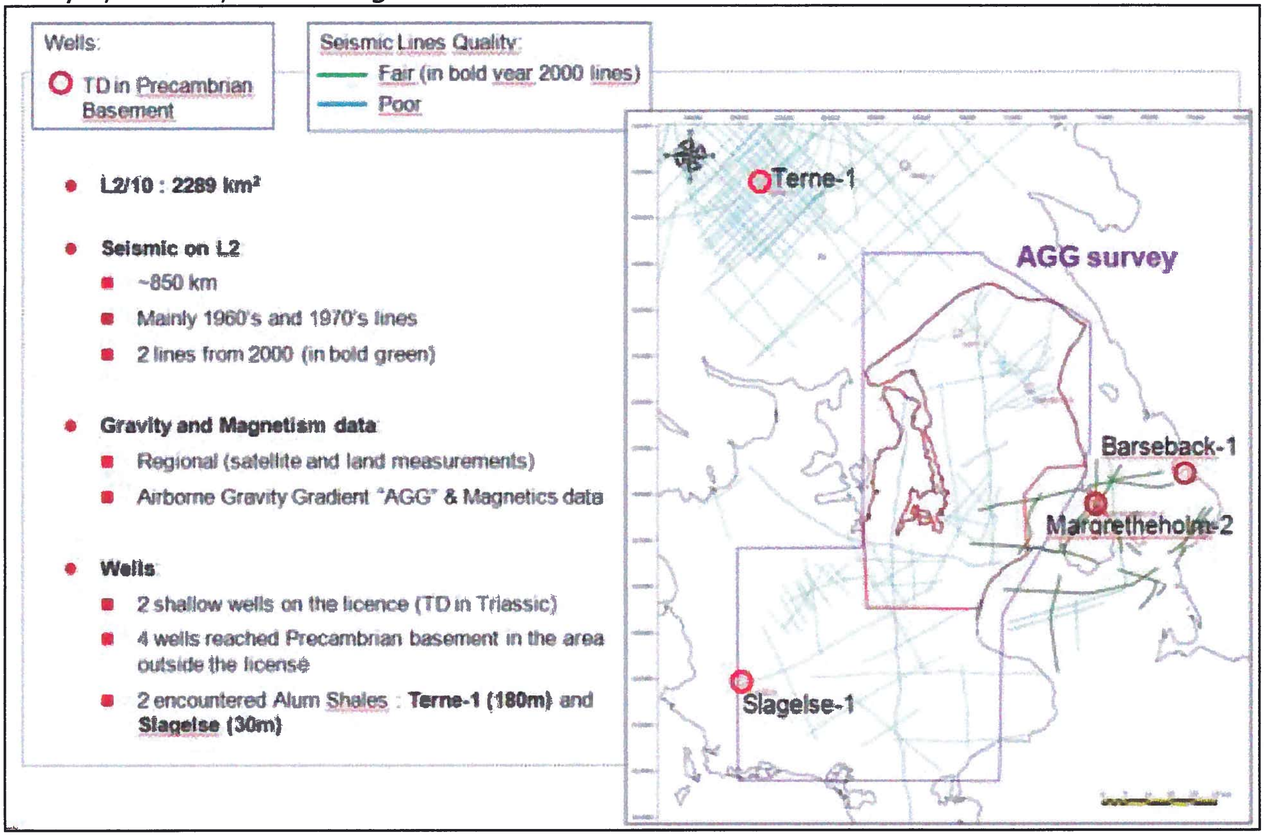

Figure 4 Geophysical database for license 2/10

1.4. Seismic

L2/10 is covered by ~850 km of 2D seismic lines that are of poor to fair quality (lines are mainly from the 1960's and 1970's, and 2 lines on the license are from 2000). Some of the old lines have been reprocessed. On L1/10, a reprocessing was performed by Total, which gave variable results from one line to the other.
Details of the seismic surveys present on L2/10 are:

- SSL6267: lines acquired from 1962 to 1967. Shot interval: 1 km, fold 1. Generally, absence of observer logs or geometry information. Only scans are available, that were bought from the GEUS and filtered by Total before loading on Sismage.
- SSL7273: lines acquired in 1972-73 with dynamite, source interval ~136m, geophone interval 75m, 2000m max offset, fold 6. Some lines have been reprocessed by Tethys Oil around 2003. They are of poor to fair quality.
- AO84-85: acquired with dynamite, 50m shot and group interval, 1.8 km to 3 km max offset. Mostly short lines of poor to fair quality in the northeast of the L2/10. Some lines were reprocessed by Geophysika Torun in 2001 for Amerada Hess.

- HGS2000: 4 onshore lines acquired in 2000 by Thor for DONG, with vibrators, frequency range of sweep 10-100Hz, 50 m source and 25 m receiver intervals, 3 km max offset. Processing was performed by TEEC (Germany). They are relatively good quality lines acquired for geothermal objectives in the Triassic, but their quality is not sufficient for Paleozoic objectives: lack of energy, low frequencies and long offsets.

1.5. Gravity and Magnetic data

Concerning gravity and magnetic data, we used airborne data acquired during the AGG & Magnetics survey and regional data.

1.5.1. REGIONAL DATA

Regional gravimetric data were acquired by MTG/TTP from Getech and include a dense land gravimetric survey on L2/10 and satellite altimetry data offshore of poorer resolution. Regional magnetic data is from the satellite EMAG2 grid (4 km resolution).

1.5.2. AIRBORNE GRAVITY GRADIENT & MAGNETIC SURVEY

The AGG survey was designed so as to cover license 2/10, and extends to the south west (over former license 4/09 and the area west of former license 4/09) to tie to Slagelse-1 well that encountered the Alum Shale and to cover the Precambrian basement high, and extends to the north to tie to 2D seismic lines where Paleozoic tilted panels with Alum Shale are clearly interpreted.
The AGG survey was acquired by a CGG/Fugro aircraft in August 2013 over 5719 km^2. The flight line path map is shown on Figure 5. The characteristics of the survey were:

- Total line length 13044.2 km
- Traverse Line Spacing 500 m – direction E-W
- Tie Line Spacing 5000 m- direction N-S

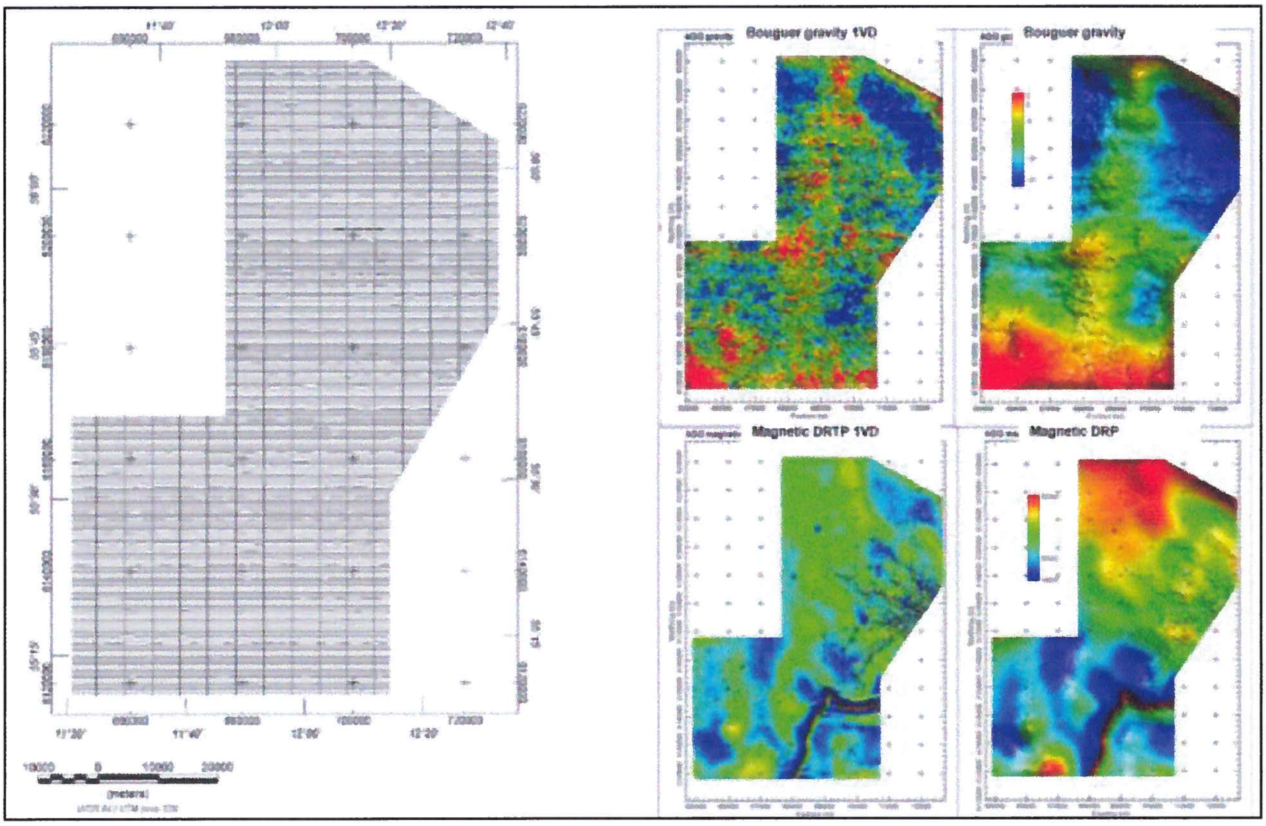

Figure 5 AGG survey flight path and results

Data recording included: FALCON® AGG data, terrain clearance provided by radar altimeter, airborne GPS positional data, time markers, ground based GPS positional data and ground surface below aircraft mapped by laser scanner system.
Processing was performed by CGG/Fugro (cf. References at the end of this report). Final products included Bouguer gravity and vertical gravity gradient, magnetic Differential Reduced To the Pole (DRTP) and first vertical DTRP anomaly maps, along with enhancements of anomalies (shape index of the equipotential surface, horizontal and total gradient, tilt angle, band-pass filter…).

• SEISMIC STUDY

1.6. Calibration & interpretation

1.6.1. CALIBRATION

Synthetic seismograms were computed at Terne-1 and Roende-1 in the vicinity of L2/10 and at Saeby-1 on L1/10. Terne-1 is the only well where calibration of the Alum Shale or basement was possible (Margretheholm is not on a seismic line, and Slagelse-1 has not enough log information).

Other wells mentioned in paragraph 2.1. were used to calibrate post-Permian layers and to calibrate the velocity model.
At Ronde-1, the strongest reflector in the vicinity of the Permo-carboniferous unconformity is the Zechstein salt.
At Terne-1, only low frequencies have penetrated in the Paleozoic (possibly due to strong absorption caused by volcanic layers), and the Alum Shale sequence corresponds to a negative reflective "band".
At Slagelse-1, where no proper seismic-to-well calibration was possible, the Alum Shale is observed in the seismic as a doublet of reflectors (certainly top and base Alum).
Calibration allowed to estimate picking uncertainty, that can be up to 200m for Permo-carboniferous unconformity, and up to 225m for top basement and top Alum Shale.

1.6.2. INTERPRETED HORIZONS

Four seismic horizons were regionally interpreted: Precambrian Basement, Alum Shale, Permo-Carboniferous Unconformity, and Base Upper Cretaceous Chalk.
The Alum Shale is observed regionally as a distinct reflector or doublet of reflectors draping the Precambrian basement. When Alum Shale was encountered at wells (Terne-1 and Slagelse-1), it is visible in the seismic. At Margretheholm-2, where Alum shale is eroded, there is no Alum Shale-like reflector in the seismic. On L2/10, because of the poor seismic quality at depth on many seismic lines, the Alum Shale or basement reflectors are only observed in the southern part of L2/10. In the major part of the license, the deepest reflector observed is the Permo-Carboniferous Unconformity, which is still useful as it provides a minimum depth for the Alum Shale objective. The Permo-Carboniferous Unconformity is easily identifiable as it separates the Mesozoic sands and clays which is a high-frequency reflector sequence and the Paleozoic or basement which are much lower frequency and with much less reflectors.
Base Upper Cretaceous chalk is a distinct high amplitude reflector that correlates well with impedance decrease at logs (density and velocity decrease).

1.6.3. DEPTH CONVERSION

Study of the well velocity laws using the 6 neighboring wells with velocity information listed above reveals 3 main velocity layers:

- The chalk layer, which is the uppermost layer on L2/10 (the overlying quaternary layer is between 40 and 200 m thick on L2 according to Japsen, 1998) has higher velocities than the underlying Mesozoic clays & sands layer. The velocity inversion (and density inversion) at base Chalk is clearly seen on well logs and on available DMO-stack velocities. Velocities within the chalk layer are very consistent from one well to the other (Figure 20). However, the overlying quaternary layer thickness variations could not be taken into account because the top of the chalk layer is too shallow to be imaged by seismics (< 200m deep). Therefore, the velocity from ground level to base chalk was modeled using the best fit second order polynomial to wells time-depth laws.
- The Mesozoic clays and sands layer, which has a slower velocity gradient than the chalk layer. A base case (or best case) linear velocity law was derived from the best linear fit to wells, along with a min and max velocity law.
- The Paleozoic layer, with high velocities. Terne-1 is the well that penetrated the thickest Paleozoic section (1km). Velocities in the Paleozoic do not tend to increase with depth as it is the case in younger layers, but vary inside a 4000-6000 m/s range: VSP-derived velocities in the Paleozoic are in the range 4200-5700m/s and Sonic log-derived velocities in the Paleozoic are in the range 4000-6000m/s. Highest velocities (>5200m/s) in the Paleozoic can be attributed to volcanics in some cases (in Terne-1 for example). From the wells VSP and sonic data, we derive the following values:
    - Alum shale Interval Velocity ~3500 m/s

- Slow Paleozoic velocity: 4200 m/s (Ronde-1)
- Average Paleozoic velocity: 4500 m/s (Terne-1 in the deepest part)
- High Paleozoic velocity: 4800 m/s

For the 3D velocity model, Paleozoic velocity is set constant, at a value of velocity is taken in the Paleozoic: 4200/4500/4800m/s for min/base/max cases respectively.

In a multi-scenario approach, three layer-cake velocity models were constructed for the L2/10 area: a mode case, which best fits wells, and minimum and maximum cases. Comparison of the layer-cake velocity model with DMO velocities from line HGS2000-001 processing show that the base-case model generally has slower velocities than the DMO velocities, excepted from the Mesozoic clays and sands layer.

Each time horizon was converted to depth using the above velocity models, and then adjusted to wells by simple krigging of the misfits.

NB: the STZ area was converted to depth using a velocity law based on Terne-1 check shot (Terne-1 best fit polynomial law until Permo-Carboniferous Unconformity, and 4500m/s below). Regional maps are made by concatenation of maps in the L2/10 area and STZ area. Use of two different velocity models was necessary because STZ was more uplifted than surrounding areas.

1.6.4. DEPTH UNCERTAINTY

Misfits between the depth-converted horizon (before well adjustment) and well picks are less than 70m at Permian Unconformity (3 wells) and less than 60m at Basement (2 wells). However, picking uncertainty away from wells can be up to 200m at Permian unconformity and 250m at basement.

1.7. results: alum shale prospectivity & associated risks

1.7.1. STRUCTURAL SETTING

The structural setting of the license is one of tilted blocs of the Basement and Paleozoic, eroded by the Permian Unconformity, overlaid by Triassic to Lower Cretaceous series composed mainly of sands and clays, and finally covered by a thick Upper Cretaceous chalk layer (thickness varying from 2100m in the north of L2/10 to 1100m in the south).

The structural interpretation on seismic lines allows to identify two structural domains: a western domain, where normal faults dip to the west and are mostly sealed by the Permian Unconformity, and an eastern domain, where faults dip to the east and were active in extension until the Lower Cretaceous (Figure 26a). This eastern domain seems in link with the STZ, which has been active in trans-tension until the Lower Cretaceous. The two structural domains are separated by a horst (basement high) in the southeastern part of L2/10, the extension of which is uncertain as described below.

1.7.2. EROSION OF THE ALUM SHALE

On the horst in the southeast of L2/10, the Alum Shale has been eroded to an extent that is uncertain:

- On some seismic lines, the Alum Shale is very likely to be eroded.
- On other seismic lines, reflectors are observed below Permian Unconformity, between 2 and 4 km depth, which may correspond either to Alum Shale or to Precambrian metamorphic layering. The favored interpretation is that they correspond to metamorphic basement because similar reflectors are observed in the Precambrian further north on offshore lines. Such areas where the Alum Shale is quite likely to be eroded [redacted]

1.7.3. TECHNICAL & ECONOMICAL MAXIMUM PROSPECTIVE DEPTH OF ALUM SHALE

[redacted] For the evaluation presented in this report, the maximum depth cut-off is 4 km at Top Basement, and where Basement depth is not known, cut-off is taken at 3 km depth at Permian Unconformity.
Depth conversion reveals zones where Alum Shale is too deep (> 4 km). In areas where seismic quality does not allow to observe the Alum Shale, the Permian Unconformity map is used to delineate prospectivity: if Permian unconformity is deeper than 3 km, Alum Shale is considered too deep to be prospective.

• GRAVITY & MAGNETIC STUDY

The "ideal" goal of the gravity and magnetic study was to recover basement depth and topography in areas where seismic quality is too poor to see the basement. However, this was not entirely possible on L2/10 because of a too weak density contrast between Basement and Paleozoic, and too large uncertainties in the magnetic and gravimetric modeling as described below.

1.8. What was expected from the gravity and magnetics study?

The magnetic field DRTP anomaly and gravity field Bouguer anomaly result from the additions of all contributive layers of the underground, with longer wavelength representing deeper structures than shorter wavelengths. Therefore for our objectives, we interpreted the first vertical derivatives of the magnetic DRTP and gravity Bouguer anomalies, which allow us to attenuate the deep mantle signal.
Magnetic susceptibility variations of rocks in the underground create magnetic anomalies. DRTP Magnetic anomaly highs are created by high magnetic susceptibility rocks, mainly volcanic or plutonic rocks, and therefore magnetic highs on L2/10 can correspond to Precambrian basement or Late Carboniferous magmatic bodies ... or to artefacts (e.g. high voltage power cables).
Density variations in the underground create gravity anomalies. On L2/10, Bouguer gravity highs can correspond to basement or Paleozoic topography, basement density variations, magmatic intrusions, or anticlines in younger layers.
Therefore, positive anomalies in both magnetics and gravity are likely to be Precambrian basement highs or magmatic bodies.

1.9. Qualitative observations

Comparison of Bouguer gravity first derivative with magnetic DRTP first derivative shows a good correlation between gravity highs/lows with magnetic highs/lows respectively. Where the quality of seismic is sufficient, gravity/magnetic lows correlate well with zones of deepening of Precambrian basement, and the gravity/magnetic high in the southeast of L2/10 corresponds to a basement horst. By analogy, it is likely that the two other gravity/magnetic highs identified on L2/10 and circled correspond to basement horsts. However, depth conversion shows that these possible basement horsts are already at great depths (Permian unconformity is already > 3 km depth), and therefore not prospective.
Therefore, magnetic and gravimetric anomaly maps can be useful for qualitative interpretation of the basement topography, but not for quantitative evaluation of the top basement depth.

1.10. attempt at quantitative estimation of basement depth

Modeling and inversion of the airborne gravity and magnetic data was conducted at Total headquarters with the initial objective of recovering the basement topography. [redacted]

1.10.1. MAGNETIC INVERSION

Magnetic inversion was performed (3D Euler method) to obtain a pseudo-depth of the magnetic sources; however, depth uncertainties obtained were so high (up to 3 km) that the method was not useful.

1.10.2. GRAVITY INVERSION

Study of densities at neighboring well logs (Terne-1, Margretheholm-1, Roende-1, Noevling-1) indicate that the density contrast at top basement is weak, and that the major density contrast is between Mesozoic clays & sands and Paleozoic (N.B. basement densities are taken from literature). These observations are consistent with values used by Olesen & al (2004). Therefore, the basement depth cannot be correctly recovered with gravity inversion; the Permian Unconformity can be better recovered.
10 sets of gravity modeling and inversion were performed, varying the initial model, the density values, or the intensity of constraints set on geometry or density. Depth-converted seismic horizons were used to constrain the models. The density model derived from wells can explain the measured gravity data. However, different basement topographies can explain as well the measured gravity with densities varying within the uncertainty range. This confirms the prediction that basement depth cannot be derived from gravity data.
By contrast, Permian unconformity depth is better recovered. Permian Unconformity depth obtained by gravity inversion allowed to identify two zones that are significantly too deep (> 4km) in the northeast and in the west of L2/10.

1.11. Conclusions of the gravity and magnetic study

The gravity and magnetic study gives qualitative results regarding the topography of the basement, but not quantitative: the actual depth of the basement cannot be obtained because of too large uncertainties in the magnetic inversion and in the density model, along with a too weak density contrast between basement and Paleozoic as described below.
Nonetheless, the gravity & magnetic study combined with seismic information allowed to discard two zones that are significantly too deep (in the northeast and in the west of L2/10).
It would be interesting to perform further work on the AGG data that could be useful to future exploration surveys as described in the work proposal submitted to the Danish Energy Agency on January 2015 ("*150107-DKL2_AGG Study Proposal*"):

- Understand so far unexplained differences between the dense land gravity & AGG surveys
- Determine the advantages of AGG compared to a dense land survey depending on the depth of investigation

• RESIDUAL PROSPECTIVITY OF L2/10

The seismic, magnetic and gravity study allows to divide L2/10 into three prospectivity domains:

- Non prospective domain: areas where Alum Shale is eroded or too deep (Alum > 4 km or Permian Unconformity> 3 km) which represent 80% of the license (mode velocity case).
- [redacted] which is 65 km² (mode velocity case) in the southwestern part of L2/10, where Alum Shale is observed on tilted blocs, calibrated at Slagelse-1, at depths ranging between 3.6 km and 4 km. This domain has the PS of the Alum Shale play [redacted]
- A domain of 350 km² (mode velocity case) with "global" [redacted] (Segment 2). In this case the PS of the segment Geometry is estimated at 40% either because of Alum presence risk or because of Alum depth risk (too deep). In details:

- ○ A 170 km² area (Segment 1) with a high erosion risk in the southeastern part of L2/10.
- ○ A 180 km² area (Segment 2) with high depth risk, where Alum Shale is not seen on seismic, but could lie between 2.5 km and 6 km depth, given that Permian Unconformity is observed between 2.5 km and 3 km depth. The probability that Alum Shale is shallower than 4 km over this area is set at 40%.

A prospective area of 1000 km^2 with [redacted] is identified, where:

- Alum Shale is observed in the seismic, on tilted blocks of ~5 km width.
- Relatively deeply buried target formation:
  - ○ Over 700 km^2 Alum is between 3 km and 3.5 km depth
  - ○ Over 300 km^2 Alum is between 2 km and 3 km depth
- There is a risk of too thin Alum shale formation (thickness of only 30 m of Alum were encountered at Slagelse-1).

An additional area of 470 km^2 is not covered by seismic but remains prospective and is likely to have the same characteristics as the above [redacted]

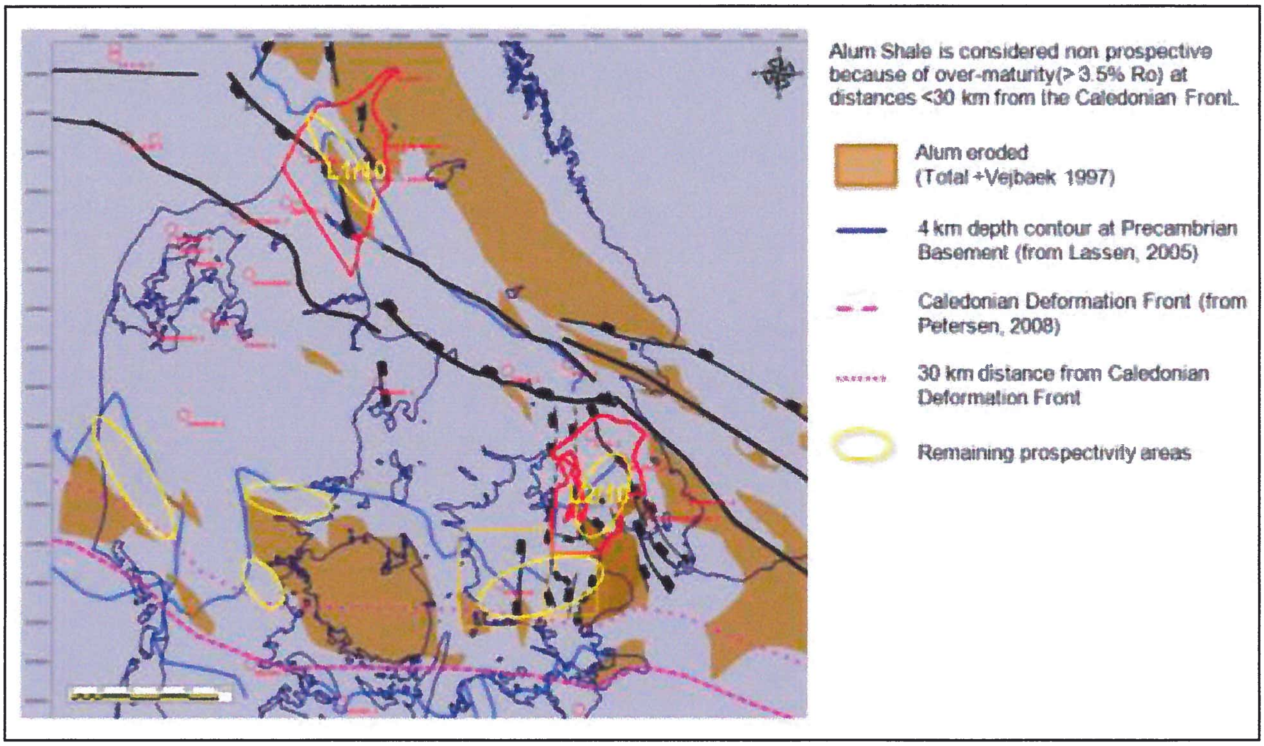

Figure 6 Residual Alum shale prospectivity in Denmark.

• CONCLUSIONS

The L2/10 geosciences evaluation shows that the Alum shale gas economic production potential is deemed poor for the following reasons:

- The Alum Shale is a thin (<50m), deep (> 3km), low EUR and risky play [redacted]
- 80% of L2/10 is non prospective (Alum eroded or Alum too deep: Alum > 4 km or Permian unconformity > 3 km)
- The remaining 20% (415 km²) is in an area difficult to develop (cities or protected areas) and only 65 km² of this prospective area have a [redacted]; the rest has a [redacted] (erosion or depth risk).

Total and Nordsøfonden does hence not consider further exploration activities for shale gas to have any positive technical or economical value, and has therefore jointly decided to relinquish license 2/10.

• FURTHER EXPLORATIONS ACTIVITIES

Following the Joint Venture's decision to relinquish license 2/10 on 1st July 2015, the following additional studies have, in agreement with DEA, been carried out in cooperation with DTU Space and GEUS, with the objective to improve the quality of existing geological and geophysical data for use in eventual later exploration activities within the current 2/10 license area. This has been done through re-interpretation of acquired data and incorporating newly released geological information from other wells in vicinity of the 2/10 license area:

1. Assessment of the applicability of the airborne gravity gradient surveys for deep exploration targets, including the validation and improvement of the processing of the exported air-borne gravity gradient and magnetic survey (AGG) in licence 2/10. Performed in cooperation with DTU Space.

2. Update of the geological model and thickness scenarios of the Alum shale in Zealand and update thickness scenarios for the Ordovician and Silurium TOC-containing shales based on new data and log-stratigraphic correlations from three wells conducted by Shell in Skåne, Sweden. Performed in cooperation with GEUS.

3. Update on the burial history of the Alum shale with a new 1D modelling of the grade of maturity based on analysis of released core and cutting data from Sweden and from Tern-1 and Slagelse-1. Performed in cooperation with GEUS.