Edison Norge AS

PL807

Expiry Report
May 2020

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1 History of the Production License

The Production License PL807 was awarded the 5th of February 2016 as a result of TFO2015 licensing round. It covered the blocks 2/8, 2/9 and 2/11 in the southern North Sea for a total of 402 km² (Fig. 1.1). The license is located in a rich petroleum province with major fields such as Valhall, Hod, Mjølner and Embla. In the last 40 years, the whole area has been subjected to high level of activity with many exploration wells being drilled and with discoveries made in various plays, such as Upper Cretaceous and Jurassic.

At the time of the APA2015 application, Edison main prospect was named Miami and it was highlighted in Upper Jurassic play. Some leads were also delineated in both Upper and Lower Cretaceous geological plays.

Fig. 1.1

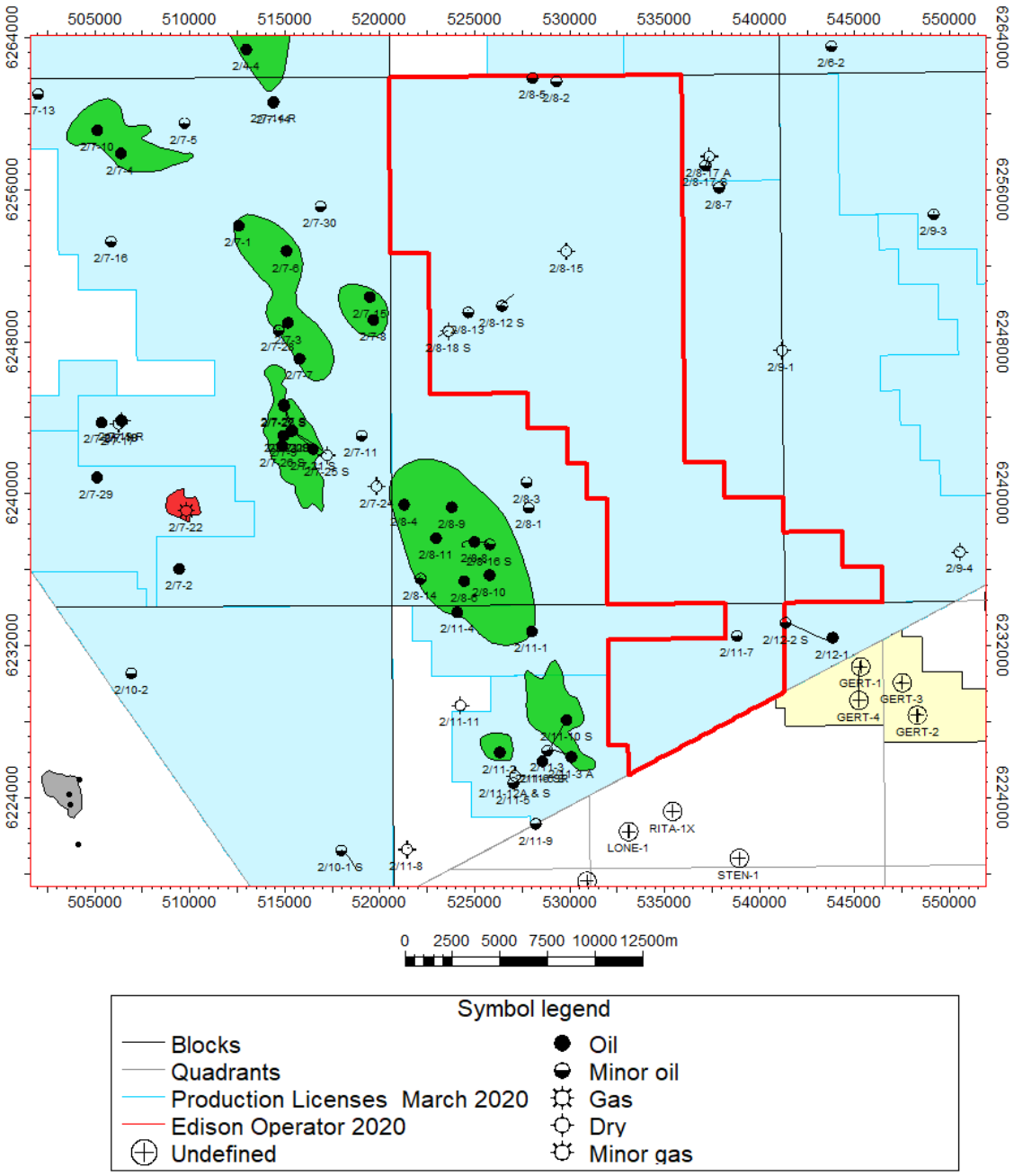

Fig. 1.1 PL807 License map Overview of PL807

PL807 was operated by Edison Norge AS and licensees are reported in Table 1.1.

Table 1.1 Licensees and interest in PL807

Licensees at award	Interest at award	Licensees at relinquishment	Interest at relinquishment
Edison Norge AS (O)	60%	Edison Norge AS (O)	55%
DONG Energy (P)	40%	OMV Norge (P)	45%

The PL807 joint venture previously applied in 2018 and 2019 for two extensions of the first exploration phase (18 months followed by 9 months postponement each), motivated by seismic reprocessing delays and consequent G&G studies completion. The final DoD was the 5th of May 2020.

A comprehensive work program has been conducted to fully mature the prospectivity of the license (see Table 1.2 for an overview of the work program for PL807).

Table 1.2 Work program for PL807

Work program task	Deadline	Results
Acquire new 3D seismic	05.02.2018	Fulfilled
Decision to Drill and Exploration well	05.02.2018	Fulfilled
Decision to Drill and Exploration well (postponement 18 months)	05.08.2019	Fulfilled
Decision to Drill and Exploration well (postponement 9 months)	05.05.2020	Not continue
Decision to concretize (BoK)	05.05.2022	--
Decision to continue (BoV)	05.05.2024	--
Decision to submit a PDO (PUD)	05.05.2025	--

The Miami structure was firstly interpreted during the work done in preparation for APA2015. During the two years of the first exploration period, a lot of efforts have been tried to reduce the risk of reservoir presence and, at the same time, to highlight sands in the Volgian/Kimmeridgian age formations. For that purpose, geophysical tools such as quantitative interpretation (QI) were considered to be a key G&G de-risking study to perform. Miami was believed to be an high interest prospect, but the uncertainties related to sandstone presence were still too high, due to the low quality of the seismic and its detrimental effect on the resulting QI study.

Following that conclusion, Edison and its partner (Dong/INEOS then OMV Norge) applied for an 18 months extension of the DoD deadline, in order to reprocess the seismic data and review the QI study. Extension was granted by the authorities in March 2018.

The seismic reprocessing was carried out by PGS Geophysical and the final deliveries were available in March 2019. The following studies were performed after reprocessing: Detailed Reconnaissance Study (DRS) as well as QI study review. In addition to that, 8 wells were chosen to be evaluated with SATLOG study (done in December 2018).

The DoD, after the first extension, was set to the 5th of August 2019. The JV realized the timing was too tight in order to complete all the studies and work on their integration to the current geological and geophysical understanding of the area.

Moreover, in order to complete a full evaluation of the license, the JV therefore applied for a further 9 months extension of the Drill or Drop gate, to fulfil the ongoing studies as well as the G&G works needed to mature the main prospect (Miami) and evaluate remaining upside potential. This last extension pushed the DoD to the 5th of May 2020.

Reviewed Technical and Economical evaluation run for Miami prospect showed the potential to have a commercial opportunity. However, recent global events happened in early 2020, including Covid-19 emergency together with Oil price drop, caused uncertainties about future market prices for benchmarking the economic thresholds. In this situation, Edison thought that more time was needed to run extra sensitivities and test the commercial robustness of the project.

At the same time, the latest outlined Everglades lead was showing a very promising potential in a new untested play in the area. To mature this opportunity, more G&G studies were needed in order to finally elevate it into a drillable prospect option for the license.

For the reasons above, Edison Norge formally recommended to the PL807 MC committee to ask for 7 months of extra postponement of the Drill or Drop gate until December 5th 2020 (proposed the 3rd of April 2020 during the last EC-MC license meeting held). Partner OMV did not support the operator's proposal (with reference to L2S response posted the 23rd of April 2020) and instead recommended to drop the license. Therefore, there was not a majority for an application to extend the drill or drop decision date and the license was dropped.

2 Database Overview

2.1 Seismic Data

The seismic included in the common database is a portion of the PGS multiclient data covering the southern North Sea (PGS15914 also called MC3D-CGR2015M). This survey is a merge of three different datasets: MC3D-CGR2013RM (NPDID 7787), MC3D-CGRN13 (NPDID 7904) and MC3D-NDB2013 (NPDID 7922). The initial database covered 646 km² (Fig. 2.1). When OMV Norge joined the license as new partner, a new common database was agreed on the recently reprocessed cube as part of the extension work program. The new database covered 402 km² (Fig. 2.1). The reprocessed dataset is called MC3D-CGR2015MEDR19 (NPDID 7190).

Fig. 2.1

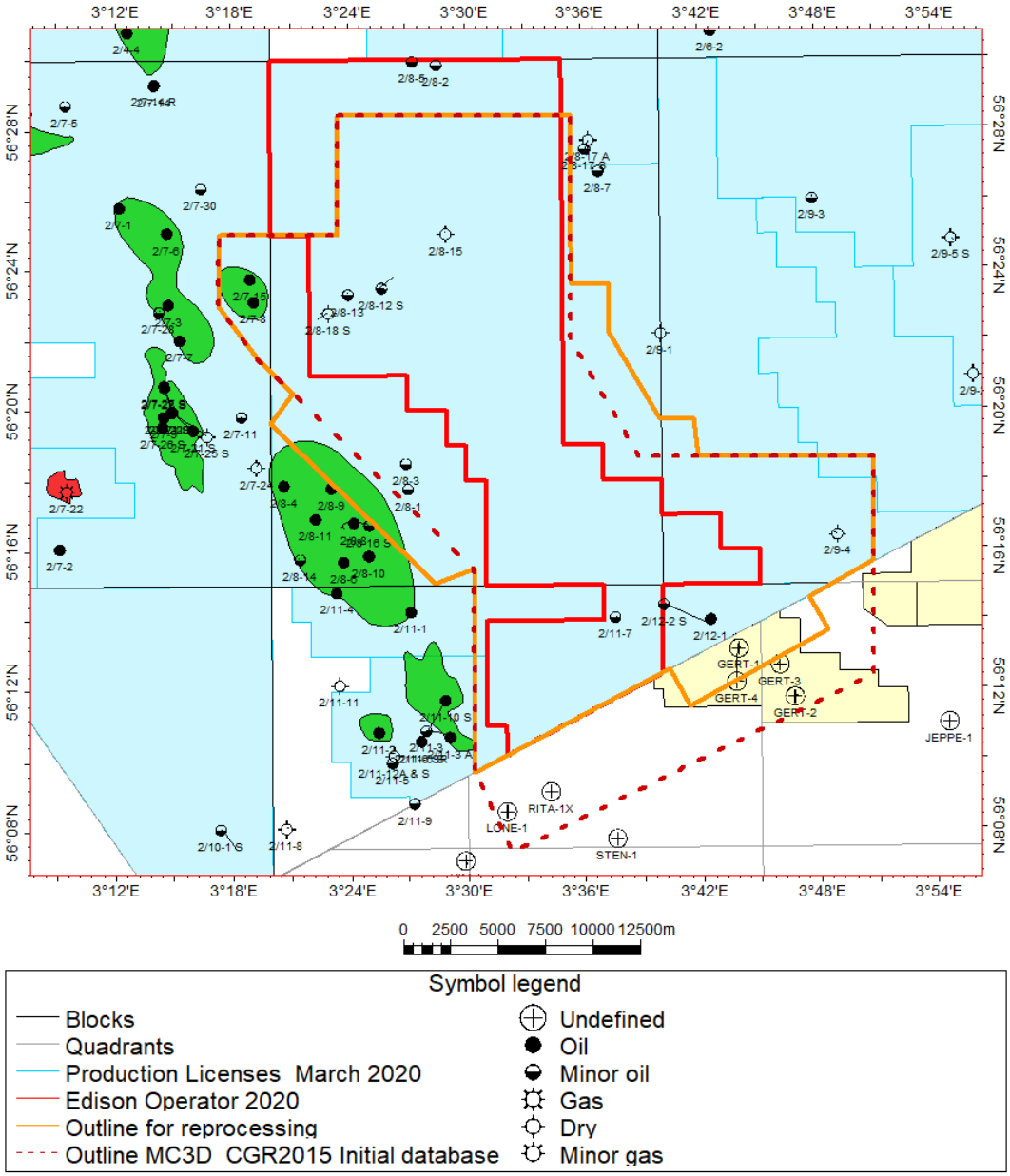

Fig. 2.1 PL807 Seismic Database Initial common seismic database (red dotted outline) and current common seismic database also showing the input data for reprocessing (orange outline).

2.2 Well Data

A list of the publicly available well data mentioned and/or used in this report is visible in the Table 2.1 below:

Table 2.1 Well data

Wellbore	NPDID	Status
2/5-9	1834	Released
2/7-1	179	Released
2/7-15	225	Released
2/8-3	117	Released
2/8-12S	1351	Released
2/8-13	1383	Released
2/8-15	2636	Released
2/9-4	5801	Released
2/11-7	902	Released
2/12-1	1014	Released
GERT-1	N/A	Purchased

3 Results of Geological and Geophysical Studies

Between 2016 and 2020, a significant amount of studies were performed to de-risk the main prospect Miami. The main highlighted geological risks were both the reservoir presence and quality. Edison inferred geological model predicted the possible presence at prospect level of significant amount of good quality gravity flow sands, which is today not not proven any part of the Feda Graben (but penetrated, however, in the closeby area in the King Lear discovery). Nearby wells showed and proved the existence of gravity flows, fed by local highs, but with questionable and uncertain extension far into the basin.

For that reason, Edison focused its efforts on the execution of the Quantitative Interpretation (QI) study, in addition to other standard G&G studies. All the activities performed, as well as their results, are summarized below.

Biostratigraphic study and GDE mapping (Ichron):

Ichron performed a biostratigraphic review (palynology and micropalaeontology) of 24 wells covering data from present time to Devonian age. The study was meant to provide a biostratigraphic framework with the aim to define and interpret the studied intervals, define any stratigraphic breaks in deposition, and finally to identify correlative surfaces.

The fairway mapping study consisted of a full review of cores, in order to derive key facies characteristics and to define and map gross depositional environments for the Lower Cretaceous, Jurassic and Triassic.

The results from the J90 to J110.1 intervals can be summarized by the following:

- J90 map is highly speculative and shoreface is hard to map with certainty but if sands can be expected, this would be from gravity flows originating from the W / SW. It is difficult to find proof of these sands in the Miami area based on well database only.
- J100 map somewhat contains similar uncertainties as J90 as there are highly correlated. The sands in that interval are highly bioturbated and therefore it is very difficult to find evidence of the original depositional processes.
- J110.1 to J110.4 maps (Eldfisk and intra-Farsund sands) confirms that the sands are likely to come from gravity flow fairways and could also be present in deeper basinal and terrace areas well away from active highs.

Geo-structural studies (incl. 2D restoration) (Edison internal study):

A detailed geo-structural study was performed by Edison Norge in 2016. The goals were the recognition of the main structural and stratigraphic features and definition of a structural interpretation template. This was used as a starting point for the review of the seismic interpretation post-award.

Petrophysical studies on selected wells (Edison interval study):

Petrophysical review of selected key wells was performed by Edison as part of the initial work. Reservoir in the Upper Jurassic were studied and properties such as porosity and net to gross were extracted. These were used as input in the volumetric evaluation.

Regional and License interpretation (Edison internal work):

The regional interpretation was done using the available public seismic together with the PGS dataset over the license. Interpreted regional horizons cover intervals from Seabed to Paleozoic.

The detailed license interpretation includes the same horizons plus additional horizons in interval of interest (for example Upper and Lower Cretaceous and Jurassic intervals were studied in great detail, see Fig. 3.1). A detailed faults interpretation was also performed.

Prior to interpreting the data, well ties were performed for the following key wells: 2/8-3, 2/11-7, 2/7-15, 2/9-4 and 2/12-1.

Fig. 3.1

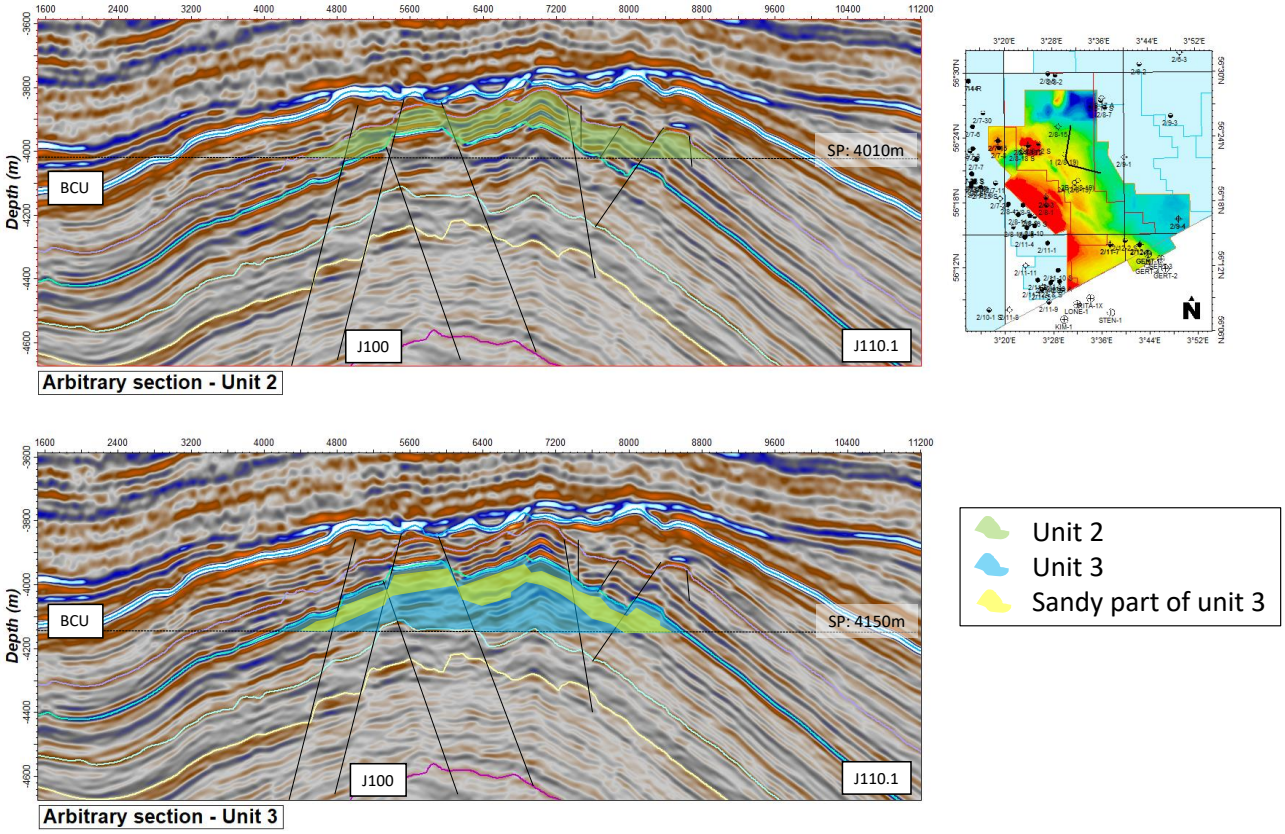

Fig. 3.1 Seismic interpretation - IL 17779 (depth) X section showing some of the key interpreted horizons.

PSDM Reprocessing (PGS):

PGS performed a PSDM reprocessing for Edison. A lot of work was put into the velocity model building as well as the demultiple. During Velocity Model Building (VMB) Edison provided PGS with an initial model which was then used as a starting point for the various iterations. This resulted in better imaging above, around and below the salt as well as improved seismic quality with a better trust in the depth seismic cube. The new velocity model is very different from the original PGS model in the deeper part of the Feda Graben. This results in pulling all the deeper Jurassic, Triassic and Paleozoic horizon up in the deepest part of the basin. In places, the difference is significant: Up to 1000 m in the deepest part of the Feda Graben.

SATLOG Analysis (Searcher Geoservices):

The SATLOG study clearly confirmed the potential of Mandal and Farsund Fms. Oil shows have been highlighted in wells 2/8-3, 2/11-7 in Mandal Fm and in wells 2/7-1, 2/11-7 in Farsund Fm.

All wells confirmed the presence of thick Jurassic source rocks (except 2/8-13, as it did not penetrate Jurassic intervals).

One of the study outcome is the horizontal barriers interpreted in each of the study logs. These can be used to interpret and better understand the sealing capacity of shales at various levels.

The study also highlighted upside potential such as a potential missed oil zone interval in Hordaland Gp. in well 2/8-13 (later named Everglades lead).

Detailed Reconnaissance Study (DRS) (Lyme Bay Consulting):

The DRS study consisted in the production of an important number of horizons in order to scan through the entire seismic dataset. After data conditioning, a geo-model was created to extract the horizon deck. Key markers and stratigraphic divisions as well as the fault interpretation were provided by Edison. Lyme Bay then produced attributes associated to each of the 200 horizons created. The results were mostly used to scan through other intervals than Jurassic, mainly the Tertiary and Cretaceous intervals.

Rock Physics and Initial and updated Ji-Fi inversion study (Ikon Science and Edison internal):

The initial Ji-Fi results (from 2017) were promising but, due to the quality of the seismic at that time, were deemed insufficient to properly de-risk the reservoir presence. After the reprocessing was completed, Edison proceeded with updating the Ji-Fi study using the newly reprocessed data.

The work was performed by IKON Science and QCed and followed by Edison. The work consisted in conditioning the seismic data, updating the rock physics models and trends and re-running the Ji-Fi inversion.

Based on the QC, Edison did of the Ji-Fi results, the match at well location seems to be relatively good. Good sands are accurately recognized, while could be some challenges with more silty intervals.

The number of key features recognized (upper Jurassic channel, and J100/J90 shoreface), increase the confidence in the results (from an interpreter point of view).

Sand distribution based on the inversion results was mapped for the key intervals within the upper Jurassic.

Pore pressure study (Ikon Science):

The PL807 license is located in a high pressure province, close to the HT-HP Freja-Mjølner and Herje fields. Therefore, a detailed pore pressure study was required to better constrain the pressure regimes of Miami prospect and the possible impact on a drilling project.

Five offset wells were used in that study (2/5-9, 2/7-15, 2/8-12S, 2/11-7 and GERT-1). They were selected based on key analogues and data availability.

The offset wells used in the study have very similar geological history and log data but drilling showed significant differences in magnitudes of over-pressure sub-Chalk. IKON investigated and tried to understand which secondary pressure mechanism was driving the pressure, but the cause remains still unclear. Most likely it is a combination of different mechanisms, as well as faults compartmentalization could explain the differences observed.

Predictions above top chalk have high confidence. Sub-chalk predictions at Miami proposed well location have some uncertainties, but several sensitivities and cases have been tested with a acceptable level of reliability.

Geochemistry evaluation (IGI):

The principal aim of the study was to quantify the source rock maturity and petroleum charge volumes to sand bodies encased in the Upper Jurassic Farsund Fm. The assumption being tested is the likelihood the organic-rich shales of the Farsund Fm. to fill the modelled interbedded sandy intervals.

Very thick, mature and good quality Late Jurassic source rocks are present. The study highlighted oil prone source rocks within Farsund Fm., being consistently in the early oil window with two wells reaching the main-oil window.

4 Prospect Update Report

After the submission of APA application, the main prospect highlighted by Edison was named Miami and was defined in the Upper Jurassic Volgian/Farsund Formations. This opportunity remained the main prospect throughout the license period. Some of the leads that were highlighted in the application were however discarded (mainly Upper Cretaceous leads) as well as two of the three Lower Cretaceous lead. One new lead was highlighted in the Upper Cretaceous (Ocala), and one of the Lower Cretaceous lead (Deltona) looked promising. In addition, a new lead was mapped in the Miocene (Everglades lead, already drilled by well 2/8-13). A possible lead in the Triassic Skagerrak formation (Key West) was highlighted during the seismic reprocessing, however current seismic limitation did not enable the partnership to upgrade into prospect level. However, Triassic potential should be kept in mind in the vicinity/under of the salt dome. Fig. 4.1 gives an overview of the prospect and leads and their locations.

Fig. 4.1

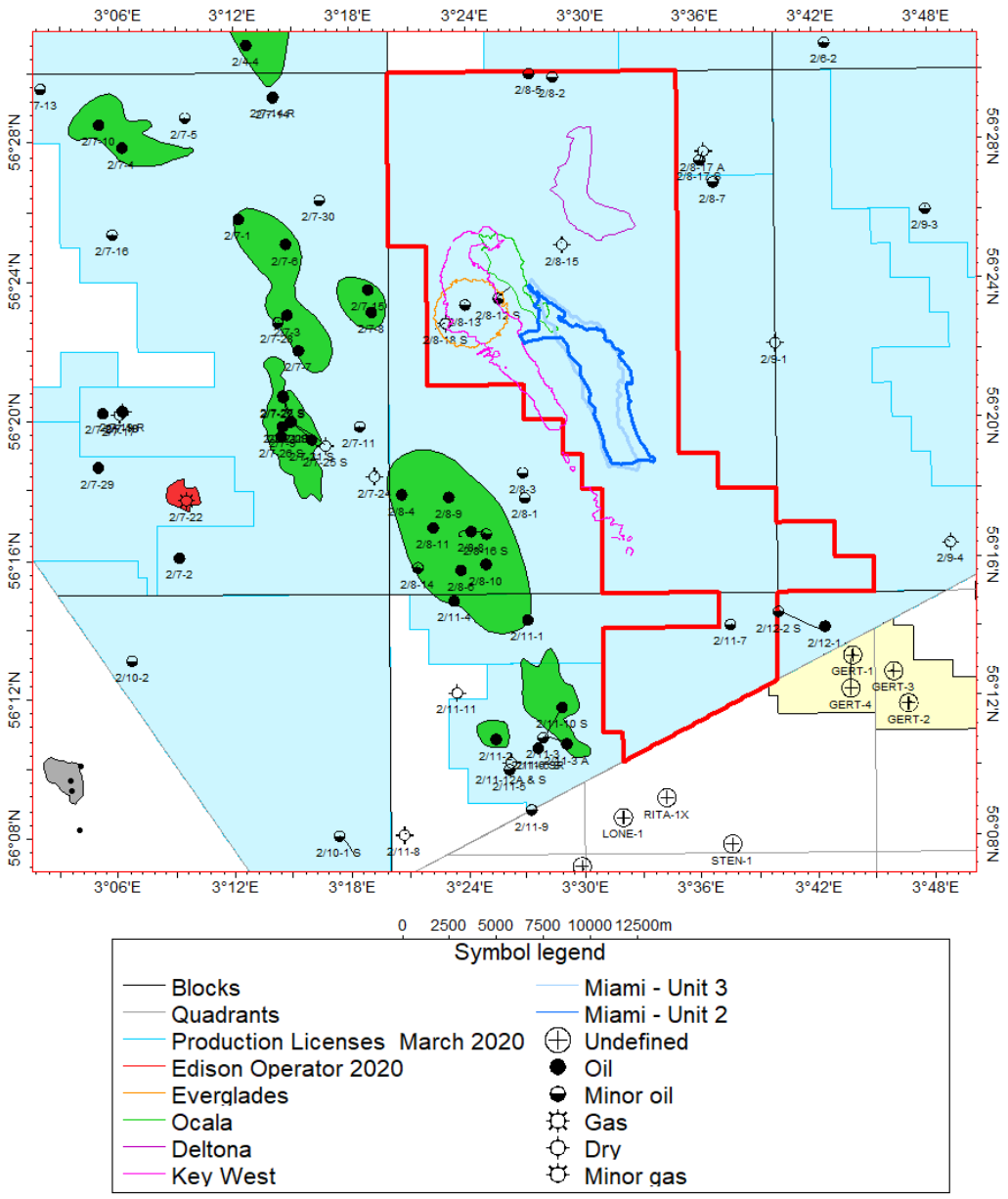

Fig. 4.1 Prospect and Leads map Prospect and Leads over the PL807 license at time of relinquishement

The work was focused on the maturation of the Miami prospect and the evaluation of the additional license prospectivity. Miami consists of a structural/stratigraphic trap sealed with Lower Cretaceous shales and Jurassic shales. In few places where the Lower Cretaceous is eroded, the reservoir interval is in contact with the Upper Cretaceous chalk of the Shetland Group. The reservoir is expected to be gravity flow sands of Volgian and Kimmeridgian age for the main unit of the Miami prospect (Fig. 4.4 and Fig. 4.5 shows the delineation of the units within the Upper Jurassic interval of the Miami structure). The main source rock is the Jurassic hot shales of the Mandal and Farsund Formations. And the expected phase is oil with associated gas.

The main risk for this prospect was linked to the presence of sands and also to reservoir quality. To de-risk the presence of sand, the partnership believed that seismic inversion study could be best tool to use. Moreover, the integration of the geophysical results with the inferred geological model led to a higher confidence of the sand distribution at different ages. In a similar way, the seismic inversion study was used to evaluate the reservoir quality.

Seismic inversion: A detailed Quantitative interpretation study

After the APA award, one of the key studies of the work program was to perform a detailed seismic inversion study. IKON science was chosen to perform that study on behalf of the JV using their proprietary Ji-Fi inversion methodology. The initial study was performed in 2016. The results were promising but some issues linked to the seismic quality did not enable Edison to use the results with enough confidence. Because the study was considered the key activity to de-risk Miami, it was agreed in the JV to reprocess the seismic data to address these issues and then use the reprocessed dataset to perform an updated Ji-Fi inversion study.

The reprocessing finished at the beginning of 2018 and the Ji-Fi review was performed in the first semester of 2019. The work was performed by IKON and was QCed by Edison. The workflow consisted in conditioning the seismic, updating the rock physics models and trends and re-running the Ji-Fi inversion. The main changes observed on the results are interpreted to be due to:

- the seismic reprocessing: better frequency content, attenuated multiples and updated velocity model

- revision of trends and facies: for example the redefinition of sand and silts to sands, shaly sands and sandy shales (Fig. 4.2)

- Ji-Fi parametrization: use of anisotropy, wavelet revision, band-pass filtering of input data

Fig. 4.2

2016

Facies name	Code	Reservoir?	Pattern	Definition	Comments
Palaeogene shale	1			Above top Shetland, Vshale > 50%	Overburden shale.
Shetland Grp tight chalk	3			Within Shetland Grp, PhiT < 12%	Low porosity hard chalk.
Shetland Grp porous chalk	23			Within Shetland Grp, PhiT >12% and <25%	Porous chalk below reservoir porosity cut-off.
Shetland Grp reservoir chalk	4	✓		Within Shetland Grp, PhiT >25%	Chalk above the reservoir porosity cut-off.
Cromer Knoll Grp shale	8			Within Cromer Knoll Grp, Vshale > 60%	Cromer Knoll shale.
Cromer Knoll Grp marl	9			Within Cromer Knoll Grp, Vcalcite > 40%	Cromer Knoll marl.
Jurassic normal shale	11			Within Jurassic , Vshale > 70%	Jurassic normal shale.
Jurassic organic shale	12			Within Jurassic , Vshale > 40% and TOC > 0.025	Jurassic hot shale.
Jurassic shaly sand / silt	22			Within Jurassic , Vshale > 30% and Vshale < 70% and TOC = 0	Jurassic shaly sands and silts.
Jurassic reservoir sand	13	✓		Within Jurassic , Vshale < 30%	Jurassic reservoir sands.
Permian evaporites	19			Data below top Permian marker	All Permian evaporites.

2019

Facies name	Code	Reservoir?	Pattern	Definition	Comments
Palaeogene shale	1			Above top Shetland, Vshale > 50%	Overburden shale.
Shetland Grp tight chalk	3			Within Shetland Grp, PhiT < 10%	Low porosity hard chalk.
Shetland Grp porous chalk	23			Within Shetland Grp, PhiT >10% and <25%	Porous chalk below reservoir porosity cut-off.
Shetland Grp reservoir chalk	4	✓		Within Shetland Grp, PhiT >25%	Chalk above the reservoir porosity cut-off.
Cromer Knoll Grp shale	8			Within Cromer Knoll Grp, Vshale > 60%	Cromer Knoll shale.
Cromer Knoll Grp marl	9			Within Cromer Knoll Grp, Vcalcite > 40%	Cromer Knoll marl.
Jurassic normal shale	11			Within Jurassic , Vshale > 70%	Jurassic normal shale.
Jurassic organic shale	12			Within Jurassic , Vshale > 50% and TOC > 0.025	Jurassic hot shale.
Jurassic shaly sand	22			Within Jurassic , Vshale > 30% and Vshale < 50% and TOC = 0	Jurassic shaly sands and silts.
Jurassic sandy shale	26			Within Jurassic , Vshale > 50% and Vshale < 70% and TOC = 0	Jurassic shaly sands and silts.
Jurassic reservoir sand	13	✓		Within Jurassic , Vshale < 30%	Jurassic reservoir sands.
Triassic-Permian Shale	18			Data below base Jurassic marker, Vshale > 60%	All Triassic-Permian Shales.
Triassic-Permian Sand	27			Data below base Jurassic marker, Vshale < 60%, Vvolc = 0	fast, non-reservoir from mudlog, logs response
Permian volcanics	19			Data below Permian marker, Vvolc >0.4	Tuffs, Basalts from Mudlogs
Zechstein dolo/anh	27			Data below base Jurassic marker, Vcarb > 0.4	Dolomite and Lst with Anhydrite from mudlogs

Fig. 4.2 Overview of the Facies use in the JiFi Study The table summarizes the Facies used in the original study (2016) and the Facies used in the revised JiFi study (2019).

Based on the QC Edison performed on the Ji-Fi results, the match at well location seems to be relatively good. Good sands are accurately recognized while could be more challenging with siltier intervals.

The amount of unrealistic reservoir sands is reduced and the therefore the Seismic Inversion outputs predicted sand intervals with a better confidence.

Moreover, a number of key features are recognized (an upper Jurassic channel (Fig. 4.3), and J100/J90 shoreface). Edison interpreted this a sign of improved confidence and reliability of the results.

Fig. 4.3

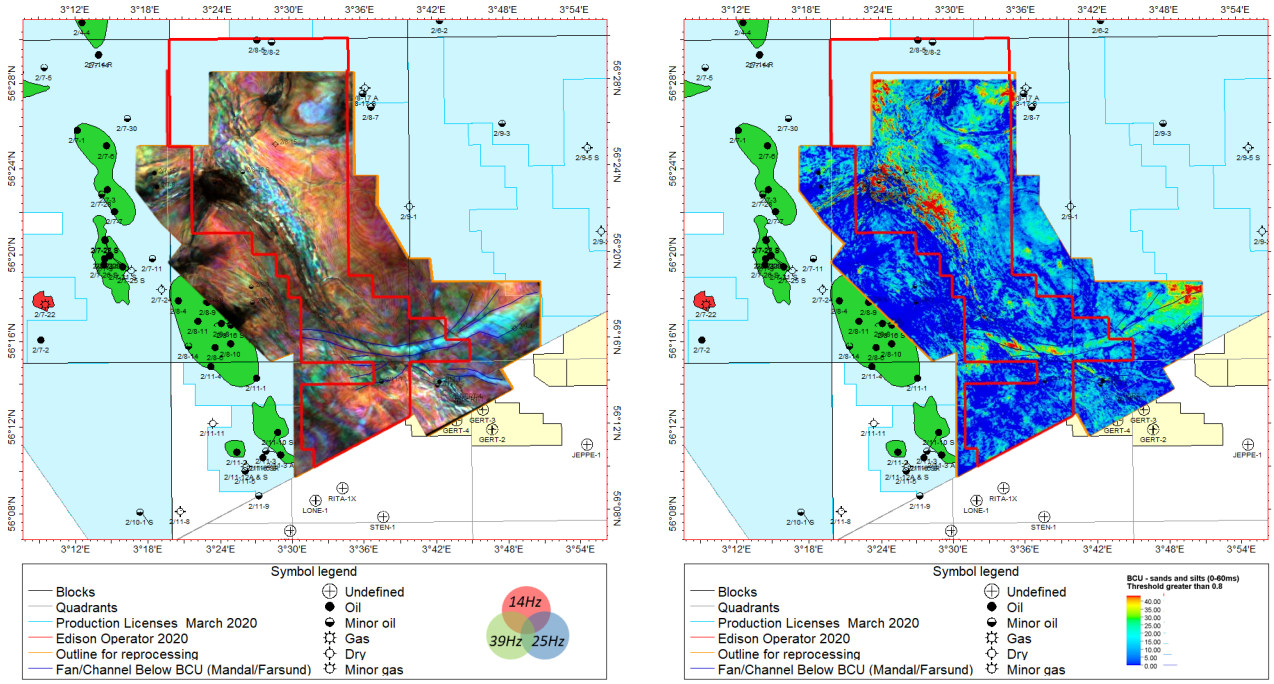

Fig. 4.3 Channel below BCU observed on RGB blend and inversion results

Two intervals were recognized and have been defined as unit 2 and unit 3 of the Miami structure. Miami unit 2 was identified as the primary target and unit 3 is considered upside potential. Other intervals where recognized as potentially interesting but were discarded in the final evaluation due to the risks of having the reservoir eroded (unit 1) and becouse seismic interpretation uncertainties due to the salt and reservoir quality issues (unit 4).

The units are described Fig. 4.4 and Fig. 4.5 and are interpreted between BCU and Top Haugesund (J100 horizon). On these pictures, the results of the Ji-Fi inversion are also shown. Using the interpretation and the inversion results, it was also possible to map the possible extend of the sand for each of the key units (see Fig. 4.6 and Fig. 4.7). For unit 2 to 4, a clear degradation of the sand quality was observable towards the south.

Fig. 4.4Fig. 4.5

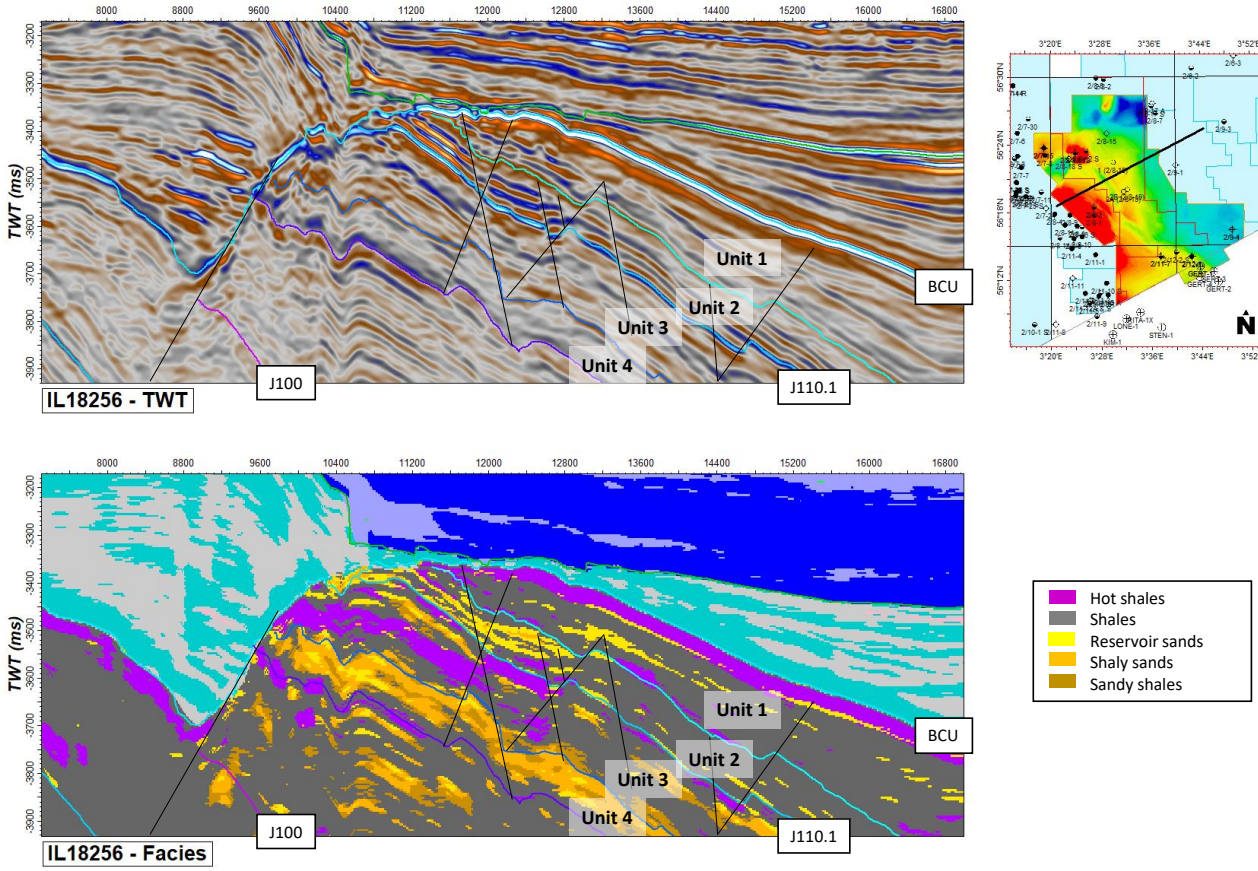

Fig. 4.4 IL18256 - TWT seismic and Ji-Fi inversion results Top cross section shows the time seismic section of IL18256, bottom cross section shows the Ji-Fi Facies results through the same IL section.

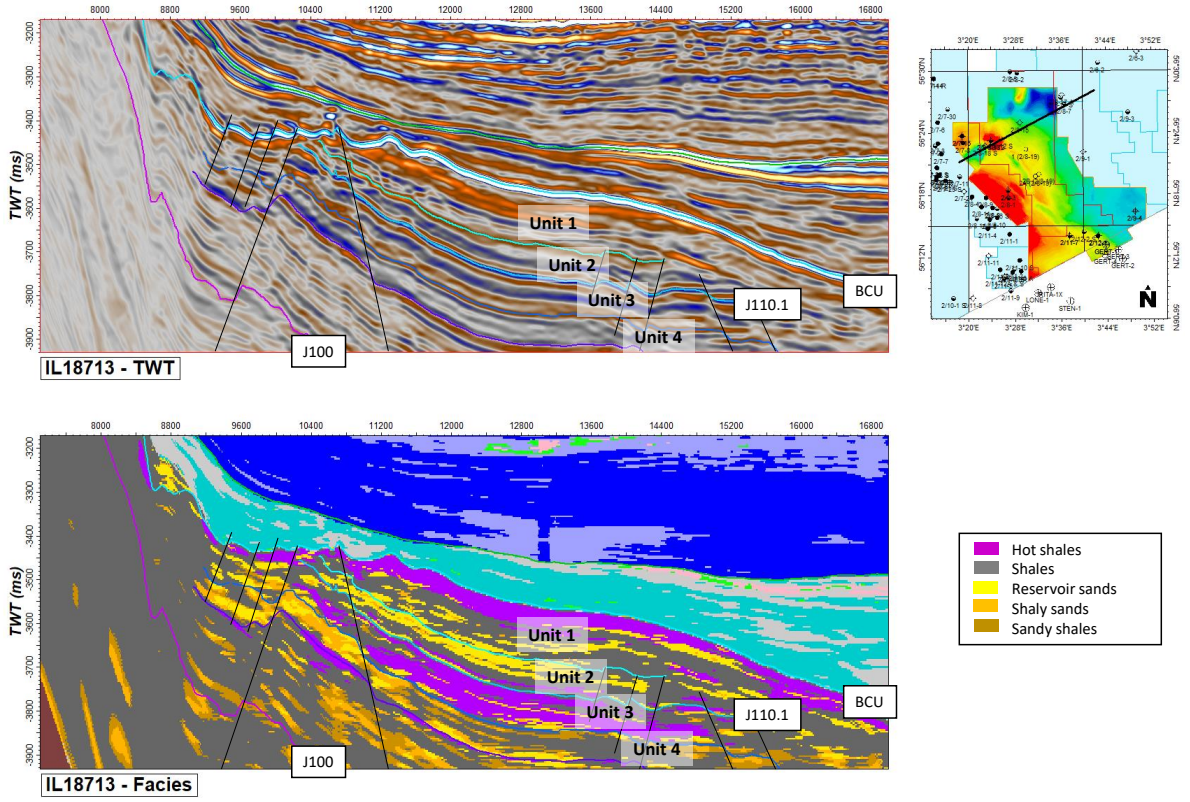

Fig. 4.5 IL18713 - TWT seismic and Ji-Fi inversion results Top cross section shows the time seismic section of IL18713, bottom cross section shows the Ji-Fi Facies results through the same IL section.

Fig. 4.6Fig. 4.7

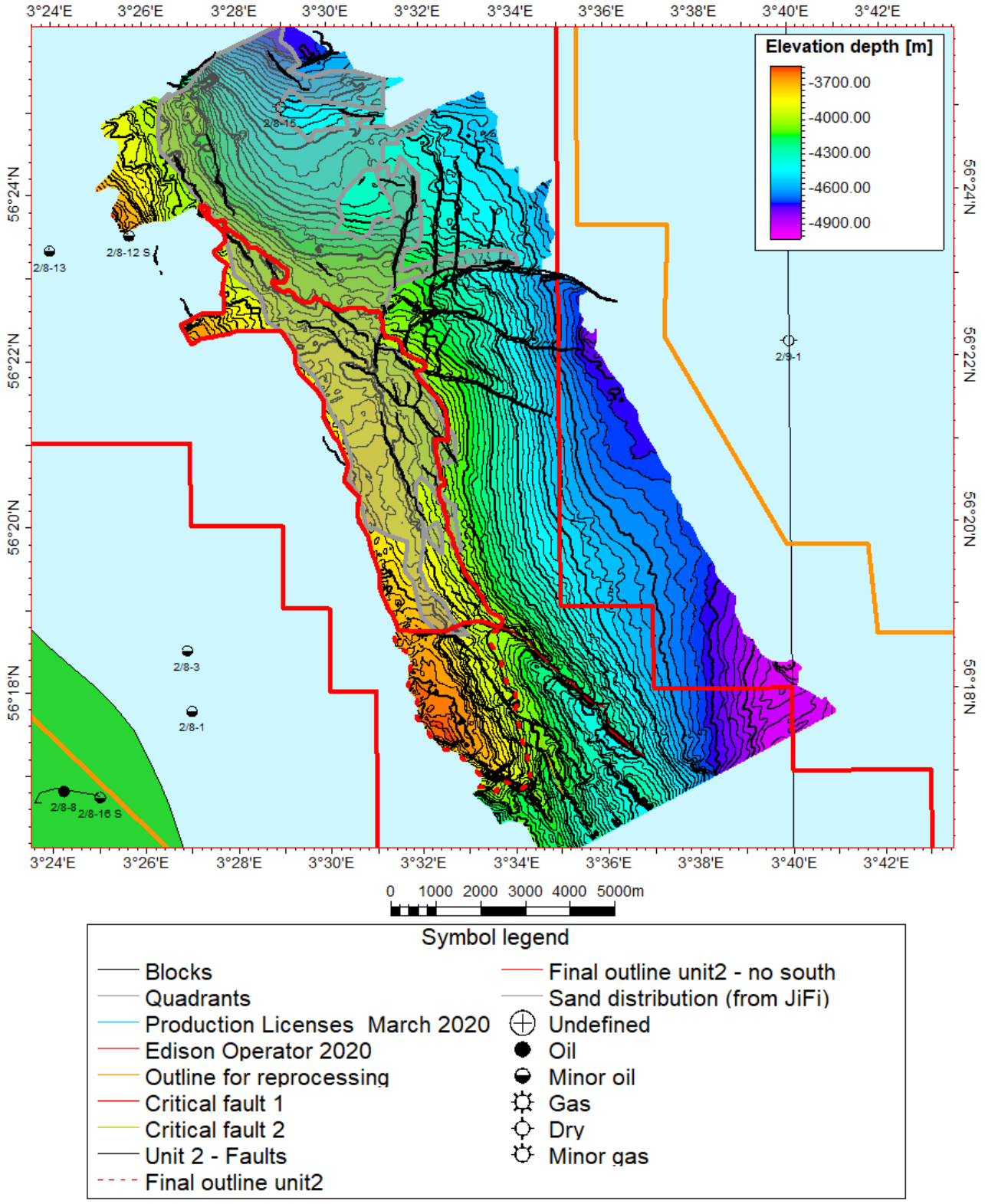

Fig. 4.6 Depth map of the top of Unit 2 Depth map of the top of Unit 2 together with the outline used for volume calculation (red). In addition, the full extent of the structural closure is also shown (dotted red polygon) as well as the extent of the better quality sands, extracted from the inversion.

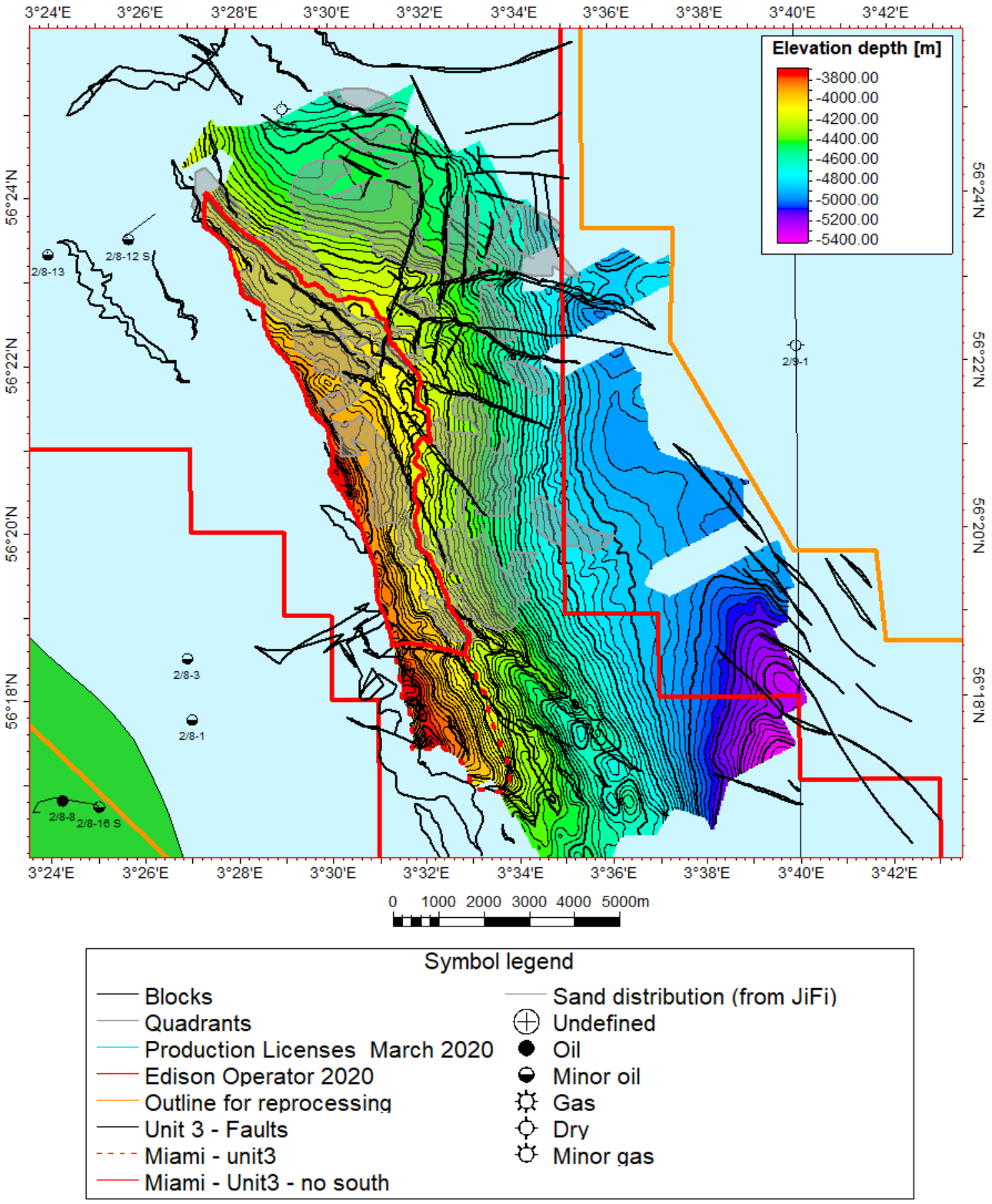

Fig. 4.7 Depth map of the top of Unit 3 Depth map of the top of Unit 3 together with the outline use for volume calculation (red). In addition, the full extent of the structural closure is also shown (dotted red polygon) as well as the extent of the better quality sands, extracted from the inversion.

Review of the geological model

Considering the fact that the sands within Miami structure appear to be of better quality towards the northern part of the structure, Edison decided to work a bit more on the geological model. In Fig. 4.8, we illustrate the

two main hypothesis when it comes to sand provenance. The upper picture illustrate a possible origin of the sand from further north. This model is an analogue to the one developed in the paper from P.N Johannessen et al.. (Upper Jurassic reservoir sandstones in the Danish Central Graben: new insights on distribution and depositional environments). In this paper, some of the analysis were made on the Farsund sands from key wells such as Svane-1 and 3/7-6. That implied that the turbidite sandstones of the Svane-1 well may have been derived from the north, probably from the Sogne Basin (as an alternative as them being derived from the Ringkøbing-Fyn High). A similar system could have been developed on both side of the Mandal high, with sands being transported from North to South.

In addition, stratigraphically younger turbidites (such as the one shown on Fig. 4.3) could be the erosion product of the Miami structure. If sandy, it could indicate that sand is indeed present in the upper unit of Miami. This is similar to the sands found in the Jeppe-1 well, which were probably derived from the erosion of the Gert Ridge.

The initial model is shown on the lower section of Fig. 4.8, where the Grensen Nose could be a good source of sands.

For both cases, the absence of reservoir sands within well 2/8-12S can be explained by salt movement. In the hypothesis that the salt was already pushing up, it was most likely creating some topography on the seabed, resulting in the bypassing of any turbidite flow around the salt and leaving 2/8-12S in a possible shadow zone.

Fig. 4.8

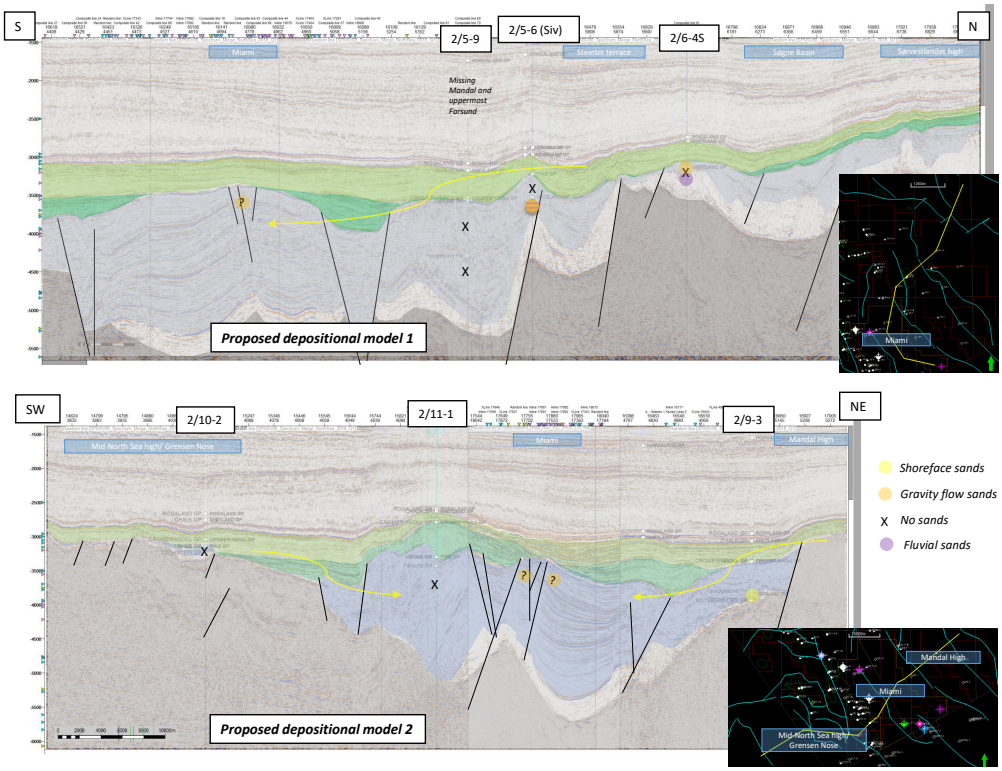

Fig. 4.8 Geosection with inferred depositional model The upper picture illustrate the possible origin of the sands observed within the upper units of the Miami structure. The model 1 is an analogue to the model that is observed on the east of the Mandal High (where sands observed in the Tail end Graben and Søgne Basin could find there origin in Norway).
The lower picture shows the more standard model (proven to work on the fringe of the nearby Mandal High and Grensen Nose)

Reservoir quality and input to Volumetric calculation

Petrophysical analysis was performed on key wells and the results were used as input for volume calculations. Porosity values were derived from analysis of both Mandal and Farsund Fm. sands in nearby wells with P10, P50 and P90 values being respectively 24%, 19% and 11% or 17%, 22% and 24% for the high quality sand case. Net to gross was ranging from 0.15 to 0.5 with 0.3 as a P50 value and ranging between 0.2 and 0.5 with 0.4 as P50 value for the high quality sand case.

High reservoir pressures of 600 to 850 bar and temperatures about 125 to 147 °C are expected in the prospect. This implies that eventual hydrocarbons will be in a supercritical phase. Charge calculations including both the Mandal and Farsund Fms indicate high, but still oil type GOR values of about 400 Sm3/Sm3. An oil with associated gas case was modelled as main HC phase.

The final Miami prospect evaluation (presented the 3rd of April 2020 during the last ECMC held for the license) showed an accumulation size (Total resources in place) of 39.9 MSm^3 (P90), 54.6 MSm^3 (P50) and 71.0 MSm^3 (P10).

Additional license prospectivity

After the work performed on the Miami prospect, the JV put efforts evaluating the remaining prospectivity of the license. The leads are shown Fig. 4.1.

The stratigraphically youngest lead is called Everglades, with reservoir expected to be of Miocene age. Everglades is seen as a missed discovery drilled by well 2/8-13. It was first identified after analysis of the SATLOG data for 2/8-13. The report from the well itself does not indicate the presence of a possible reservoir at that interval (and only report gas shows at shallower intervals).

Ocala is an Upper Cretaceous chalk lead identified on the Ji-Fi inversion cube. An anomaly associated with chalk reservoir facies saturated with HC is observed. The lead is located updip of well 2/8-15 which found water bearing reservoir chalk of good reservoir quality. The trap is defined as stratigraphic and is related to the salt activity.

Of the three Lower Cretaceous leads identified during the APA, only Deltona remains. It was initially interpreted as Ran sst. unit, but after reviewing the interpretation was re-mapped as Tuxen Fm. chalk reservoir. It is associated with an anomaly on the seismic inversion cube and also appears on full stack seismic as a RMS amplitude anomaly. The Valdemar field in Denmark can be considered as analogue.

The oldest age lead identified is Key West with a reservoir expected to be sandstones belonging to the Triassic Skagerrak Fm. This lead was identified during the reprocessing of the seismic. While working on the velocity and tomography for the reprocessing, Edison reviewed its model for the salt. It is now believed that the salt body is much smaller than initially interpreted and that the salt drilled by well 2/8-13 is detached from the main Zechstein layer. Edison expects the presence of both Jurassic and Triassic sediments under the salt, and was able to map the base salt on a few lines. Unfortunately the seismic quality remains too poor below the salt to map the trap with confidence. However the fact that well 2/8-12S found tight sand in the Skagerrak Fm should be highlighted. Updip, under the salt, there could be the possibility to find sands with better quality and containing HC. The Culzean and Judy fields in the UK can be seen as analogues. The outline shown on the map represents the possible closure at Triassic level updip of well 2/8-12S.

5 Technical Evaluations

The Feda Graben and the southern most part of the North Sea is a very mature area with many fields and discoveries within a radius of 20 km from Miami main prospect. Hence, the presence of existing infrastructures gives the possibility to evaluate a tie-in option of potential Miami discovery to Valhall/Ekofisk production hub. Based on that assumption, a technical economic evaluation was performed, and several development scenarios and price sensitivities were tested considering oil phase with associated gas.

Technical and Economical evaluation run for Miami prospect showed the potential to have a commercial opportunity. However, recent global events, including Covid-19 emergency together with Oil price drop, caused uncertainty about future market prices for benchmarking the economic thresholds.

6 Conclusions

Reviewed Technical and Economical evaluation run for Miami prospect has shown the potential to have a commercial opportunity. However, recent global events, including Covid-19 emergency together with Oil price drop, caused uncertainty about future market prices for benchmarking the economic thresholds. In this situation, the risk was considered too high to support a positive drill decision and Edison wanted to extend further the license to run more technical economical sensitivities to ensure the robustness of the project. Unfortunately, this was not supported by license partner OMV Norge, which recommended to drop the license. As a consequence, without a clear majority for an application to extend the drill or drop decision date, the license has been dropped.

Remaining prospectivity seems marginal or very risky for the Ocala, Deltona and Key West leads, while Everglades despite having some uncertainties remains an interesting opportunity and a play opener option of the area.