SPIRIT ENERGY

RELINQUISHMENT REPORT OF LICENSE PL 922 IN BLOCK 30/3

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1 KEY LICENSE HISTORY

PL 922 is located a few kilometres north of the Veslefrikk Field, and 5 km east of the Huldra Field, in the Northern Viking Graben. It is structurally situated on a N-S trending terrace named the Flatfisk Slope and it covers part of block 30/3 (see Fig. 1.1) Two prospects and 4 leads were identified in the APA 2017 application (see Fig. 1.2).

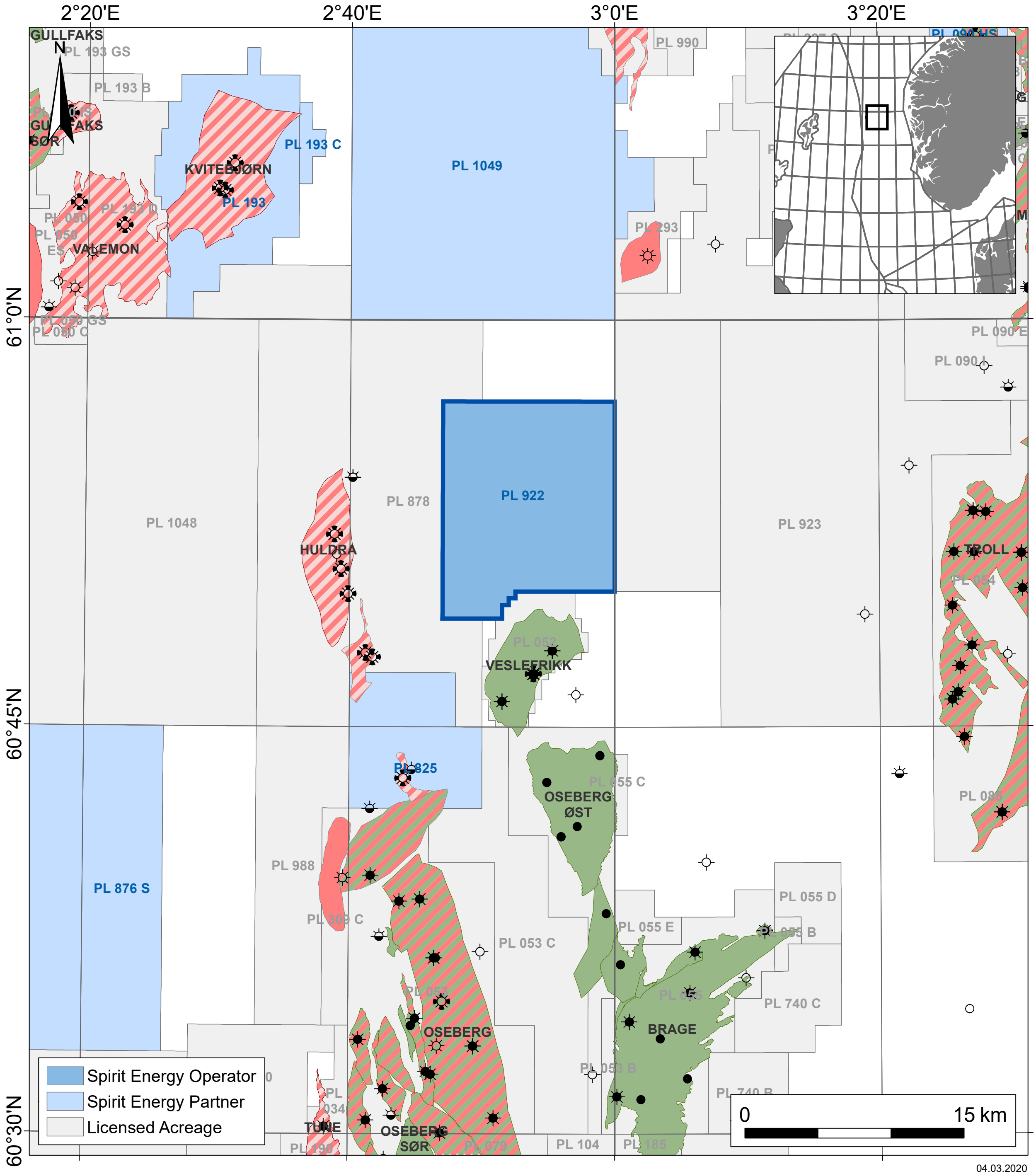


Fig. 1.1 License overview map

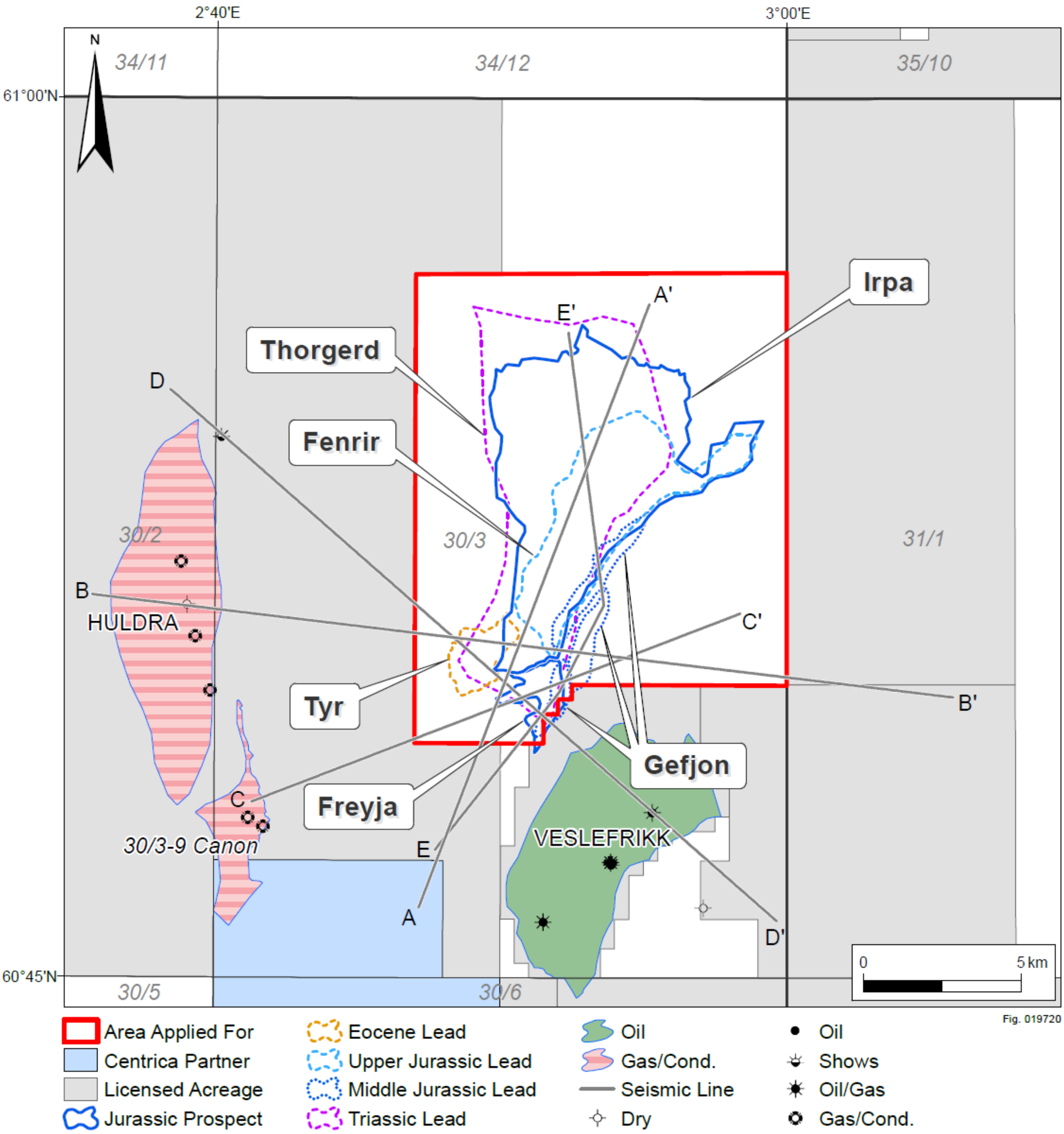


Fig. 1.2 Prospects and Leads Summary Map, APA 2017

Summary of Award and Participants

The PL 922 license was awarded 02.03.2018 as part of APA 2017 to the following licensees:

- Spirit Energy Norway AS - 40% (Op)
- Maersk Oil Norway AS - 20%
- VNG Norge AS - 20%
- DNO Norge AS - 20%

Current (from 04.12.2018) license group consist of:

- Spirit Energy Norway AS - 40% (Op)
- Neptune Energy Norge AS - 20%
- DNO Norge AS - 20%
- Total E&P Norge AS - 20%

Voting rules are 2 parties and minimum of 50%.

The commitments for the initial period were to purchase 3D seismic and to carry out G&G studies, which have been fulfilled. Both the CGG17M01 (PS-time migrated) and the CGG18M01 (PS-depth migrated) Horda NVG broadband seismic surveys were purchased. In addition, a stratigraphic and reservoir quality assessment by PetroStrat, a basin modelling study by IGI, and a fault seal study by Schlumberger were initiated and delivered to the license.

Initial Work Obligations

At the date of award, phase 1 of the work program leading to a Drill or Drop (DoD) decision was valid to 02.03.2020.The work programme and duration of the license period is summarized in Table 1.1

Table 1.1 Work programme and Duration

Period	Phase (>0)	Duration [year] (>0.0)	Work program	Decision at milestone
Initial period:	1	2.0	G&G studies, Reprocess 3D seismic	Drill or Drop
	2	2.0	Drill exploration well	Concretise (BoK) or Drop
	3	2.0	Conceptual studies	Continuation (BoV) or Drop
	4	1.0	Prepare development plan	Submit PDO or Drop
	Sum	7	Extension period [years] (>0.0):	20.0

License Meetings

EC/MC meetings:

- EC/MC meeting No 1. – 02.05.2018
- EC/MC meeting No 2. – 22.11.2018
- EC/MC meeting No 3. – 22.11.2019
- EC/MC meeting No 4. – 14.02.2020

EC meetings/work meetings:

- EC Seismic review (CGG HORDA-Tampen PSDM) - 11.12.2018
- EC Core viewing workshop - 12.12.2018
- EC status meeting – 11.03.2019
- EC work meeting (PetroStrat, interim results) – 04.04.2019
- EC work meeting (PetroStrat, final results) - 15.08.2019
- EC workstation session (seismic interpretation) – 30.08.2019

Reason for Relinquishment

The Irpa and Freyja prospects have been matured during the work programme utilising state of the art seismic data available in the market for defining, de-risking and maturing the prospects for a Drill or Drop decision. The special studies were incorporated for further maturation of the prospects to establish stochastic volume ranges that were subsequently used as input to economic analysis. Please note that due to the very limited size of the Freyja prospect, only the Irpa prospect was risked and evaluated as a potential drilling candidate.

The outcome of the technical-economic analysis shows that the economic foundation to drill the Irpa prospect does not exist.

2 DATABASE

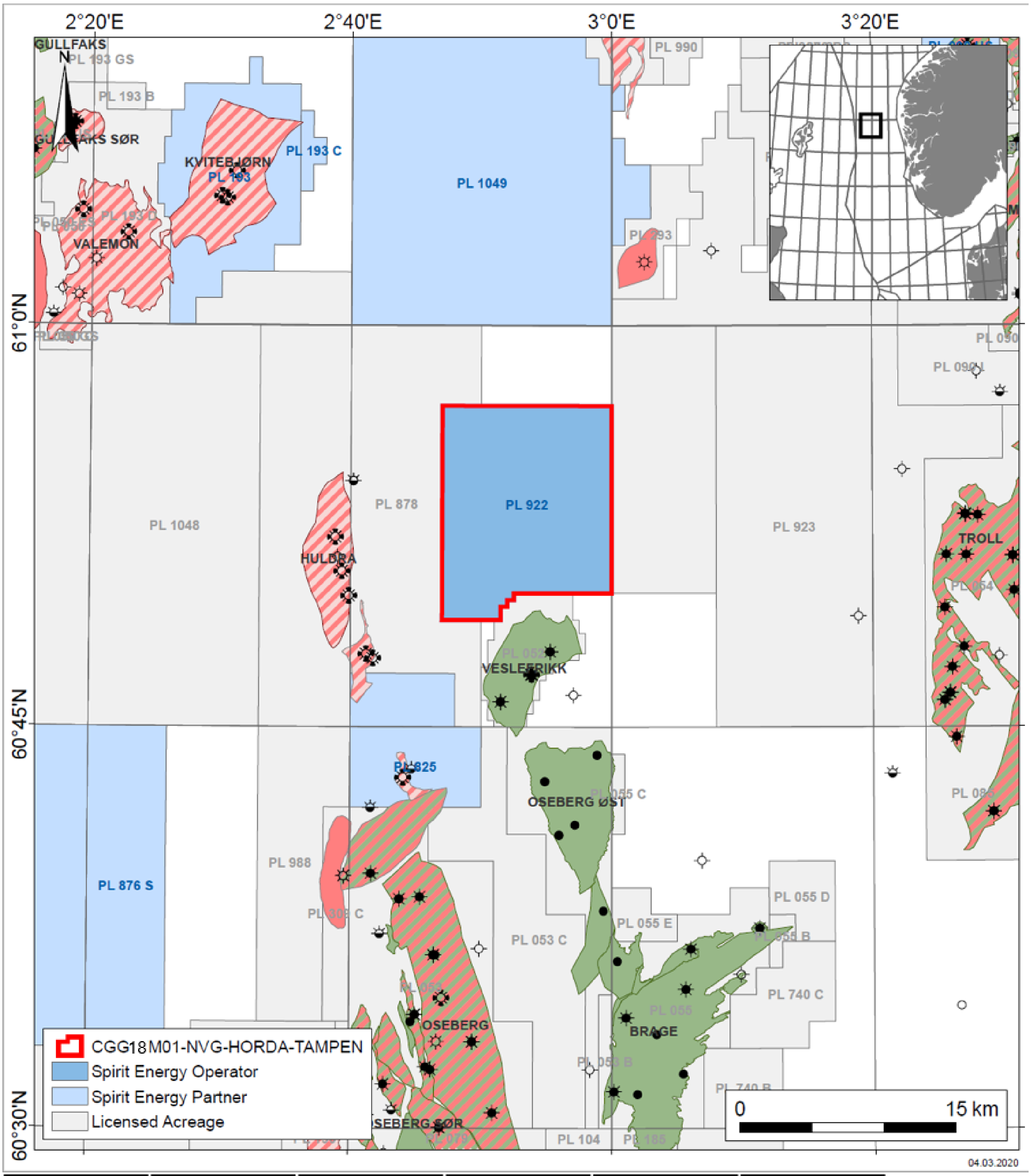
Seismic Database

The seismic mapping of the license area applied for in the APA 2017 was predominantly carried out using the PGS MC3D Mega survey, in addition to a number of released 3D seismic surveys listed in Table 2.1.

Table 2.1 Seismic Database APA 2017

Survey	Type	Released	Version	Year	Quality
PGS MegaSurvey	3D	No	Full	2014	Good
NX0802	3D	Yes	Full	2008	Good
NH9801	3D	Yes	Full	1998	Moderate
ST0207	3D	Yes	Full	2002	Good
ST8330R91	3D	Yes	Full	1991	Moderate

Following EC/MC meeting No.1 in May 2018, the license partners agreed to license and include 161 km^2 of the CGG17M01 (HORDA NVG-broadband) PS-time migrated seismic volume in the common license database. Due to improved structural imaging, and thereby further de-risking of trap definition, the license group decided in March 2019 to purchase the re-processed CGG18M01 PS-depth migrated survey. 161 km^2 of the CGG18M01 (covering the same area as CGG17M01) survey was included in the common license database, all prospect evaluations were performed using this survey from that point on (CGG17M01/ CGG18M01 outline is shown in Fig. 2.1).



Survey	Type	Released	Version	Year	Quality
CGG17M01	3D	No	Full	2016	Good
CGG18M01	3D	No	Full	2018	Good

Fig. 2.1 Common seismic database *161 km2 of the CGG17M01 and the re-processed CGG18M01 was included in the common seismic database. Note that CGG18 and CGG17 are covering the same area.*

Well Database

The well database includes all released well data from the NPD. The key wells for the evaluation of the Lower-Middle Jurassic play in APA 2017 are shown in Table 2.2. The key wells 30/3-7 A & B, in addition to 30/6-11 and 30/6-30 (traded by license partners in 2019) are all located on the Flatfisk slope and are around 90 bar overpressured. The 35/10-2 well to the north of the Flatfisk Slope, along with the Huldra Field are around 300 bar overpressured. In other words, a pressure boundary exists somewhere between these wells, and the interpretation is that this boundary defines the Irpa prospect. An overview of all key wells used in the license evaluation, including 30/6-30, is highlighted in Fig. 2.2.

Table 2.2 Well database, APA 2017

Well Name	Operator	Year	Result	Field / Discovery	TD		Purpose in Application					
					MD m RKB	Fm/Gp	Well Tie	Depth Conversion	Petrophysics	Sequence Stratigraphic Tops	Basin Modelling	Reservoir Quality
30/2-1	Den norske stats oljeselskap a.s	1982	GAS/CONDENSATE	HULDRA	4243	STATFJORD GP		X			X	X
30/2-2	Den norske stats oljeselskap a.s	1984	GAS/CONDENSATE	HULDRA	4172	DRAKE FM	X	X		X	X	X
30/2-3	Den norske stats oljeselskap a.s	1992	GAS/CONDENSATE	HULDRA	4325	EIRIKSSON FM		X			X	X
30/3-1 R	Den norske stats oljeselskap a.s	1982	SHOWS	HULDRA	4421	STATFJORD GP		X			X	
30/3-2 R	Den norske stats oljeselskap a.s	1980	OIL/GAS	VESLEFRIKK	3567	HEGRE GP	X	X	X		X	X
30/3-3	Den norske stats oljeselskap a.s	1983	DRY		3419	STATFJORD GP		X	X		X	X
30/3-4 R	Den norske stats oljeselskap a.s	1985	OIL/GAS	VESLEFRIKK	3287	STATFJORD GP		X	X	X	X	X
30/3-5 S	Den norske stats oljeselskap a.s	1992	OIL	VESLEFRIKK	4724	STATFJORD GP		X	X		X	X
30/3-6 S	Den norske stats oljeselskap a.s	1994	OIL/GAS	VESLEFRIKK	6085	STATFJORD GP		X	X			
30/3-7 A	Den norske stats oljeselskap a.s	1998	GAS/CONDENSATE	VESLEFRIKK	6678	DRAKE FM	X	X	X			
30/3-7 B	Den norske stats oljeselskap a.s	1998	OIL/GAS	VESLEFRIKK	5970	COOK FM		X	X			
30/3-7 S	Den norske stats oljeselskap a.s	1995	OIL/GAS	VESLEFRIKK	5581	LUNDE FM		X	X			
30/3-8 A	Den norske stats oljeselskap a.s	2000	SHOWS	VESLEFRIKK	6208	NESS FM		X	X			
30/3-8 S	Den norske stats oljeselskap a.s	2000	SHOWS	VESLEFRIKK	5120	DRAKE FM		X	X			
30/3-9	Den norske stats oljeselskap a.s	2000	GAS/CONDENSATE	CANON	4015	DRAKE FM		X	X		X	
30/3-10 S	Statoil Hydro ASA	2009	GAS/CONDENSATE	CANON	4168	STATFJORD GP	X	X	X		X	
30/5-3 S	Statoil Hydro ASA	2009	GAS	CORVUS	4335	TEIST FM					X	X
30/6-7	Norsk Hydro Produksjon AS	1982	OIL/GAS	OSEBERG	3236	STATFJORD GP			X			
30/6-10	Norsk Hydro Produksjon AS	1982	OIL/GAS	OSEBERG	2656	DRAKE FM						
30/6-11	Norsk Hydro Produksjon AS	1982	SHOWS		4001	STATFJORD GP	X	X	X	X	X	X
30/6-16	Norsk Hydro Produksjon AS	1984	OIL/GAS	30/6-16	3300	HEGRE GP						X
30/6-19	Norsk Hydro Produksjon AS	1986	OIL	OSEBERG ØST	3301	EIRIKSSON FM			X		X	X
30/6-21	Norsk Hydro Produksjon AS	1987	OIL	OSEBERG	3100	STATFJORD GP					X	X
30/6-22	Norsk Hydro Produksjon AS	1988	OIL	OSEBERG ØST	3336	STATFJORD GP			X			
30/6-23	Norsk Hydro Produksjon AS	1990	OIL	OSEBERG ØST	3209.5	EIRIKSSON FM					X	X
30/6-24 S	Norsk Hydro Produksjon AS	1991	SHOWS		3986	LUNDE FM		X			X	X
33/5-1	Norsk Hydro Produksjon AS	1979	SHOWS		3829	TEIST FM						X
34/7-6	Saga Petroleum ASA	1985	OIL	SNORRE	3685	TEIST FM						X
34/10-35	Den norske stats oljeselskap a.s	1992	GAS/CONDENSATE	VALEMON	4310	STATFJORD GP						X
34/10-54 A	Statoil Petroleum AS	2014	GAS/CONDENSATE	34/10-54 A	4656	RAUDE FM						X
34/10-54 S	Statoil Petroleum AS	2014	OIL/GAS	34/10-54 S	4280	BURTON FM						X
34/11-1	Den norske stats oljeselskap a.s	1994	GAS/CONDENSATE	KVITEBJØRN	4580	STATFJORD GP				X		
34/11-3	Den norske stats oljeselskap a.s	1997	GAS/CONDENSATE	KVITEBJØRN	4482	STATFJORD GP						X
34/11-4	Den norske stats oljeselskap a.s	1998	GAS/CONDENSATE	VALEMON	4438	COOK FM		X				
34/12-1	ENI Norge AS	2008	GAS/CONDENSATE	AFRODITE	4713	COOK FM				X	X	
35/10-1	Den norske stats oljeselskap a.s	1992	OIL	35/10-1	3986	STATFJORD GP				X		X
35/10-2	Den norske stats oljeselskap a.s	1996	GAS	35/10-2	4677	STATFJORD GP	X		X	X	X	X

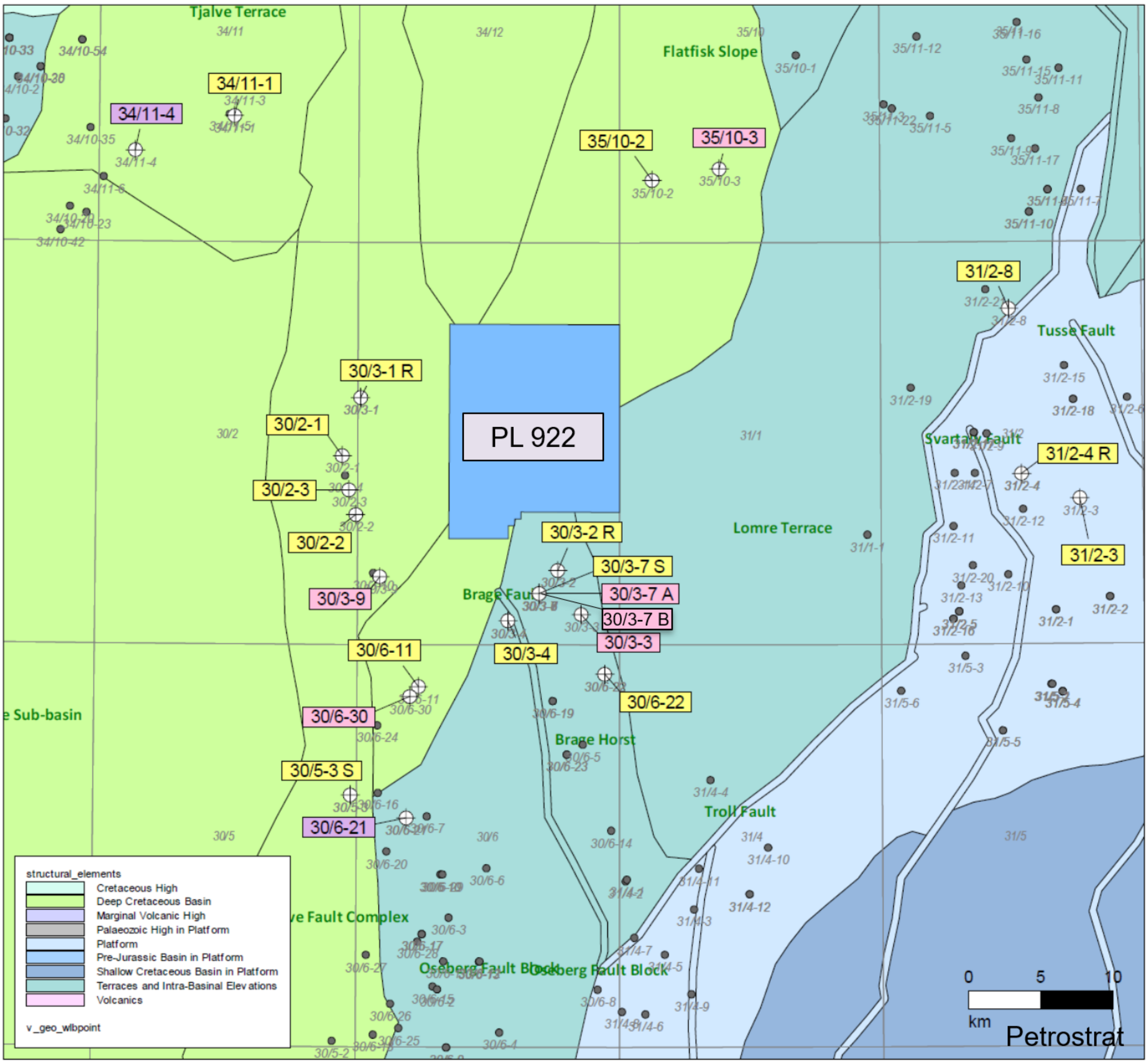


Fig. 2.2 Well database *Overview of wells used in the license evaluation. Key wells are highlighted in yellow and purple.*

3 REVIEW OF GEOLOGICAL FRAMEWORK

Studies and evaluations

A seismic evaluation and a number of external special studies were initiated to address the geological uncertainty related to reservoir quality and presence, fault sealing capacity, and charge and migration. The results of these studies were incorporated into the maturation and final evaluation of the prospectivity within PL 922. The seismic evaluation and special studies initiated and delivered to the license are described below.

Seismic evaluation

The original APA 2017 interpretation was mainly carried out using the PGS Mega Survey. The survey was generally good over the Irpa prospect, however, there was reduced quality over the Irpa crest due to a shallow gas cloud. The imaging issue and gas push-down effect created by this, led to a high uncertainty regarding the definition and sealing capacity of the southern crestal fault, bounding the southern tip of Irpa.

After receiving the CGG18M01 survey a re-interpretation was done to improve the imaging of the crestal fault and to grasp the structural complexity in the license area. The re-mapping confirmed the presence of the crestal fault (hereby referred to as crestal Main1), however, a second fault trending NW-SE was discovered and weighted as an equally important fault (informally named the Flank Fault) to seal off the Irpa prospect further north. A comparison of the top reservoir depth maps from APA 2017 and the most recent map is shown in Fig. 3.1.

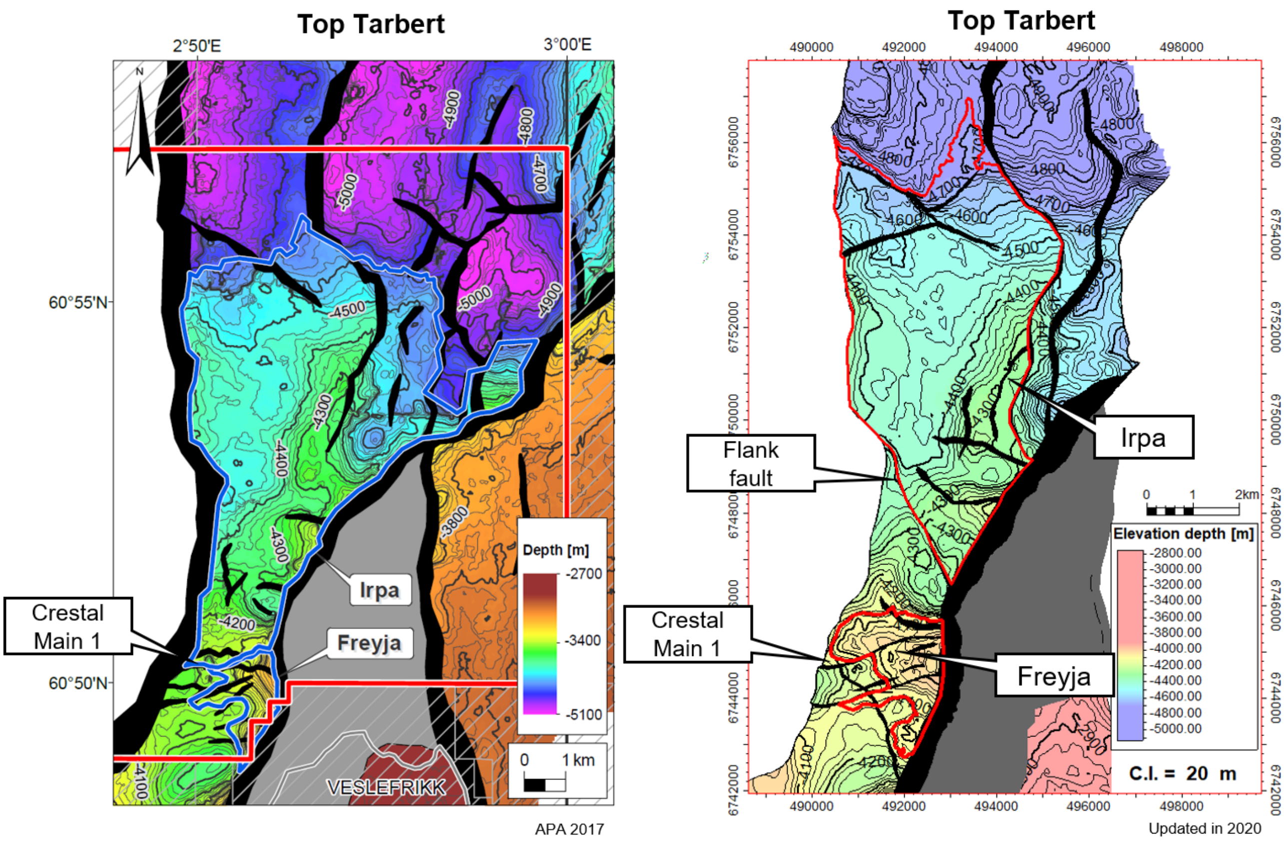


Fig. 3.1 Top Tarbert depth maps from APA 2017 and February 2020 *Re-interpretation on CGG18M01 resulted in a new trap definition for the Irpa and Freyja prospects. APA 2017 map is shown to the left, while an updated top reservoir depth map from Februar 2020 is shown to the right.*

In addition to the updated structural interpretation, a depth compensation was accounted for due to a pushdown effect below the observed gas cloud that was located immediately above the crestal Main1 fault (see Fig. 3.2). The push-down compensation resulted in a slightly uplifted crestal area around the Main1 fault, but did not influence the amount of throw across the fault.

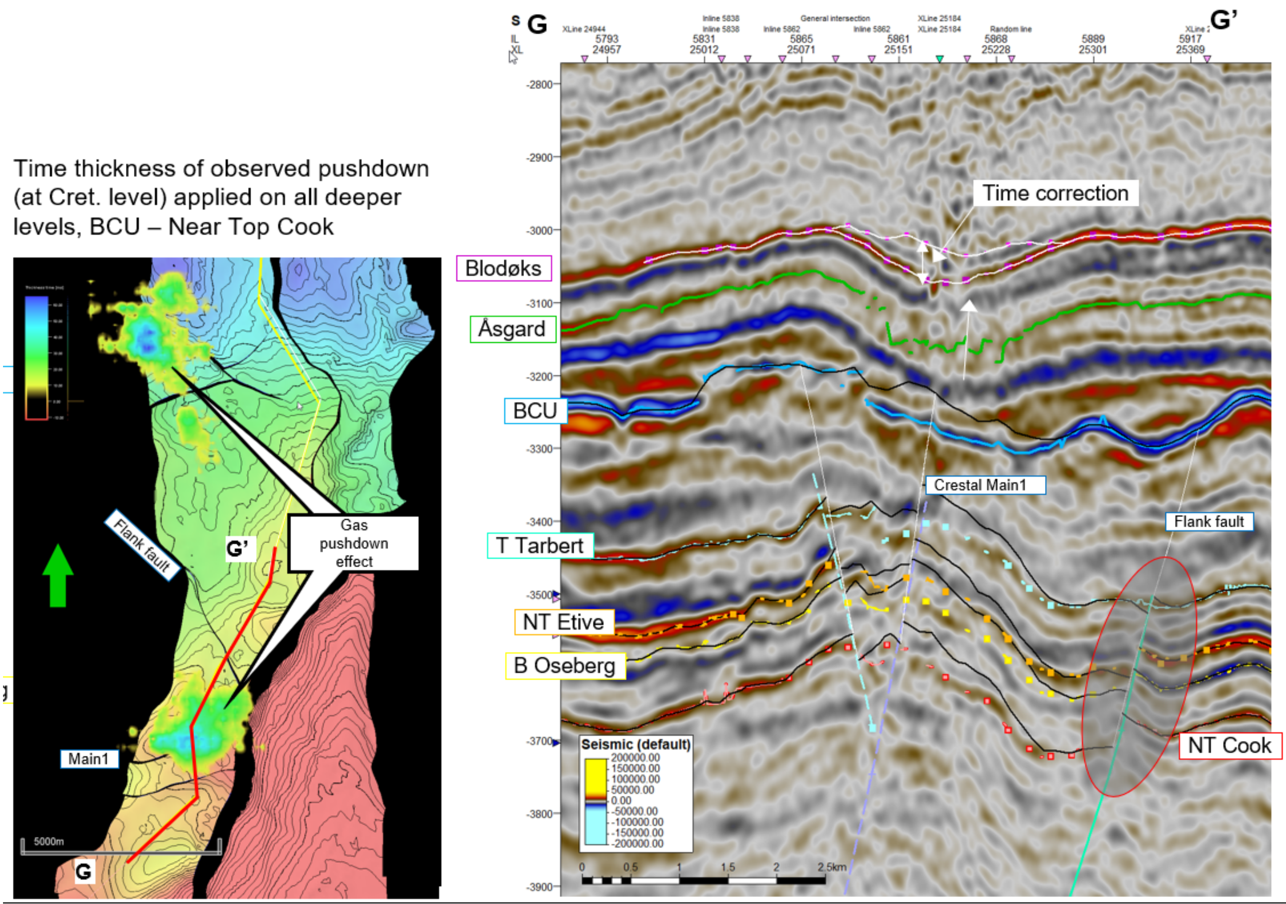


Fig. 3.2 Gas pushdown compensation *Figure showing a map view and cross-section of the gas pushdown compensation. The black lines on the cross-section shows the updated interpretation relative to the original interpretation before the gas effect was accounted for, lifting the crest around Main1 fault*

Stratigraphic and reservoir quality assessment (PetroStrat)

A stratigraphic, sedimentological, petrographic and reservoir quality study of wells surrounding the PL 922 license was carried out by PetroStrat. The aim of the study was to predict reservoir presence and quality likely to be present in the Irpa and Freya prospects, which lie at a minimum depth of 4100 m.

The study concluded that the best reservoir potential lies within the Brent Group sediments, most specifically within the Ness, Etive and Oseberg formations, with minor potential at the top of the Cook Fm. Further, the study concluded that the Statfjord Gp. is likely to be too deeply buried to form an effective reservoir.

Fault seal analysis (Schlumberger)

A fault seal analysis by Schlumberger was carried out to address the uncertainty of the sealing potential of a series of prospect bounded faults. The main faults (trending roughly N-S) was expected to have good sealing capacity due to large scale offset (up to 1 km throw). However, a major risk was related to the sealing capacity of a series of small scale faults (trending E-W/NW-SE), respectively marking the potential southern tip of the Irpa prospect (referred to as the crestal Main1 and Flank fault).

The study concluded that the large offset normal faults bounding the Flatfisk Slope to the west and east had a high chance of sealing, with significant offset and juxtaposition of Brent Gp against cemented Triassic deposits. The analysis of the minor E-W/NW-SE trending (Main1 and Flank) faults showed that membrane sealing capacities of a few tens of metres are possible in formations like Ness, Tarbert and Etive. However, where sand/sand juxtapositions are expected, like Cook against Oseberg, leakage is expected. Based on the fault seal study the informally named Flank Fault demonstrated the best sealing potential of the minor faults, and thus considered the southern boundary of the Irpa prospect (see the updated prospect definition in Fig. 3.1).

Geochemistry and basin modelling study (IGI)

A geochemistry and basin modelling study was conducted to reduce uncertainties relating to charge volumes and phase to the Irpa and Freyja prospects. The geochemical evaluation was underpinned by a subset of the Norwegian North Sea geochemical database (IGI Ltd., 2017) containing data from over 11 000 source rock, oil and gas samples. 9 1D models were constructed to provide thermal calibration for the subsequent 3D Trinity model that again was built using 8 structural maps provided by Spirit Energy.

The result of the study showed that the Freyja and Irpa prospects were charged from both Heather and Draupne formations, where the Draupne Fm. being within the late-oil/main-gas window and Heather being slightly more mature. 12 different 3D migration scenarios were tested, using varying fault seal capacity of the N-S and the E-W/NW-SE trending faults. The best fit scenario showed that the Freyja and Irpa prospects are mainly charged from the Magne sub-basin to the north, and that a high lateral sealing capacity of the prospect bounding faults are required in order to have larger accumulation volumes within the prospects. In addition to the 12 different 3D migration scenarios, testing for overpressure in the license was performed. The aim was to test the potential effect of overpressure on hydrocarbon phase. The modelled effects showed that with an expected overpressure of 200-300 bar, a gas-condensate phase is the most likely scenario.

4 PROSPECT UPDATE

The Irpa prospect was the main driver when applying for the PL 922 area in APA 2017. Primary focus in the license evaluation period has been to better understand and de-risk the Irpa prospect, as well as the Freya prospect. The target for the evaluation has been to mature the prospects for a drill-or-drop decision. Additional prospectivity has been considered without being able to prove up sound prospects. The HORDA PSDM (CGG18M01) survey enabled a better structural definition of the Irpa and Freya prospects although introducing a more complex fault pattern, see Fig. 3.1. Results from the Basin modelling study done by IGI, indicates that the most likely hydrocarbon phases are gas condensate, which is also observed in surrounding discoveries and fields.

Irpa prospect

Re-interpretation of Irpa identified the Flank Fault previously not seen on older seismic data. Also the north-south trending fault to the north-east appeared more continuous than previously interpreted, see Fig. 4.1. This has changed how the Irpa prospect is defined, both areally and the segmentation of the prospect.

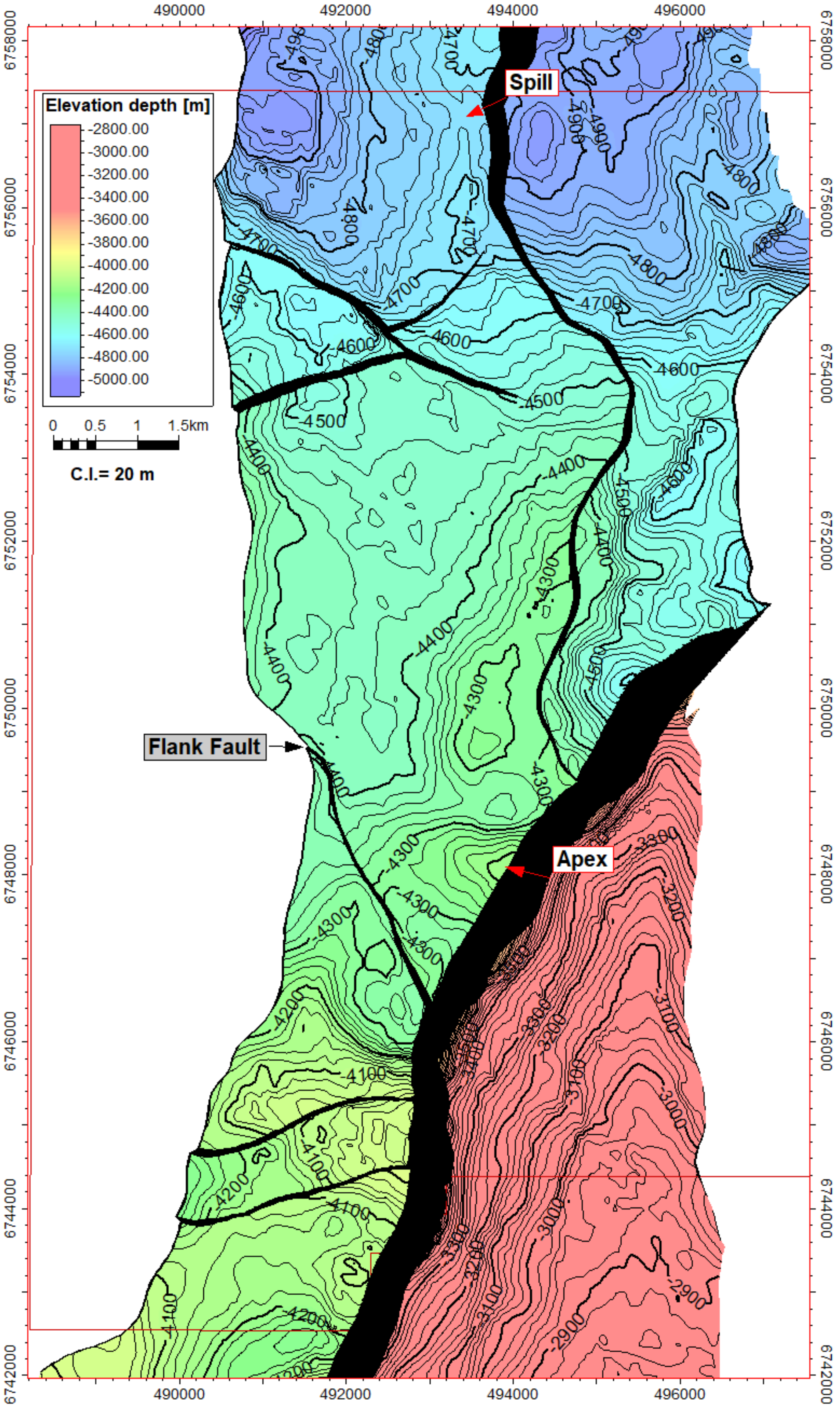


Fig. 4.1 Structural depth map - Irpa *Depth map at Top Tarbert level. A 3-way dip closure is observed to the south-east, further sloping down-dip to the north where a spillpoint is observed. Apex is found at 4200 m MSL TVD and the spill at 4720 m MSL TVD.*

The trap consist of a combination of 3-way dip closure towards the Veslefrikk bounding fault and the slope down-dip to the north. Any column outside the 3-way dip closure depends on the Flank Fault to be sealing for further fill of the structure. The eastern and western bounding faults shows a throw of over 800 metres and is assumed to be sealing. The same goes for the north-south trending fault in the north-east. The structural setting of Irpa is exemplified at Top Tarbert level as seen in the figure (4.1). All subsequent depth maps show similar, but not identical structural settings as Top Tarbert and is not shown here.

Irpa consist of five stacked reservoir intervals with individual spill points and input parameters used in the volumetric estimation, Fig. 4.2. The only exception to this spill point scenario used is Tarbert and Ness fms. that are assumed to be in communication, and thus Top Tarbert defines the spill point for both formations. Only the topmost 30 meters of the Cook Fm. is assumed to have effective reservoir quality. Gross rock volume versus depth is used as input into a GeoX stochastic model; petrophysical parameters used are shown in Table 4.1 and fluid parameters in Table 4.2. A complex trap configuration is used to describe the combination of 3-way dip closure with high confidence of sealing hydrocarbons and further down-dip filling which is dependent on the Flank Fault sealing, i.e. a lower confidence in sealing capacity. HCWC levels used as input are shown in Fig. 4.3 and the HCWC distribution using a complex trap configuration is shown in Fig. 4.4, all examples shown for Tarbert. The remaining intervals are handled in the same manner.

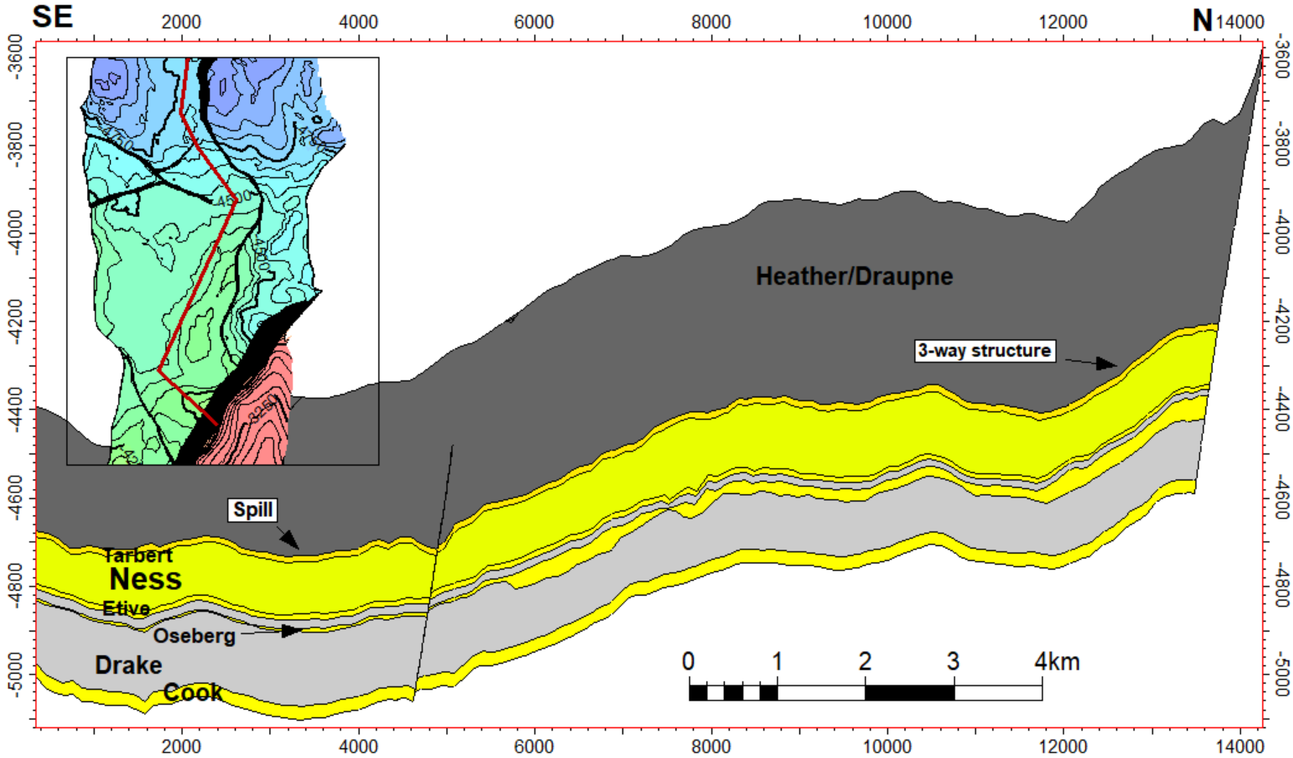


Fig. 4.2 Section through Irpa reservoirs *Irpa reservoir sections: Tarbert, Ness, Etive, Oseberg & Cook.*

Table 4.1 Irpa - Petrophysic parameter input
Minimum-Maximum Normal distribution used for input in stochastic volume calculations

Zone	Parameter	N:G	Total Ø	Sg
Tarbert	Min	0,30	0,15	0,50
	Max	0,90	0,26	0,85

Zone	Parameter	N:G	Total Ø	Sg
Ness	Min	0,20	0,12	0,50
	Max	0,60	0,25	0,85

Zone	Parameter	N:G	Total Ø	Sg
Etive	Min	0,75	0,12	0,50
	Max	0,98	0,25	0,85

Zone	Parameter	N:G	Total Ø	Sg
Oseberg	Min	0,40	0,11	0,50
	Max	0,95	0,28	0,85

Zone	Parameter	N:G	Total Ø	Sg
Cook	Min	0,20	0,11	0,50
	Max	0,89	0,25	0,70

Table 4.2 Irpa - Fluid parameter input *Normal distribution used as input into stochastic volume calculations. Same parameters for all levels except Ness Fm.*

Zone	Parameter	Wet gas shrinkage factor	Expansion factor gas	Condensate yield	Rec. Factor Gas	Rec. Factor Condensate
Tarbert/Etive/ Oseberg/Cook	Min / P90	1,00	330	150	0,4	0,3
	Max / P10		360	300	0,75	0,5
Ness	Min / P90	1,00	330	150	0,4	0,2
	Max / P10		360	300	0,6	0,4

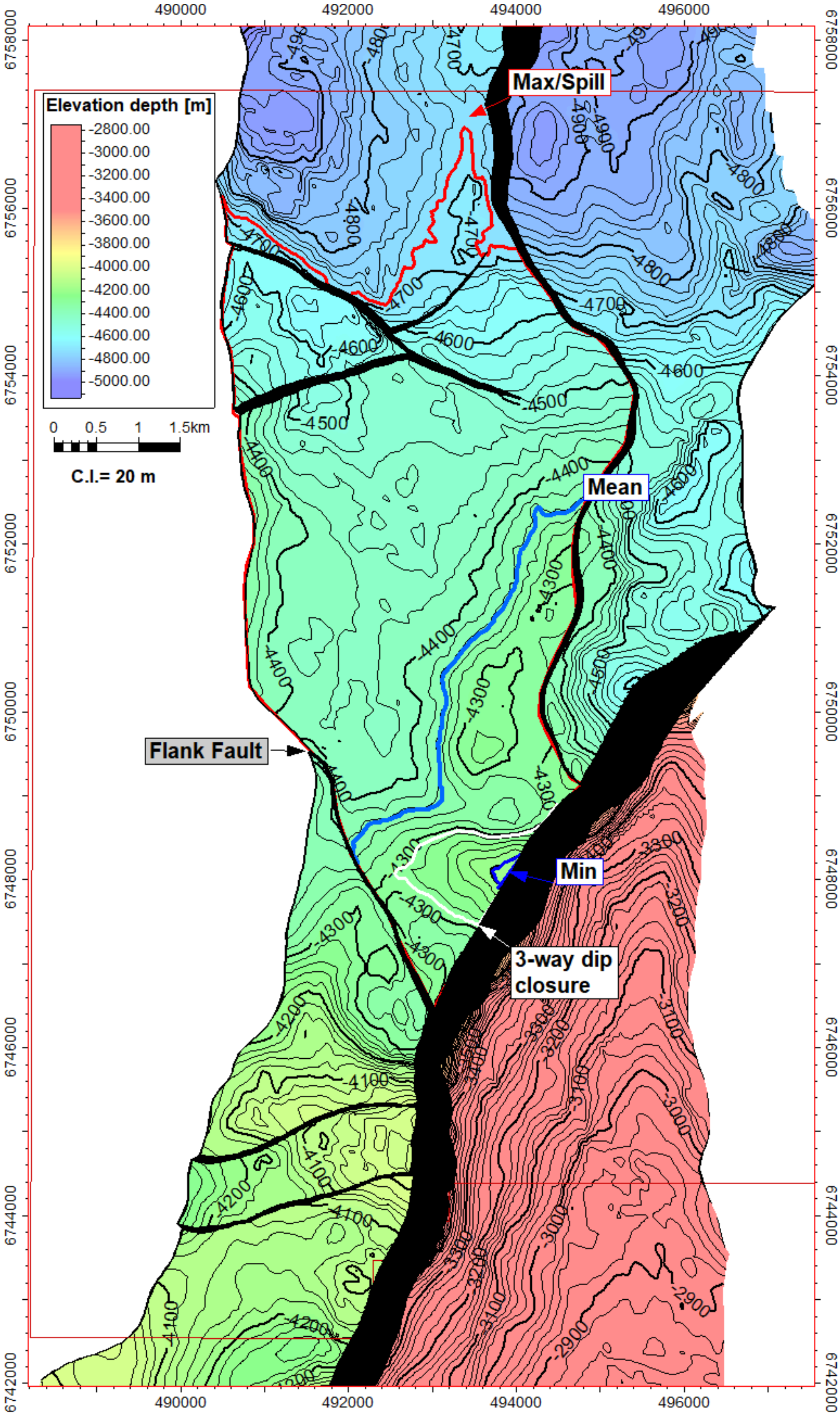


Fig. 4.3 Irpa prospect Contact levels used Minimum at Apex, and Maximum at the spill point

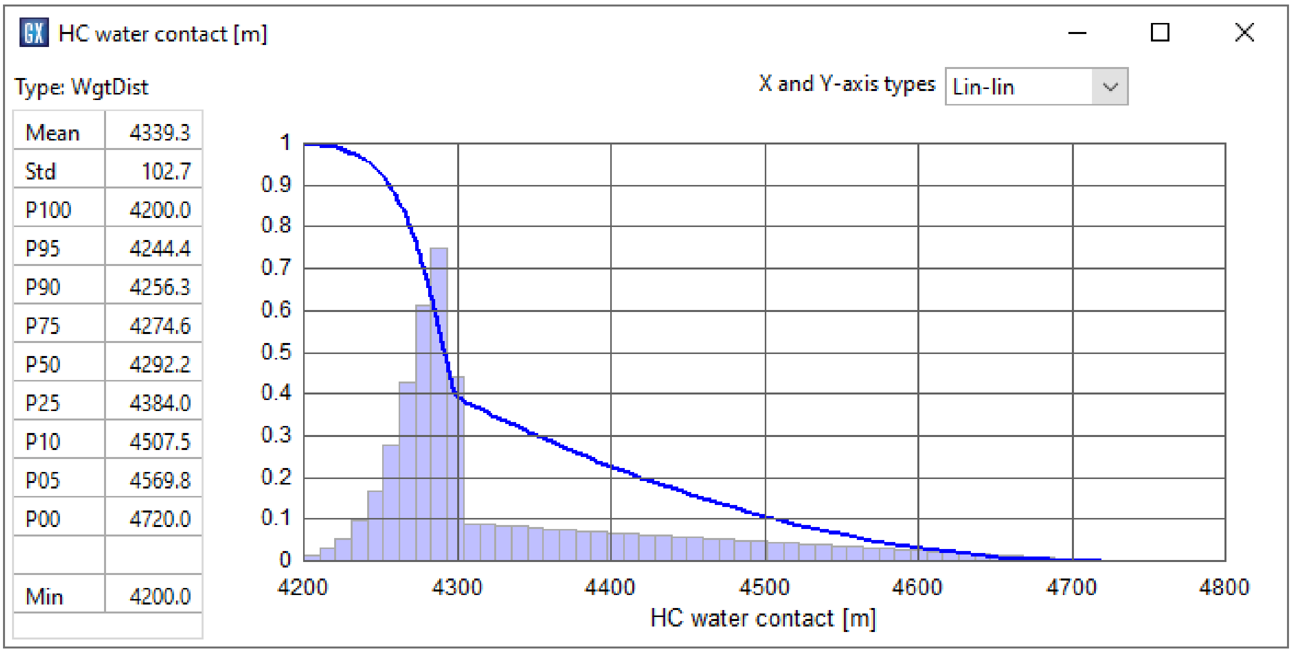


Fig. 4.4 HC-Water contact distribution *Shown for Tarbert - Stretched Beta weighted 60% within the 3-way dip closure and Triangle distribution weighted 40% further down-flank to the spill-point (dependent on Flank Fault sealing capasity)*

Table 4.3 summarize the key data for the Irpa prospect.

Table 4.3 Irpa prospect data *NPD table 5*

Block	30/3	Prospect name	Irpa	Discovery/Prosp/Lead	Prospect	Prosp ID (or New!)	NPD will insert value	NPD approved (Y/N)	
Play name	NPD will insert value	New Play (Y/N)		Outside play (Y/N)					
Oil, Gas or O&G case:	Gas	Reported by company	Spirit Energy	Reference document				Assessment year	2020
This is case no.:	1 of 1	Structural element	Flatfisk slope	Type of trap	Structural	Water depth [m MSL] (>0)	205	Seismic database (2D/3D)	3D
Resources IN PLACE and RECOVERABLE		**Main phase**				**Associated phase**			
Volumes, this case		Low (P90)	Base, Mode	Base, Mean	High (P10)	Low (P90)	Base, Mode	Base, Mean	High (P10)
In place resources	Oil [10^6 Sm^3] (>0.00)					0,26	0,32	4,70	15,20
	Gas [10^9 Sm^3] (>0.00)	1,16	1,50	20,90	68,40				
Recoverable resources	Oil [10^6 Sm^3] (>0.00)					0,01	0,10	1,70	5,33
	Gas [10^9 Sm^3] (>0.00)	0,65	1,00	11,30	36,40				
Reservoir Chrono (from)	Bathonian	Reservoir litho (from)	Brent Gp.	Source Rock, chrono primary	Titonian	Source Rock, litho primary	Draupne Fm.	Seal, Chrono	Oxford./Titon.
Reservoir Chrono (to)	Toarcian	Reservoir litho (to)	Cook Fm.	Source Rock, chrono secondary	Oxfordian	Source Rock, litho secondary	Heather Fm.	Seal, Litho	Heather/Draupne
Probability [fraction]									
Total (oil + gas + oil & gas case) (0.00-1.00)	0,29	Oil case (0.00-1.00)		Gas case (0.00-1.00)	0,29	Oil & Gas case (0.00-1.00)			
Reservoir (P1) (0.00-1.00)	0,90	Trap (P2) (0.00-1.00)	0,40	Charge (P3) (0.00-1.00)	0,90	Retention (P4) (0.00-1.00)	0,90		
Parametres:	Low (P90)	Base	High (P10)	*Comments - Resevoir thickness is stacked from 5 intervals, each with variable thickness over the prospect area, aprrox 275 m as observed in nearest well 30/3-7A*					
Depth to top of prospect [m MSL] (> 0)		4200							
Area of closure [km^2] (> 0.0)	0,1	4,3	20,4						
Reservoir thickness [m] (> 0)		275							
HC column in prospect [m] (> 0)	90	120	270						
Gross rock vol. [10^9 m^3] (> 0.000)	0,100	0,600	2,900						
Net / Gross [fraction] (0.00-1.00)	0,30	0,60	0,90						
Porosity [fraction] (0.00-1.00)	0,11	0,20	0,28						
Permeability [mD] (> 0.0)	0,1	3,0	80,0						
Water Saturation [fraction] (0.00-1.00)	0,50	0,68	0,85						
Bg [Rm3/Sm3] (< 1.0000)	0,0030	0,0029	0,0027						
1/Bo [Sm3/Rm3] (< 1.00)									
GOR, free gas [Sm^3/Sm^3] (> 0)	6666	4444	3333						
GOR, oil [Sm^3/Sm^3] (> 0)									
Recov. factor, oil main phase [fraction] (0.00-1.00)									
Recov. factor, gas ass. phase [fraction] (0.00-1.00)									
Recov. factor, gas main phase [fraction] (0.00-1.00)	0,40	0,58	0,75						
Recov. factor, liquid ass. phase [fraction] (0.00-1.00)	0,30	0,40	0,50	For NPD use:					
Temperature, top res [°C] (>0)	122			Innrapp. av geolog-init:	NPD will insert value	Registrert - init:	NPD will insert value	Kart oppdatert	NPD will insert value
Pressure, top res [bar] (>0)	410			Dato:	NPD will insert value	Registrert Dato:	NPD will insert value	Kart dato	NPD will insert value
Cut off criteria for N/G calculation	1.PHIE >= 0.1	2. SW <= 0.6	3. VCL <= 0.4					Kart nr	NPD will insert value

SPIRIT ENERGY

The main risks for the Irpa prospect are related to the sealing capacity of the low offset Flank Fault bounding the prospect to the south, and the presence of effective reservoir at depths exceeding 4000 metres. There are little to no risks related to charge, migration and retention. This gives the 3-way dip closure a 58% COS, while the Flank Fault dependent closure holding most of the hydrocarbons has a 29% COS. The volume range with associated risk is shown in Fig. 4.5.

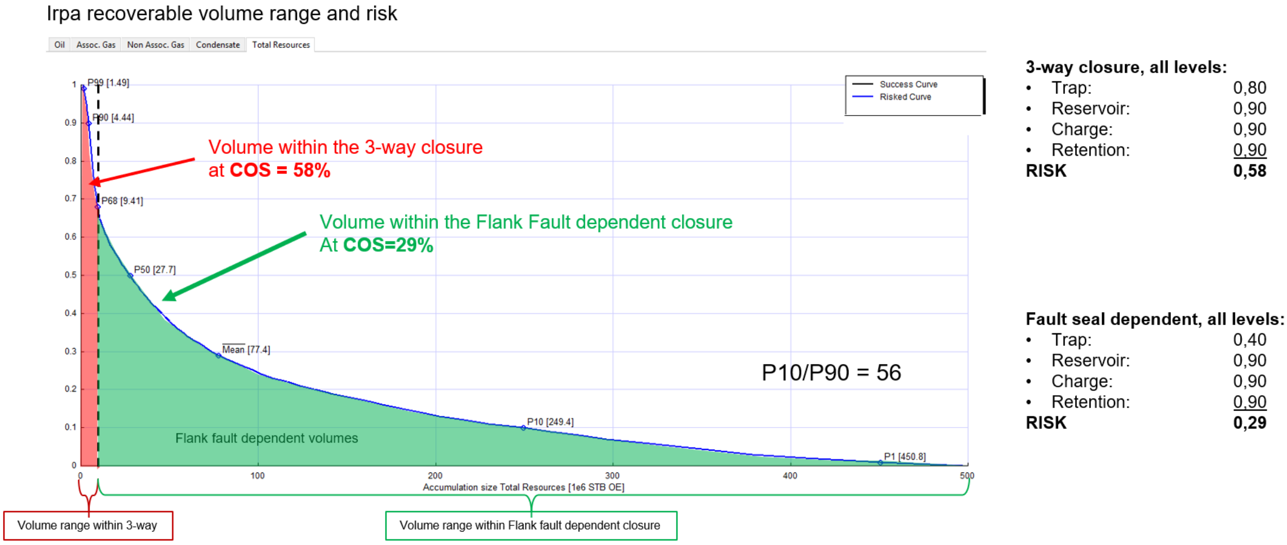


Fig. 4.5 Risk considerations *Figure showing the Irpa volume range and associated risk. Note that large parts of the volume range are located within the Flank Fault dependent closure with a COS of 29%.*

Freya prospect

The Freya prospect is areally limited and situated in the narrowest part of the Flatfisk Slope between the North-South oriented bounding faults towards Veslefrikk and the Huldra High. It is further cross-cut by two faults, separating Freya into 3 segments, see Fig. 4.6. The northernmost fault is associated with a gas cloud observed in the Cretaceous overburden. The push down effect of the gas cloud push down is compensated for in the depth grid used for volumetric calculation.

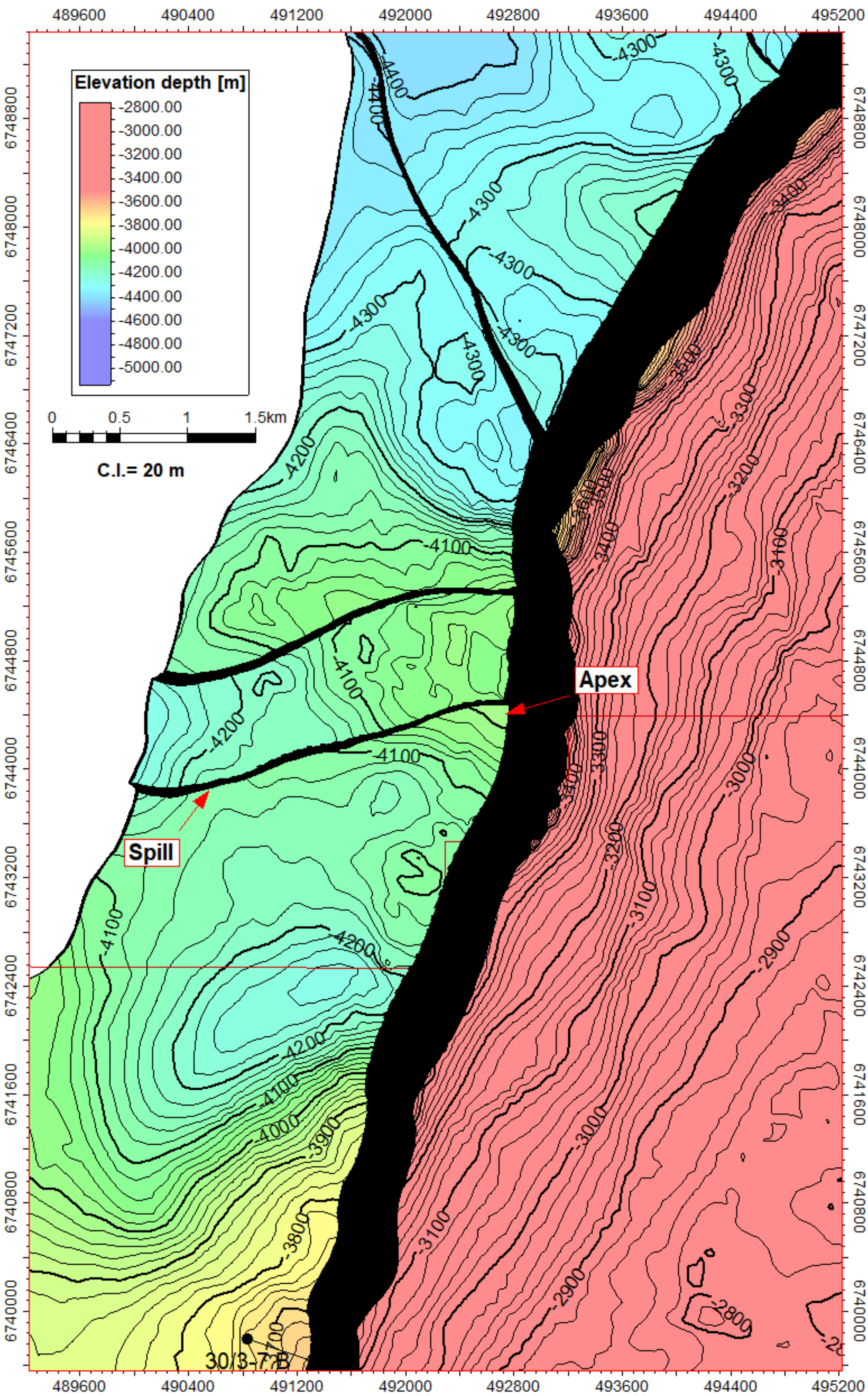


Fig. 4.6 Stuctural depth map - Freya *Depth map at Top Tarbert level. A 3-way dip closure cross-cut by two east-west trending faults where the apex is found at 4000 m MSL TVD and spill to the W-SW at approximately 4130 m MSL TVD.*

Freya, as Irpa, is separated into five stacked reservoir intervals with individual input parameters used in the volumetric estimations. The reservoir intervals are assumed equivalent to the intervals in Irpa, except for Oseberg. The Freya prospect is situated in the area where Oseberg is present and fairly thick as observed in well 30/3-7 A. Gross rock volume versus depth curves are used as input into GeoX stochastic models, parameters used are shown in Table 4.1 and Table 4.2. A normal distributed HC-water contact defined by the Apex (Minimum) to the spill point (Maximum) is used, see Fig. 4.7. The main risks associated with Freya are sealing capacity of the faults cross-cutting the prospect and retention due to the observed gas cloud in the overburden. The volume range of Freya is estimated to In-place; 1.35 - 2.47 - 4.24 and Recoverable; 0.78 - 1.42 - 2.41 x 10^6 Sm^3 o.e. (P90 - P50 - P10). The limited volume range combined with a high risk of hydrocarbons leaking out of the trap makes Freya an upside potential to Irpa, at the best.

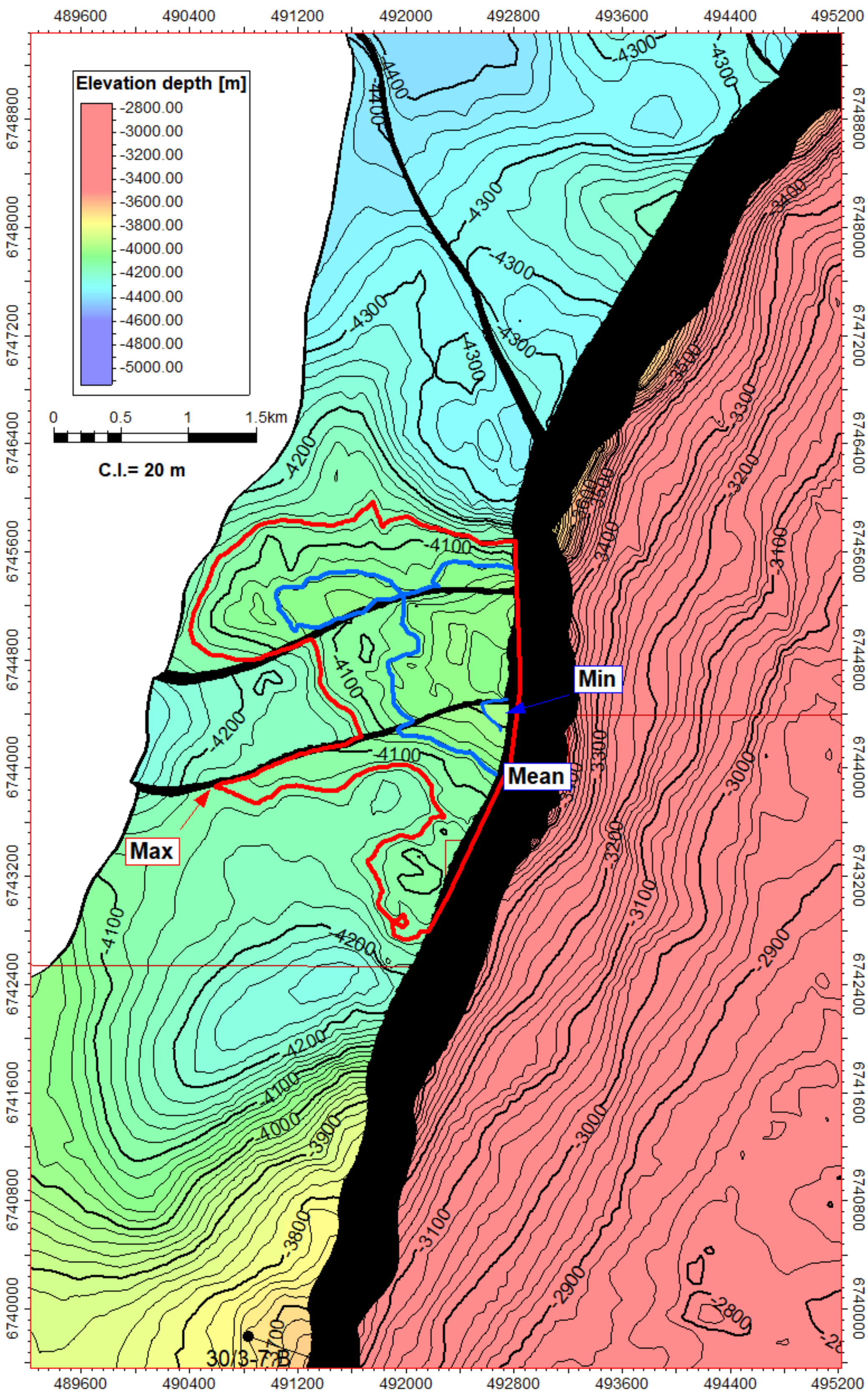


__Fig. 4.7 Freya prospect__ contact levels used are Minimum at the Apex, and Maximum at spill.

Additional prospectivity

In addition to the Lower-Middle Jurassic Irpa and Freyja prospects, a number of leads were identified in the APA 2017 and matured during the work program (overview of prospects and leads identified in APA 2017 is shown in Fig. 1.2). The leads identified in the APA 2017 are listed below.

Tyr Eocene Lead

An Eocene lead within the Hordaland Gp. was identified by a seismic anomaly and interpreted to consist of Grid Fm turbiditic flows sourced from the East Shetland Platform to the west. Only well 30/2-3 and 30/3-1 west of PL 922 contains significant Grid Fm sands at this level. The seismic anomaly over PL 922 shows a hard top indicating that potential Grid sands in the area could be cemented. Because of the high risk of effective reservoir and the small volume potential (approximately 3.5 km^2), the Tyr lead was not considered as drilling candidate in PL 922.

Fenrir Late Jurassic Lead

The Fenrir lead was identified as a decrease in AI within the Upper Jurassic package in the North-Western hanging wall of the Veslefrikk Field horst block. It represent the Intra-Heather Fm. unconformity associated with a period of lower sea level and significant Jurassic erosion of the Veslefrikk horst block. After receiving the CGG18M01 dataset a new attempt was made to map out this unconformity to de-risk the trap definition and reservoir presence. However, the new seismic data showed little or no sign of a decrease in AI within the Upper Jurassic package, and the lead was therefore not matured into a prospect.

Gefjon Middle Jurassic Lead

The Gefjon lead consist of a series of slump blocks along the western flank of the Brage horst block. Similar slump blocks were encountered in well 30/3-7 and produced from the Veslefrikk Platform. A series of slump scars along the Brage horst was identified and compared to similar slump morphologies on the east side of the Statfjord Field. In general the slump blocks themselves are hard to image and the key risk is therefore associated to the imaging of a robust trap. In addition there is a high risk related to the reservoir effectiveness due to slumping and faulting out of stratigraphy, in combination with limited size of the slump blocks themselves. In light of this, Gefjon lead was not considered more then an upside potential in case the license group decided to drill the Irpa prospect.

Thorgerd Triassic Lead

The Thorgerd lead was identified as a Late Triassic Hegre Gp. structural trap sub-cropping the Irpa prospect. Due to the result of the stratigraphic and reservoir quality assessment conducted by PetroStrat (see section 3 Review of Geological Framework), the Triassic play was disregarded on the Flatfisk slope.

5 TECHNICAL EVALUATIONS

A technical evaluation was performed adressing the different development scenarioes in case of an Irpa discovery. The development plan for a P50 oil case discovery was a subsea tieback to Kvitebjørn, with one subaea template and a total of two production wells (Fig. 5.1). In case of a P10 discovery, two sub-sea templates with 8 production wells was evaluated as the best solution.

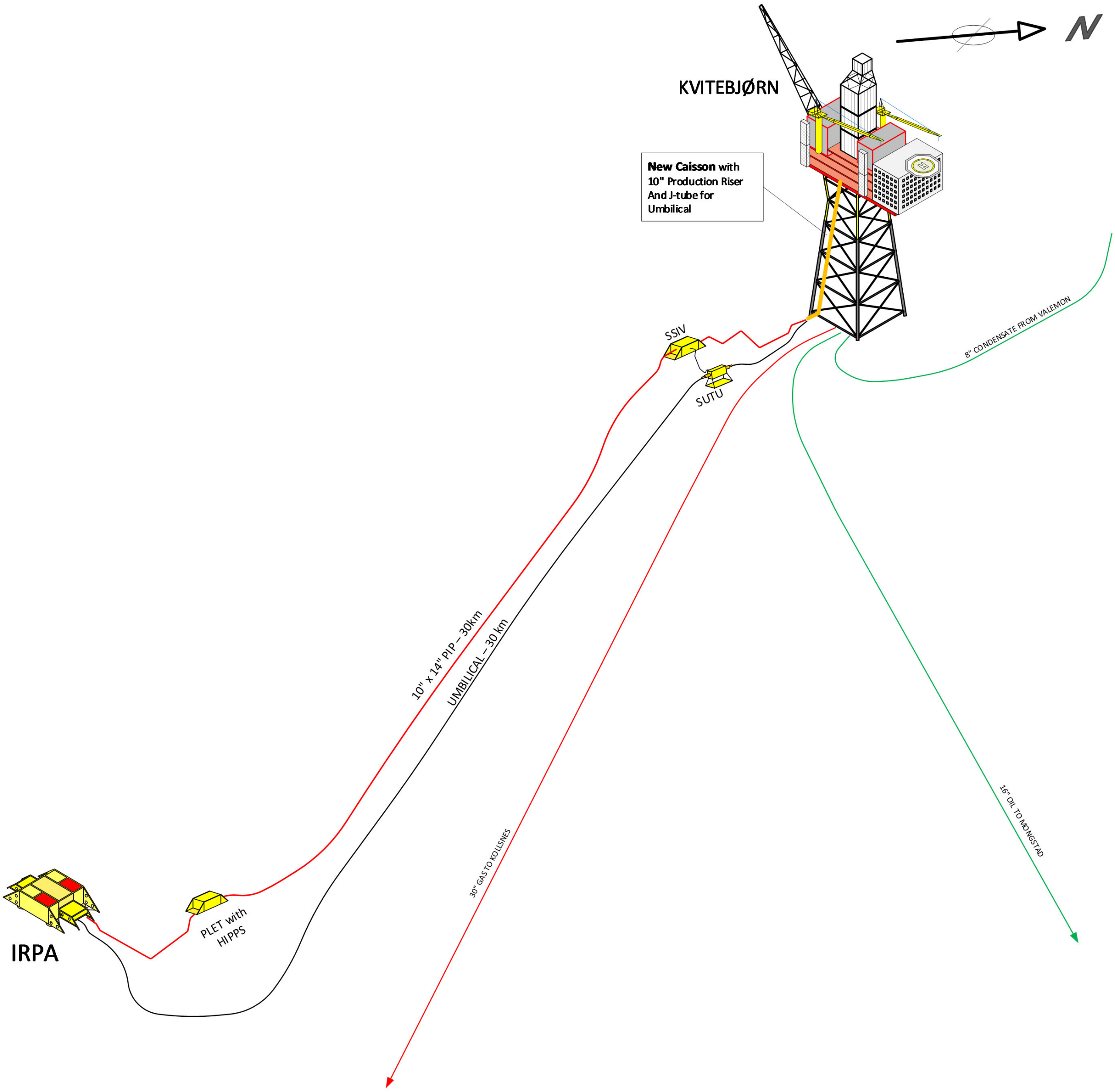


Fig. 5.1 P50 development scenario *The development plan for P50 consisted of a tie-back to Kvitebjørn and a subsea template consisting of two production wells.*

6 CONCLUSIONS

Phase 1 of the work program leading up to the Drill-or-Drop decision has been fulfilled by purchasing both the CGG17M01 and the CGG18M01 seismic survey, and performance of the G&G studies in the license. This led to maturing the Irpa prospect to a negative drill decision in Q1, 2020. Based on the volume range and technical-economic evaluations, Irpa and Freyja prospects do not meet the economic criteria needed to make a positive drill decision. The remaining prospectivity in the license is not economically viable to pursue any further based on the volume calculations and the minimum economic field size calculated for in the area.