Final Well Report

Well 6406/9-1

EP200512202126

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1 SUMMARY AND GENERAL INFORMATION

PL255 was awarded on the 12th May 2000 as part of the 16th licencing round on the Norwegian Shelf. The licence consists of three blocks, 6406/5-5, 6 and 9, respectively. One block in the licence has been licenced before, block 6406/6, with one dry well drilled in 1985, 6406/6-1. In the winter of 2001/2002, the well 6406/5-1T2 was drilled near the eastern margin of block 6406/5. Well 6406/9-1 was drilled in the northern part of block 6406/9.

Location map is shown in Figure 1.1

The partnership in PL255 consists of the following:

A/S Norske Shell	30%	Operator
Statoil	20%	
Total	20%	
Petoro	30%	

A summary of basic information of the well is given in Table 1.1.

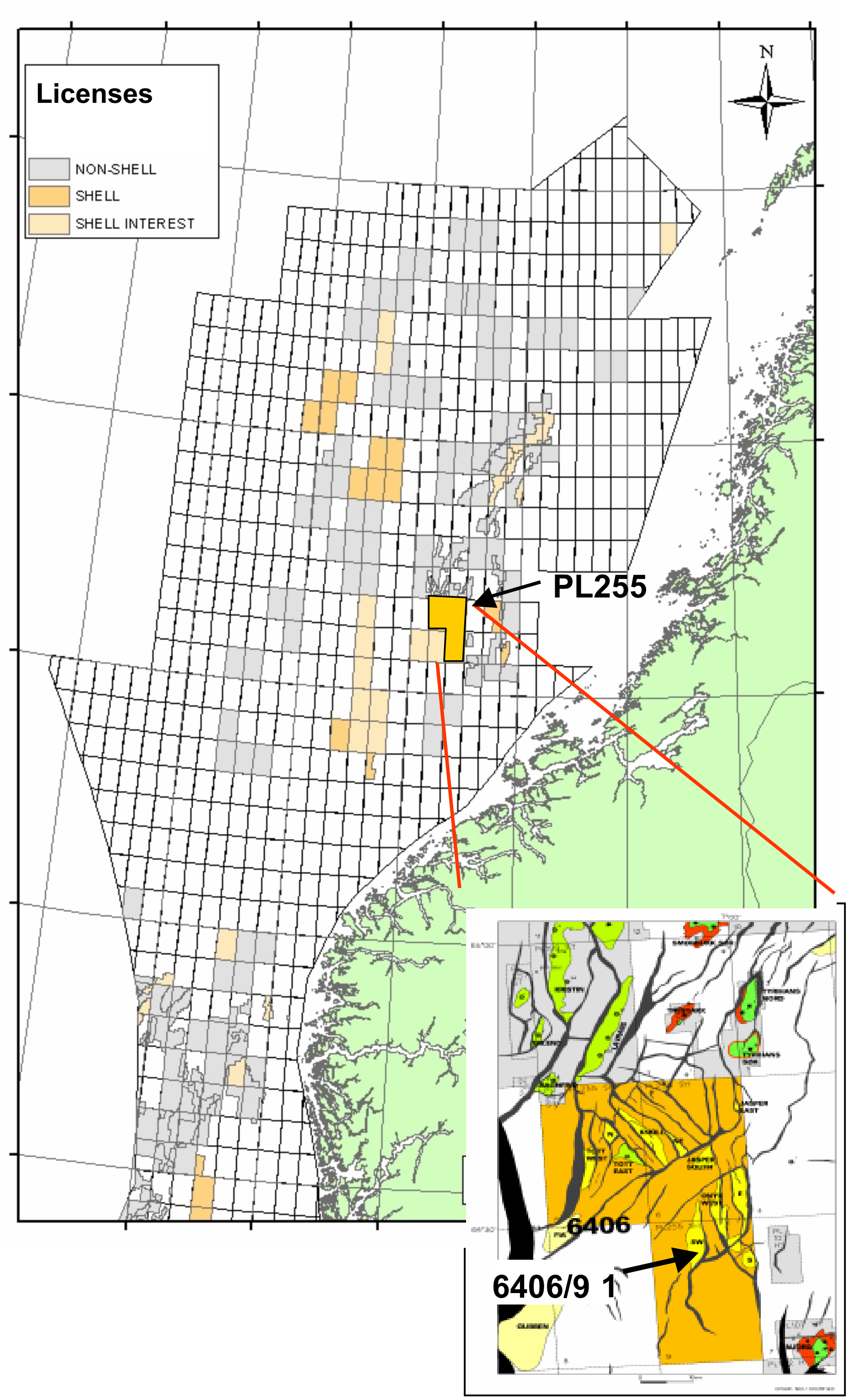

Figure 1.1 Location map of PL255 and well 6406/9-1

GENERAL RIG AND WELL DATA	
Well	6406/9-1
Licence	PL255
Operator	A/S Norske Shell
Licencees	A/S Norske Shell 30% Statoil 20% Total 20% Petoro 30%
Drilling Permit	1077 L
Well Classification	Exploration
Completion Status	Gas discovery (Plugged & Abandoned)
Surface location	Lat.Long : 64° 26' 46.855'' N , 06° 48' 55.234'' E UTM32 : 7 148 739.65 m N, 394 862.13 m E
Surface seismic location	HWE95m Inline 4340 Crossline 1541.6
Drilling rig	Transocean Leader
Rig type	Semi submersible
RT elevation	23.5 m
Water depth	308 m
Well objective	Lower and Middle Jurassic sandstones
Rig handover	28th May 2004
Tow to location	5th June 2004
At location	7th June 2004
Spud well	15th June 2004
Date reached TD	6th February 2005
Off location	3rd June 2005
Total days on location	369 days
Total Depth	5080 m

Table 1.1 General rig and well data

2 GEOLOGY AND GEOPHYSICS

2.1 Geographic and structural setting

The Onyx SW structure is a rotated fault block, which is located in the southern block of the PL255 licence. The PL255 licence area is located on the southern part of the Haltenbanken, south of the Kristin and Lavrans Fields (Figure 2.1). The Onyx SW structure is bounded by one fault on its eastern and southern side. The structure itself is relatively unfaulted, although minor and subseismic faults are probably present. The well was drilled near the crest of the structure. Figure 2.2 shows a depth map of the Top Ile Formation. A seismic line through the well location is shown in Figure 2.3.

2.2 Objectives and results of the well

The primary objective of well 6406/9-1 was to determine to test the hydrocarbon potential in the Middle to Lower Jurassic reservoirs of the Garn, Ile, Ror/Tofte and Tilje Formations of the Onyx SW structure, to production test possible hydrocarbon occurrences.

The well was positioned crestal, so as not to leave economic volumes updip and the planned testing was aimed at assessing productivity of the reservoirs and obtain representative fluid samples.

The well was spudded by the Transocean Leader rig on the 15th of June 2004. A total measured depth of 5080 m was reached drilling into the Åre Formation. Delayed by labour disputes and bad weather, the well was terminated on the 1st of June 2005.

The lithology found in the well came in more or less as expected. The actual versus prognosed lithology and depths are shown in Figure 2.4.

The Jurassic Ile, Tofte, Tilje and Åre Formations were all found to be entirely gas bearing (“gas down to”). The Garn Formation, a reservoir interval in some of the neighbouring wells, was found to be shaled out here.

The presence of hydrocarbons is confirmed by RCI samples in the Ile, Tofte and Tilje. This appears to be a stacked reservoir sequence with small pressure differences between the formations. The total hydrocarbon column in Ile, Tofte and Tilje proved by the well is 492.5 m.

A total of four cores were taken from the Early and Middle Jurassic intervals. The first core was taken from the upper part of the Ile Formation and is 13.44 m long. Operations were cut short because of jamming of the core, possibly due to junk in the hole. The second core was taken from the lower part of the Ile Formation and is 27.7 m long. A 26 m core was taken from the Tofte Formation as well as a 28.47 m core from the Lower Ror Formation.

A summary table of the lithostratigraphic tops is given in Table 3.1.

Reservoir properties were within range of the predicted. * TD in drillers depth

Table 9.3 shows reservoir parameters for the different reservoir sections.

As predicted, no shallow gas was encountered in this well.

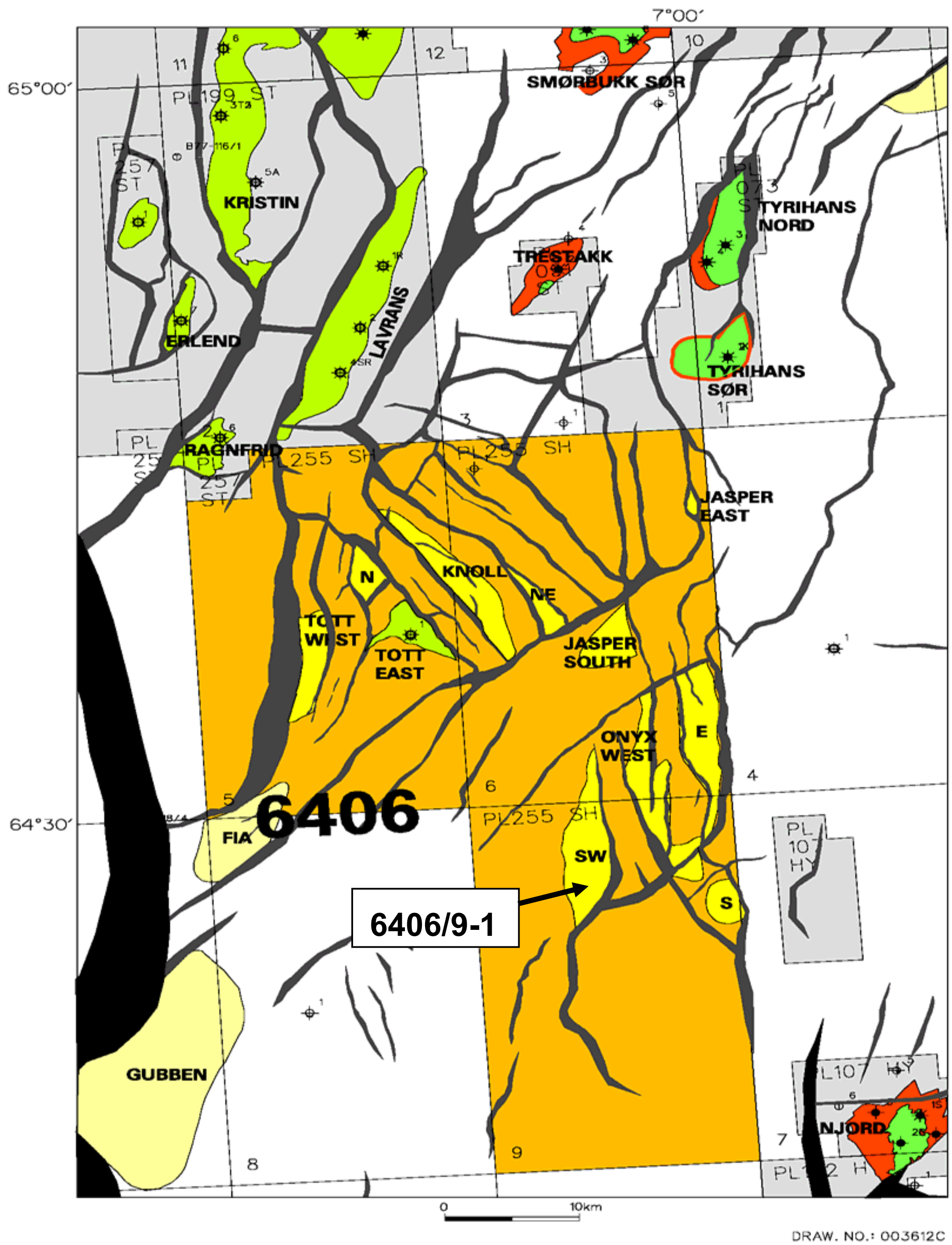

Figure 2.1 Licence area with prospects

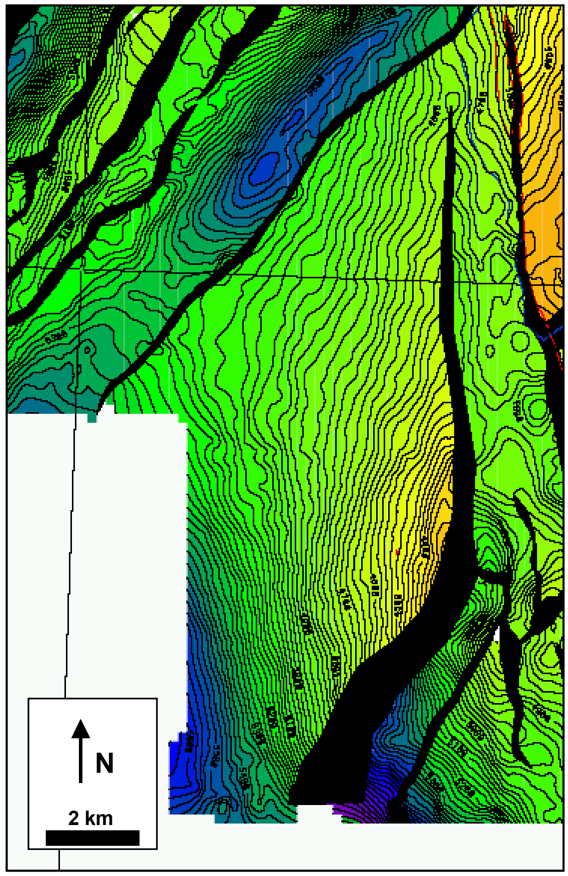

Figure 2.2 Top Ile Depth Map

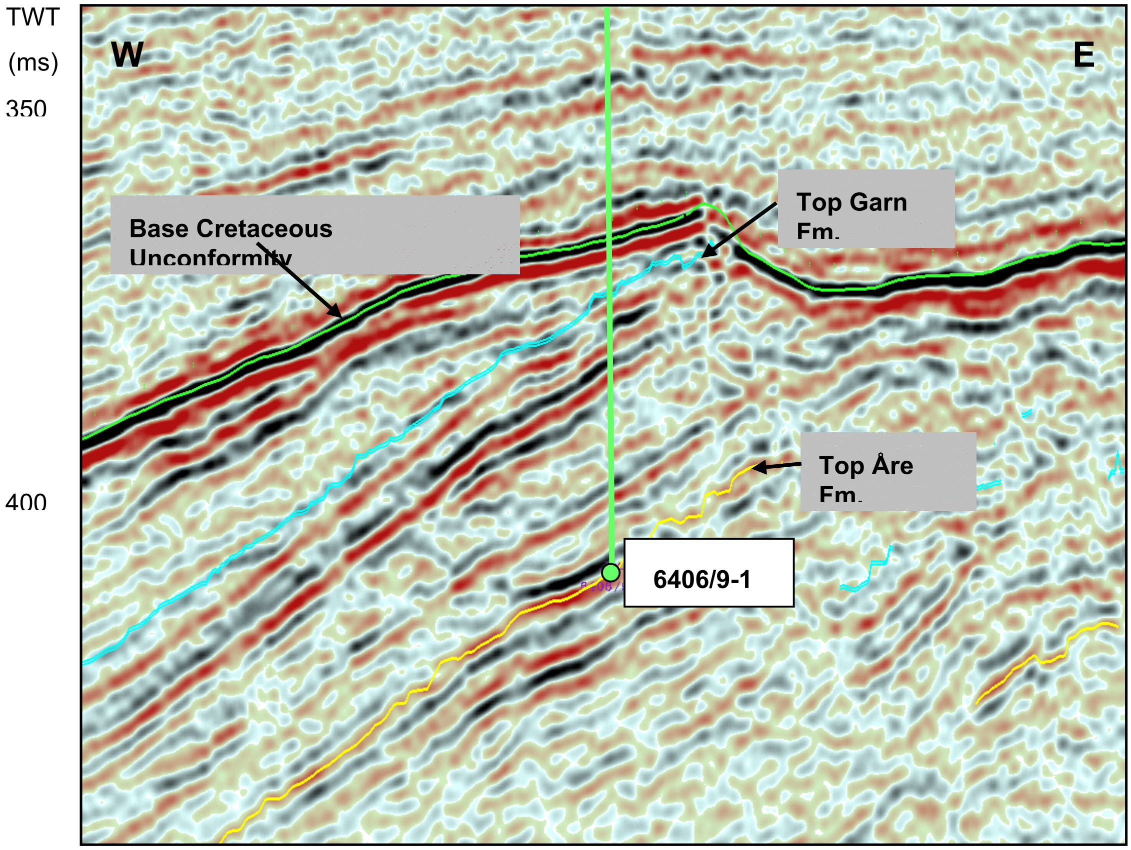

Figure 2.3 Seismic line through well location

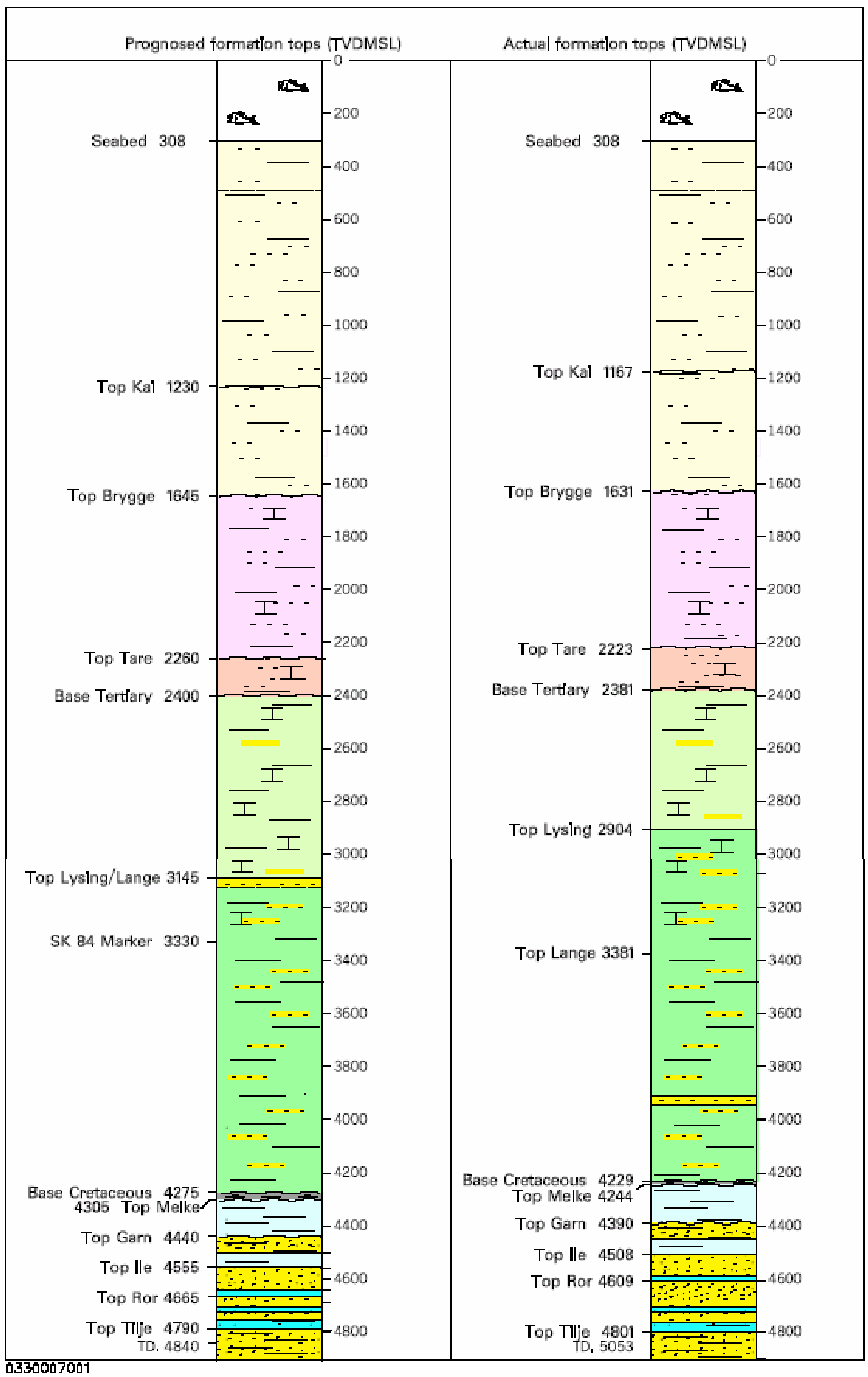

Figure 2.4 Prognosis vs. actual depths

3 STRATIGRAPHY

Well 6406/9-1 penetrated strata from recent to Lower Jurassic. The lithostratigraphic summary below is based on descriptions from ditch cutting samples and cores. Four cores were taken from the reservoir sections between depths of 4546 m – 4814 m AHBDF, with a total length of 95,6 m. Furthermore, ten rotary sidewall cores were taken in the interval from 4686,5 to 5021 m AHBDF.

From seabed to 1380 m returns were taken to seabed. Over the interval 1380 m – 2248 m AHBDF samples were taken every 10 m. Over the interval 2248 m – 4306 m AHBDF samples were taken every 5 m. Over the interval 4306 m – 5080 m AHBDF, the sampling interval was every 3 meters.

All depths below are in m AHBDF (wireline depths).

A lithostratigraphic summary is shown in Table 3.1.

A chronostratigraphic summary is shown in Table 3.2.

3.1 Nordland Group (308 m seabed – 1655 m AHBDF)

The Nordland group consists of the Naust and the Kai Formations.

3.1.1 Naust Fm.

Depth interval: 308 (seabed) m –1191 m AHBDF

Vertical thickness: 1140 m

Age: Pliocene or younger

3.1.2 Kai Fm.

Depth interval: 1191 m – 1655 m AHBDF

Vertical thickness: 459 m

Age: Late Oligocene to early Pliocene

The Kai formation consists of claystone with an occasional trace of limestone.

Claystone: Olive grey to brownish grey, occasionally dark grey, soft to locally firm, subblocky, occasionally amorphous, sticky in places, non to locally slightly calcareous, trace pyrite nodules.

Limestone: Light olive grey, firm to hard, blocky, microcrystalline, argillaceous in part.

3.2 Hordaland Group (1655 m – 2247 m AHBDF)

3.2.1 Brygge Fm.

Depth interval: 1655 m – 2247m AHBDF

Vertical thickness: 592 m

Age: Early Eocene – Late Oligocene

The Brygge Formation consists of claystone with occasional traces and layers of limestone

Claystone: Olive grey to medium dark grey, brownish grey, towards the base reddish brown to brownish grey, firm, subblocky, towards the top locally silty rarely becoming sandy, non to slightly calcareous, rare trace glauconite.

Limestone: Olive grey, firm to hard, blocky, microcrystalline, dolomitic, argillaceous.

3.3 Rogaland Group (2247 m – 2405 m AHBDF)

The Rogaland Group comprises the Tare and Tang Formations.

3.3.1 Tare Fm.

Depth interval 2247m – 2333 m AHBDF

Vertical thickness: 86 m

Age: Early Eocene – Late Paleocene

The Tare Formation consists of claystone with an occasional trace of limestone

Claystone: Medium grey to medium dark grey, olive grey, greenish grey, occasionally brown grey and blue grey, firm, blocky, non-calcareous, slightly "ashy" in part, slightly tuffaceous, trace very fine glassy clasts.

Limestone: Very light grey, firm, blocky, very argillaceous.

3.3.2 Tang Fm.

Depth interval: 2333 m – 2405 m AHBDF

Vertical thickness: 72 m

Age: Late Paleocene

The Tang Formation consists of claystone with an occasional trace of limestone

Claystone: Dark grey to medium blue grey, firm to moderately hard, non-calcareous, generally blocky, rarely splintery.

Limestone: Very light grey, firm, blocky, very argillaceous.

3.4 Shetland Group (2405 m – 2928.2 m AHBDF)

The Shetland group comprises the Springar, Nise and Kvitnos formations.

3.4.1 Springar Fm.

Depth interval: 2405 m – 2515.5 m AHBDF

Vertical thickness: 110.5 m

Age: Late Maastrichtian – Early Campanian

The Springar Formation consists of claystone with traces of sandstone as well as traces and stringers of limestone.

Claystone: Medium grey to medium blue grey, olive grey, green grey, occasionally mottled, soft to firm, blocky to sub blocky, non-calcareous.

Sandstone: Loose quartz, clear to transluscent, generally very fine occasionally fine, angular to sub rounded, well sorted.

Limestone: Very light grey, firm, blocky, very argillaceous.

3.4.2 Nise Fm.

Depth interval: 2515.5 m – 2731.5m AHBDF

Vertical thickness: 216 m

Age Early Campanian to Early Santonian

The Nise Formation consists of claystone with traces of siltstone and sandstone as well as some thin dolomite layers.

Claystone: Medium grey to dark greenish grey, olive grey, soft to firm, non-calcareous, amorphous to blocky, silty to very silty, grading dark brownish grey siltstone.

Siltstone: Dark grey to dark greenish grey, occasionally dark brownish grey, firm, blocky to sub blocky, non-calcareous, rare pyrite.

Sandstone: Loose clear to translucent Quartz, very fine to occasionally fine, angular to subrounded, well sorted.

Dolomite: Medium to dark greyish brown, hard, angular, argillaceous

3.4.3 Kvitnos Fm.

Depth interval: 2731.5 m – 2928.2 m AHBDF

Vertical thickness: 196.7 m

Age: Early Santonian

The Kvitnos Formation consists of silty claystone with an occasional thin layer of sandstone and some thin layers of dolomitic limestone.

Claystone: Medium dark grey, soft to firm, sub blocky, non to slightly calcareous, very silty, common loose very fine quartz, towards the base grading to siltstone.

Sandstone: Pale to dark yellowish brown, medium to medium dark grey, very fine quartz, sub angular to sub rounded, well sorted, poor to no visible porosity, locally calcareous cement, locally argillaceous, friable to moderately hard, trace pyrite, trace glauconite.

Dolomitic limestone: Dark yellowish brown, firm, blocky to sub blocky, micritic, locally wackestone texture, locally very fine sandy, chalky, very fine carbonaceous laminations.

3.5 Cromer Knoll Group (2928.20 m – 4253.60 m AHBDF)

The Cromer Knoll Group comprises the Lysing, Lange and Lyr formations.

3.5.1 Lysing Fm.

Depth interval 2928,2 m – 3405,2m AHBDF

Vertical thickness:	477 m
Age:	Late Coniacian – Late Turonian

The Lysing Formation consists of silty claystone, locally grading to siltstone. Throughout the sequence traces and occasional layers of sandstone are present, as well as traces and layers of dolomite and limestone.

Claystone: Dark grey to olive black, firm, sub blocky, non to slightly calcareous, locally slight to moderately calcareous, silty, common very fine sandy lenses, trace glauconite and micropyrite in parts.

Sandstone: Medium to medium dark grey, very fine quartz, sub angular to sub rounded, well sorted, common strong calcareous cement, locally argillaceous, friable to hard, trace micromica and very fine glauconite, no to very poor visible porosity. No show.

Dolomite: Dark yellowish brown, moderately hard, crumbly break, microsucrosic, microcrystalline.

Limestone: Moderate yellowish brown, medium grey, firm, blocky, microcrystalline to crystalline, common sparry calcite, locally slightly argillaceous, locally microsucrisic and dolomitic, locally with black carbonaceous laminae.

3.5.2 Lange Fm.

Depth interval.	3405,2 m – 4229 m AHBDF
Vertical thickness:	823,8 m
Age:	Late Turonian – Late Barremian

The Lange Formation consists mainly of silty claystone which locally grades to siltstone. Throughout the formation sporadic beds of siltstone and sandstone occur, as well as occasional sandy streaks, very fine sandy lenses and traces/thin beds of limestone that occasionally grades to dolomite.

Claystone: Medium grey to greyish black, locally medium grey, greenish grey or olive black, soft to firm, locally moderately hard, sub blocky, locally sub fissile, silty locally very fine sandy lenses, generally non-calcareous, locally slighty to moderately calcareous, trace disseminated pyrite, rare glauconite.

Siltstone: Medium dark to dark grey, firm to friable, sub blocky, common sandy streaks/lenses, generally slight to moderately calcareous, occasional disseminated pyrite, rare glauconite, locally grades to sandstone.

Sandstone: Light to medium grey, olive grey, very fine to silt, moderately sorted, calcareous cement, common argillaceous/silty matrix, friable to moderately hard, trace very fine glauconite, no visible porosity. No Show.

Limestone: Medium grey to greyish black, rarely medium grey, pale to dark yellowish brown, soft to moderately hard, sub blocky, locally sub fissile, crumbly in part, microcrystalline, locally chalky, occasional black laminae.

Dolomite: Dark yellowish brown, dusky brown, hard, crypto- to microcrystalline.

3.5.3 Lange Sst Mbr.

Depth interval.	3970 m – 4021 m AHBDF
Vertical thickness:	51 m
Age:	Middle Cenomanian

The Lange Sandstone Member consists of an alternation of sandstone and claystone, with traces of limestone towards the base.

Sandstone: Greyish black to dark grey, brownish black, locally dark yellowish brown, very fine to medium, sub angular, friable, also common loose, clear, medium to coarse, rounded to sub rounded, sub spherical quartz, also loose coarse to very coarse grains, sub angular to sub rounded, sub spherical, non to partly calcareous argillaceous matrix, friable, poor to moderate visible porosity, poorly sorted, trace carbonaceous debris, trace mica, trace pyrite, poor estimated porosity. Shows masked by OBM, no direct fluorescence, moderate bluish white streaming cut.

Claystone: Olive black, locally dark grey, firm, sub blocky, silty, locally arenaceous, carbonaceous, common finely disseminated pyrite, locally grades to siltstone.

Limestone: Pale to dark yellowish brown, rarely light olive grey, sub blocky, crumbly in part, mudstone texture, microcrystalline, black carbonaceous streaks, locally very fine to finely arenaceous.

3.5.4 Lyr Fm.

Depth interval: 4229 m – 4253,6 m AHBDF

Vertical thickness: 24,6 m

Age: Early Barremian/Late Hauterivian – Early Hauterivian*

*Palynomorphs burnt off at base Cretaceous Unconformity to TD related to HPHT conditions.

The Lyr Formation consists of claystone: olive black to black, moderately hard to hard, blocky, locally subfissile, silty, earthy, non-calcareous, trace disseminated pyrite.

3.6 Viking Group (4253,6 m – 4414,5 m AHBDF)

The Viking Group comprises the Spekk and Melke formations.

3.6.1 Spekk Fm.

Depth interval: 4253,6 m – 4268,5 m AHBDF

Vertical thickness: 14,9 m

Age: Middle Volgian

The Spekk Formation consists of claystone: olive black to black, moderately hard to hard, blocky, locally subfissile, silty, earthy, non-calcareous, trace disseminated pyrite.

3.6.2 Melke Fm.

Depth interval: 4268,5 m – 4414,5 m AHBDF

Vertical thickness: 146 m

Age: Callovian?/Oxfordian to Bathonian

The Melke Formation consists of claystone with traces of limestone/dolomite and a thin sandstone layer at the base.

Claystone: Olive black to black, olive grey, dark grey, firm to hard, blocky, locally subfissile, silty, earthy, non to slightly calcareous, trace disseminated pyrite, finely carbonaceous in part, trace micromica.

Limestone: Dark yellowish brown, also brownish black, locally brownish grey or light grey, firm to hard, sub blocky, crumbly in part, crypto-microcrystalline, argillaceous, locally grades to dolomite.

Dolomite: Brownish black, hard to very hard, cryptocrystalline, argillaceous.

Sandstone: Dark yellowish brown, brownish black, very fine to fine, dominantly very fine, subangular to subrounded, moderately sorted, weak to moderate calcareous cement, abundant argillaceous/silty matrix, rarely loose, common mica, trace carbonaceous material, trace pyrite, poor visible porosity. Shows masked by OBM.

3.7 Fangst Group (4414,5 m – 4633,5 m AHBDF)

The Fangst Group consists of the Garn, Not and the Ile formations.

3.7.1 Garn Fm.

Depth interval: 4414,5 m – 4471,5 m AHBDF

Vertical thickness: 57 m

Age: Bathonian

The Garn Formation in this well consists of claystone, grading to siltstone towards the top of the formation, with rare thin beds of sandstone.

Claystone: Dark brownish grey to dark grey, olive black, firm to moderately hard, blocky, non-calcareous, silty, trace disseminated pyrite, trace fine carbonaceous debris.

Siltstone: Dark grey, brownish black to olive black, firm to friable, subblocky, micaceous, finely carbonaceous, trace micropyrite, slight to moderately calcareous, very finely arenaceous.

Sandstone: Moderate to dark brownish grey, yellowish brown, off white, clear to translucent and milky white quartz, also light brown, very fine to fine, subangular to subrounded, subspherical, poor to moderately cemented, weak calcareous cement, local silica cement, poor visible porosity. Shows masked by OBM.

3.7.2 Not Fm.

Depth interval: 4471,5 m – 4532,3 m AHBDF

Vertical thickness: 60,8 m

Age: Bathonian - Bajocian

The Not Formation consists of claystone containing rare traces of limestone and rare very fine sandstone streaks, with minor sandstone and siltstone at the base of the formation.

Claystone: Predominantly dark grey to greyish black, occasionally brownish black and olive black, firm to moderately hard, sub blocky, locally silty, common disseminated pyrite, fine carbonaceous material, trace micromica, non-calcareous.

Limestone: Pale to dark yellowish brown, firm to hard, crumbly, sub blocky, microcrystalline, argillaceous, dolomitic in places.

Sandstone: Dark brownish grey to brownish black, hard, locally slightly friable, clear to translucent, colourless to moderate brown Quartz, very fine, rarely fine, subrounded to subangular, subspherical, well cemented with silica cement, mainly occurs as Rock Flour, poor visible intergranular porosity. Shows masked by OBM.

Siltstone: Moderate brownish grey, locally dark brownish grey to dark grey, firm to moderately hard, subblocky, slightly friable in part, non-calcareous, dominantly Quartz silt, slightly argillaceous, local matrix supported very fine sand, very poor visual porosity. Shows masked by OBM.

3.7.3 Ile Fm.

Depth interval: 4532,3 m – 4633,5 m AHBDF

Vertical thickness: 101,2 m

Age: Aalenian?

The upper section of the Ile Formation (4532.3 – 4591 m) consists predominantly of sandstone, alternating with minor siltstone and a seam of coal. The lower section (4591 – 4633,5m) consists almost entirely of sandstone with a thin layer of siltstone and a thin layer of claystone.

Claystone: Dark brownish grey to greyish black, firm to moderately hard, subblocky, locally silty, non-calcareous, dull lustre, earthy, traces very fine muscovite mica and very fine black carbonaceous (?) material.

Siltstone: Moderate to pale brownish grey, locally dark brownish grey to dark grey, firm to moderately hard, subblocky, slightly friable in part, non-calcareous, dominantly Quartz silt, slightly argillaceous, local matrix supported very fine sand, very poor visual porosity. Shows masked by OBM.

Sandstone: Dark brownish grey to brownish black, hard, locally slightly friable, clear to translucent, colourless to moderate brown Quartz, very fine, rarely fine, subrounded to subangular, subspherical, well cemented with silica cement, mainly occurs as Rock Flour, poor visible intergranular porosity. Shows masked by OBM. Below 4591 m, trace to abundant mica, faint hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.

Coal: Black, hard brittle, bright vitreous lustre, localised fragments of striated pyritised plant material. Localised micaceous laminae and partings, abundant medium to very coarse muscovite and phlogopite micas, irregular undulating bedding surfaces.

3.8 Båt Group (4633,5 m – 5080 m AHBDF, TD)

The Båt group consists of the Upper and Lower Ror, Tofte, Tilje and Åre formations.

3.8.1 Upper Ror Fm.

Depth interval: 4633,5 m – 4680,5 m AHBDF

Vertical thickness: 47 m

Age: Toarcian

The Upper Ror formation consists of an alternation of predominantly claystone and minor sandstone.

Claystone: Greyish black, firm, blocky, micromicaceous, silty, very silty in parts, locally grading to siltstone, calcareous.

Sandstone: Brownish grey, loose quartz, very fine to fine, grading to siltstone, abundant rock flour, subangular to subrounded, moderately sorted, slightly calcareous, argillaceous, no shows.

3.8.2 Tofte Fm.

Depth interval: 4680,5 m – 4720,5 m AHBDF

Vertical thickness: 40 m

Age: Toarcian

The Tofte Formation consists of sandstone in the base and top section with sandy siltstone in the middle part of the formation.

Sandstone: Brownish grey to medium grey in part, brownish black, with local greyish black partings, moderately hard to very hard, clear to translucent Quartz, light grey in part, very fine to fine, silty in part, subangular to subrounded, spherical, moderate to well sorted, moderate siliceous cement, quartz overgrowths, trace kaolinitic/argillaceous matrix, local micropyrite and carbonaceous material, trace mica, local argillaceous/carbonaceous/mica rich parting, poor to moderate visible porosity. Mostly no shows however locally shows masked by OBM.

Sandy siltstone: Greyish black, hard, dull, abundant carbonaceous material with associated micropyrite, micaceous, non-calcareous, very finely arenaceous in part, locally grading to argillaceous sandstone.

3.8.3 Lower Ror Fm.

Depth interval: 4720,5 m – 4826,3 m AHBDF

Vertical thickness: 105,8 m

Age: Toarcian

The Lower Ror Formation consists mainly of siltstone with occasional minor streaks/lenses, as well as a 5 m thick bed, of sandstone. A 11 m thick bed of claystone is present towards the base of the formation.

Siltstone: Olive black to dark grey, hard, micromicaceous, uneven/even fracture, non-calcareous, trace very fine sand, common iridescent organic fragments. No show.

Sandstone: Brownish grey, pale to dark yellowish brown, clear to translucent, occasionally opaque, locally milky Quartz, dominantly very fine to fine, locally medium, rare coarse to very coarse grains, subangular, poorly sorted, locally calcareous/silica cement, argillaceous/silty matrix, loose in part, trace mica, very poor inferred porosity. Shows masked by OBM.

Claystone: Olive black, firm, blocky, non-calcareous, silty, occasional micromica.

3.8.4 Tilje Fm.

Depth interval: 4826,3 m – 5024 m AHBDF

Vertical thickness: 197,7 m

Age: No age constraints below 4821m - no micropalaeontology recovery.

The Tilje Formation consists of an alternation of claystone, siltstone and sandstone.

Claystone: Olive black, dark grey, firm, blocky, non-calcareous, silty, occasional micromica.

Siltstone: Olive black, occasionally grey black to dark grey, firm to hard, blocky, sub fissile, non-calcareous, traces of very fine sand rarely grading to sandstone in part with weak dolomitic cement, occasionally very argillaceous grading to silty Claystone, micromicaceous. No show above OBM.

Sandstone: Light brown grey to light brown, quartz, clear to transluscent occasionally opaque, very fine to medium, rarely coarse, sub angular to sub rounded, moderately sorted, sub spherical, generally weakly cemented with calcite, friable, occasionally well cemented, hard, in minor part with much silty matrix grading very sandy siltstone, trace kaolin. Poor to nil visible porosity. No show above OBM.

3.8.5 Åre Fm.

Depth interval: 5024 m – 5080 m AHBDF (TD)

Vertical thickness: 56 m

Age: No age constraints below 4821m - no micropalaeontology recovery.

The Åre Formation consists of an alternation of claystone, siltstone and sandstone.

Claystone: Dark grey to greyish black, olive black, medium dark grey, firm locally moderately hard, sub blocky locally sub fissile, non-calcareous, silty, very rare trace pyrite nodules.

Siltstone: Olive black, firm, blocky, sub fissile in part, non-calcareous, very argillaceous grading to very fine sandstone in part.

Sandstone: Light brown grey to light brown, quartz, clear to transluscent, occasionally opaque, very fine to medium, firm to hard, sub angular to sub rounded, moderately to well sorted, sub spherical, calcite/siliceous, occasionally dolomitic cement, grading siltstone in part, trace kaolin, Poor to nil visible porosity. No show above OBM.

Group	Formation	Top	Base	Top	Base
NORDLAND GP		308.00 m	1655.00 m		
	Naust Fm			376.00 m	1191.00 m
	Kai Fm			1191.00 m	1655.00 m
HORDALAND GP		1655.00 m	2247.00 m		
	Brygge Fm			1655.00 m	2247.00 m
ROGALAND GP		2247.00 m	2405.00 m		
	Tare Fm			2247.00 m	2333.00 m
	Tang Fm			2333.00 m	2405.00 m
SHETLAND GP		2405.00 m	2928.20 m		
	Springar Fm			2405.00 m	2515.50 m
	Nise Fm			2515.50 m	2731.50 m
	Kvitnos Fm			2731.50 m	2928.20 m
CROMER KNOLL GP		2928.20 m	4253.60 m		
	Lysing Fm			2928.20 m	3405.20 m
	Lange Fm			3405.20 m	4229.00 m
	Lyr Fm			4229.00 m	4253.60 m
VIKING GP		4253.60 m	4414.50 m		
	Spekk Fm			4253.60 m	4268.50 m
	Melke Fm			4268.50 m	4414.50 m
FANGST GP		4414.50 m	4633.50 m		
	Garn Fm			4414.50 m	4471.50 m
	Not Fm			4471.50 m	4532.30 m
	Ile Fm			4532.30 m	4633.50 m
BÅT GP		4633.50 m	5080.00 m		
	Ror Fm			4633.50 m	4680.50 m
	Tofte Fm			4680.50 m	4720.50 m
	Ror Fm			4720.50 m	4826.30 m
	Tilje Fm			4826.30 m	5024.00 m
	Åre Fm			5024.00 m	5080.00 m

Table 3.1 Lithostratigraphic Summary

Age	Top Depth (m)	Base Depth (m)
Early Pliocene	1390	1430
Late Miocene	1490	1491
Early Miocene	1530	1560
Late Oligocene	1600	1601
Early Oligocene	1660	1800
Late Eocene	1840	1910
Middle Eocene	1940	2140
Early Eocene	2180	2315
Late Paleocene	2320	2405
Late Maastrichtian	2415	2415.5
Early Maastrichtian	2420	2435
Early Campanian	2455	2640
Late Santonian	2660	2705
Early Santonian	2720	2905
Late Coniacian	2925	3245
Early Coniacian	3255	3350
Late Turonian	3360	3530
Middle Turonian	3550	3730
Early Turonian	3745	3925
Late Cenomanian	3930	3965
Middle Cenomanian	3970	4029
Early Cenomanian	4038	4050
Late Albian	4059	4137
Middle Albian	4140	4185
Late Aptian	4197	4203
Early Aptian	4209	4210
Late Barremian	4215	4219
Early Barremian to Late Hauterivian	4221	4242
Early Hauterivian	4245	4254
?Middle Vogian	4263	4264
?Oxfordian to Callovian	4275	4293
Bathonian	4299	4491
?Bajocian	4494	4533
?Aalenian	4594	4632
Toarcian	4638	4821

Table 3.2 Chronostratigraphic Summary

4 GEOPHYSICS

4.1 VSP Processing

A rig source VSP survey was acquired from 1000 – 5075m. The survey was processed by VSFusion. The general data quality is good, though the shallow data (above the close spaced VSP levels) shows some distortion in its waveform. Additionally, traces between 2860 and 3000m are affected by noise, possibly due to poor coupling or casing arrivals.

It was decided to remove all the levels above 3000m from the VSP processing. However, the direct arrival times from these levels were considered generally to be useable and so have been included in the computations and log processing. The data has been timed from the first trough on the gun hydrophone to the first trough on the well geophone.

The P-downgoing and P-upgoing waves have been separated using a 9 trace Parametric Wavefield Separation routine. After wavefield separation, deterministic deconvolution was applied to the upgoing wavefield using a 700 ms window of the downgoing wavefield to calculate the deconvolution operators on a trace-by-trace basis.

Figure 4.1 Figure ABC shows the deconvolved upgoing wavefield, together with a synthetic seismic response derived from compressional sonic and density logs. The display is zero phase and SEG normal polarity. A seismic match filter of 8 – 40 Hz 18/48 dB per Oct has been applied to facilitate seismic-to-well matching (see Figure 4.2).

4.2 Time – Depth Relationship

A time-depth curve was generated from the VSP's first break picks and depths (Figure 4.3). The first arrivals from the shallow VSP data are rather noisy. To provide a reliable time-depth curve for interpretation and modelling, stacking velocities from the hwe95m PSDM re-processing were added to the shallow interval.

4.3 Seismic to Well Match

Synthetic seismograms (zero-offset, as well as full-offset full-waveform) and the VSP were used to calibrate the hwe95m PSDM seismic data. Minor corrections were applied to the time-depth curve to improve the seismic-to-well match. Figure 4.4 presents the acoustic logs, together with the full-offset full-waveform synthetic, the VSP and the full offset PSDM re-processed seismic. The match below Base Cretaceous is reasonable. The Ile and deeper formations are suffering from interbed multiples on the mid-offsets. The cable length of the hwe95m survey is too short to expect any useful AVO at target depth.

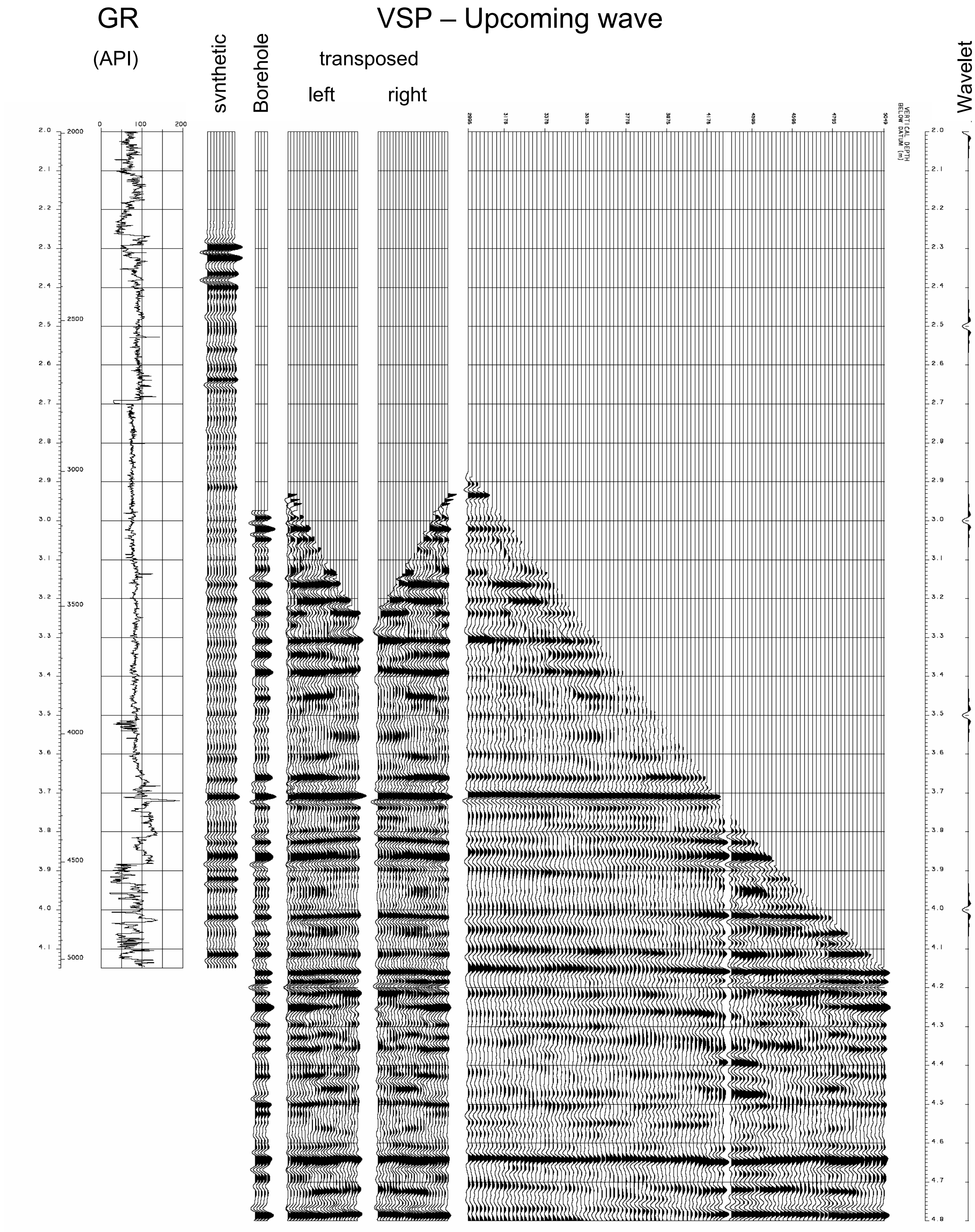

Figure 4.1 VSP Processing of well 6406/9-1

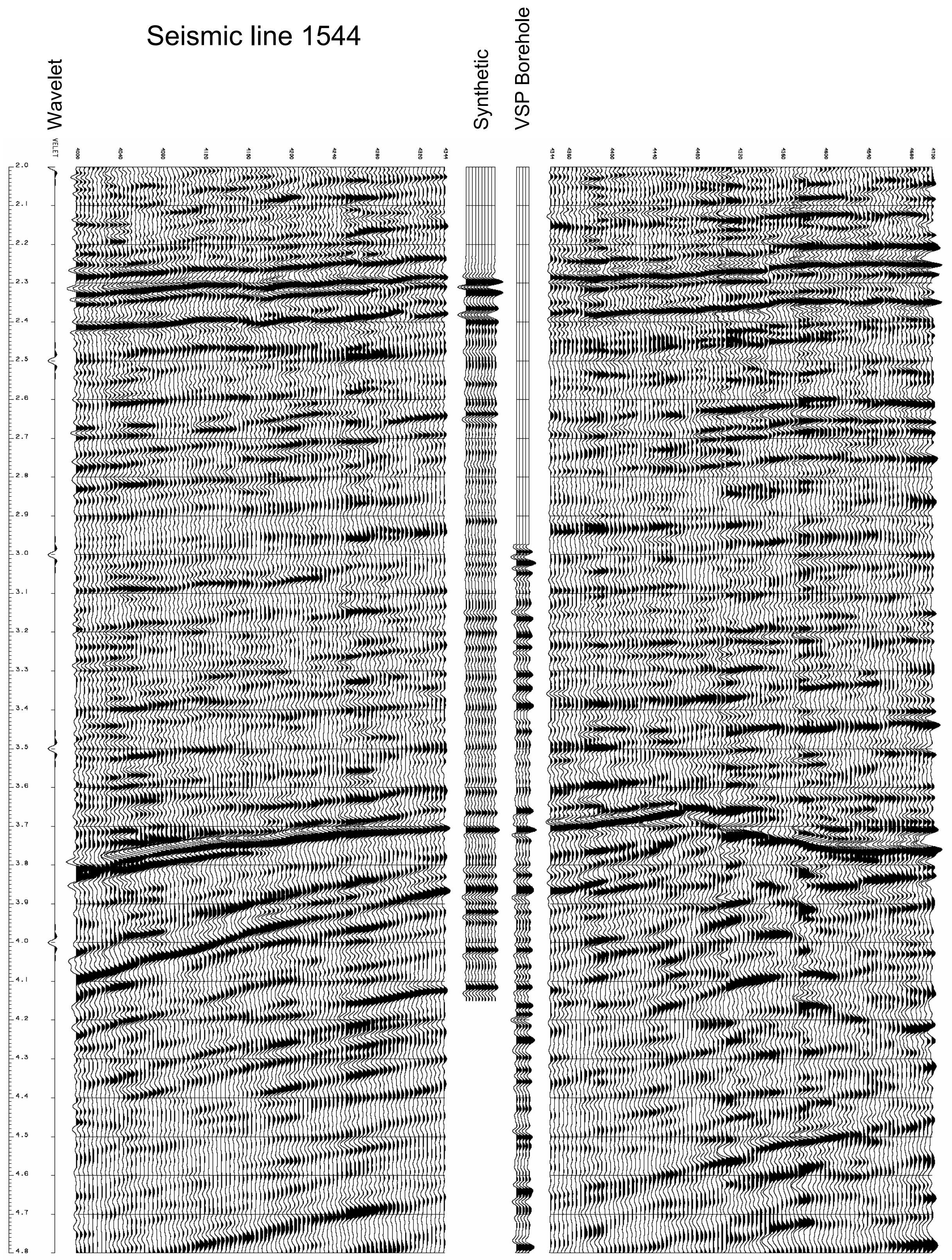

Figure 4.2 Correlation of borehole VSP with seismic line 1544

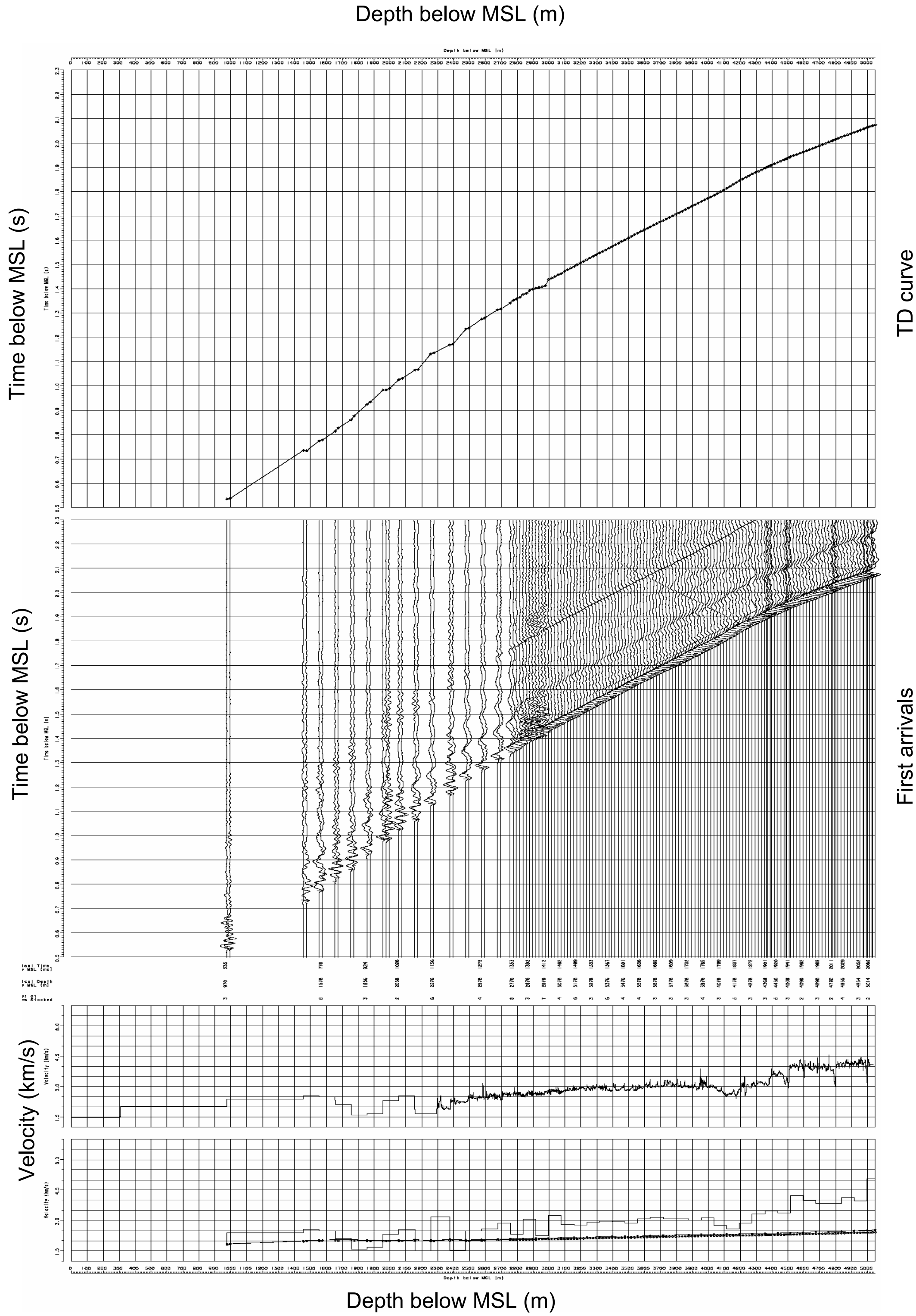

Figure 4.3 Time-depth curve from first arrivals

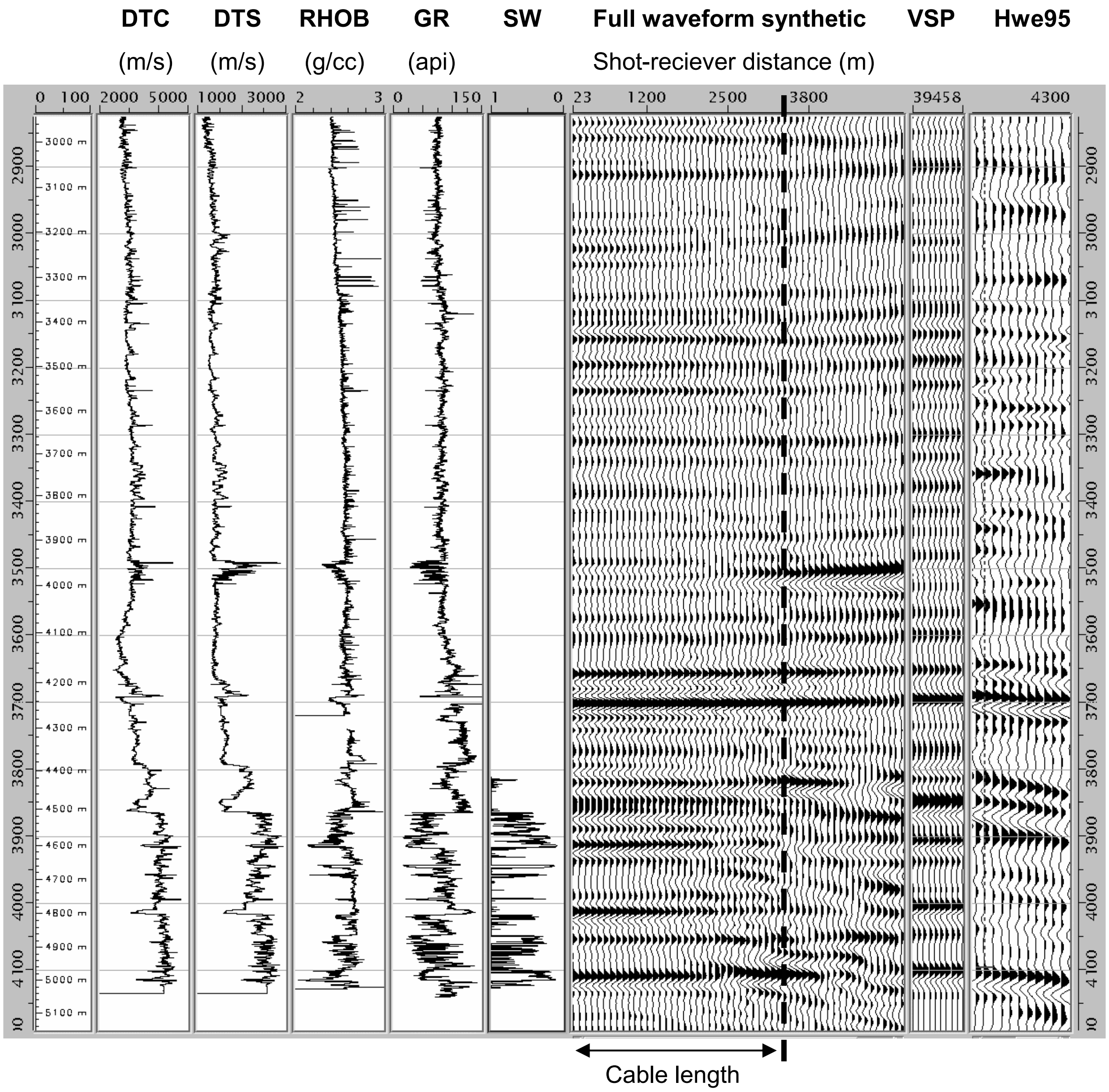

Figure 4.4 Seismic to well match with full waveform synthetics

5 HYDROCARBON INDICATIONS

5.1 Shallow gas

No indications of shallow gas were encountered in the 36'' and 26'' sections (331.5 – 1380 m AHBDF).

5.2 Gas Detection

5.2.1 17 x 20'' Hole section (1380 – 2248 m AHBDF)

Depth MD	Total %	Backgr. %	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm	Remarks
2000	2.33	1.5	23156	305	44	6	4	3	1	Formation gas
2244	5.58	3.0	51148	2582	957	126	182	42	36	Formation gas
1368	3.20	-	29640	410	180	40	55	17	16	Circ at 20" shoe
2205	4.95	-	42910	1605	740	120	175	45	43	Circ at 16" liner set
1290	0.44	-	2850	135	140	40	60	22	20	Max gas drilling cmt

Table 5.1 Gas peak summary for 17 x 20'' hole section

5.2.2 14¾ x 17½" Hole Section (2248m – 2793m AHBDF)

Depth MD	Total %	Backgr. %	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm	Remarks
2235	8.30	2.0	66760	3390	1395	220	315	90	80	Max gas from
2440	1.26	0.9	11328	264	77	19	33	21	20	Formation
2445	1.39	0.9	12231	302	85	19	32	19	19	Formation

Table 5.2 Gas peak summary for 17 x 20'' hole section

5.2.3 12¼" Hole Section (2793m – 4306m AHBDF)

The background gas levels were :

from 2793m to 3968m : Total Gas = 0.2% – 1.0%

from 3968m to 4306m : Total Gas = 3.5% – 10.0%

Depth MD	Total %	Backgr. %	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm	Remarks
3252	1.80	0.15	16420	80	20	4	2	3	2	Trip gas
3543	2.70	0.15	22966	16	34	4	3	3	1	Trip gas
3915	2.40	0.5	19361	694	118	8	8	5	2	Trip gas
3973	16.43	10.0	12397	5432	1076	94	138	25	22	Formation gas
3977	21.69	10.0	16189	7399	1485	130	191	31	28	Formation gas
3979	31.61	10.0	21831	11645	2394	211	299	45	36	Formation gas
3985	45.70	10.0	28320	15568	3014	268	389	65	58	Formation gas
4200	20.70	1.9	16465	6344	849	72	82	21	15	Trip gas
4206	11.07	1.8	90139	2624	401	39	47	14	11	Formation gas
4226	17.48	6.5	13524	6358	1049	82	121	22	20	Formation gas
4254	29.42	7.6	21315	10898	2057	171	279	49	46	Formation gas
4289	13.94	6.4	10654	6108	1325	117	195	36	37	Formation gas
4306	14.56	1.2	12277	6196	1071	96	149	37	34	Trip gas

Table 5.3 Gas peak summary for 12¼" hole section

5.2.4 8½" Hole Section (4306m – 5080m AHBDF)

The background gas levels were :

from 4306m to 4526m : Total Gas = 1.0% – 2.5%

from 4526m to 4715m : Total Gas = 2.0% – 8.0%

from 4715m to 4883m : Total Gas = 1.5% – 4.0%

from 4883m to 5080m : Total Gas = 2.0% – 7.0%

Depth MD	Total %	Backgr. %	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm	Remarks
4291	2.34	0.2	2105	930	135	12	14	9	4	Trip gas from
4295	11.05	0.2	9610	4220	740	55	85	18	12	Trip gas from
4372	2.25	1.5	1955	945	179	18	24	11	5	Connection gas
4391	3.02	1.2	2676	850	134	17	17	9	4	Swabbed gas
4393	4.23	1.0	3763	1506	245	22	29	10	6	Connection gas
4409	1.98	1.2	1738	578	79	12	12	9	4	Formation gas
4411	5.96	2.0	5393	1407	126	15	14	9	4	Formation gas
4414	5.67	3.5	5347	1305	115	14	13	10	5	Formation gas
4421	2.30	1.1	2131	916	140	15	17	9	3	Connection gas
4429	3.16	1.4	3024	685	55	7	5	5	3	Formation gas
4430	2.20	1.5	2065	760	105	10	11	5	3	Connection gas
4432	5.65	1.8	5443	1348	119	11	11	5	3	Formation gas
4440	5.01	1.8	4839	1238	126	11	9	7	5	Formation gas
4445	12.60	2.0	1205	2798	211	19	14	7	4	Formation gas
4454	9.51	5.0	9251	2417	206	18	14	7	6	Formation gas
4459	3.13	1.6	2919	1200	155	14	14	8	6	Connection gas
4460	3.66	1.8	2465	1196	154	14	14	9	6	Formation gas
4475	2.92	1.5	2739	1060	135	14	13	6	4	Flowcheck gas
4486	2.50	1.3	2365	943	131	12	13	6	6	Connection gas
4522	3.26	2.0	3163	848	153	19	22	11	11	Formation gas
4529	12.20	2.5	1190	2869	438	41	46	13	8	Formation gas
4533	11.34	2.5	1095	2349	400	36	42	12	10	Formation gas
4537	11.25	2.5	1105	2521	420	37	46	17	10	Formation gas
4541	14.13	1.2	1405	2546	468	43	51	17	17	Formation gas
4547	1.63	1.1	1545	565	115	17	16	10	9	Flowcheck gas
4500	1.28	0.4	1180	465	90	13	14	9	9	Flowcheck gas
4500	1.24	0.15	1103	456	81	110	11	6	3	Flowcheck gas
4500	1.30	0.15	1213	483	87	12	10	3	2	Flowcheck gas
4500	1.00	0.15	9091	372	61	8	8	9	4	Flowcheck gas
4546	1.68	0.2	1599	495	80	7	10	4	4	Flowcheck gas
4546	0.63	0.2	5610	205	35	4	5	5	5	Flowcheck gas
4546	0.47	0.2	3980	155	25	4	4	3	2	Flowcheck gas
4408	3.02	0.3	2664	920	130	9	13	6	2	Trip gas
4546	5.46	0.3	4958	1270	165	12	15	6	3	Trip gas
4547.5	11.78	4.5	1072	2386	366	20	35	6	6	Formation gas

4554	7.35	4.0	6790	2103	357	9	38	14	9	Formation gas
4408	2.90	1.0	2425	810	131	7	15	3	2	Trip gas
4561	2.70	1.5	2275	601	91	6	11	3	2	Trip gas
4572	9.22	4.0	7727	1161	170	15	20	7	5	Formation gas
4577	7.89	4.5	6686	1219	182	17	21	8	4	Formation gas
4584	11.58	4.5	9404	1602	231	22	27	8	6	Formation gas
4590	8.74	4.5	6936	1129	159	17	20	7	4	Formation gas
4591	9.23	4.0	7768	1290	182	19	22	8	5	Formation gas
4291	9.90	0.5	7575	2241	316	24	33	7	10	Trip gas from
4592	5.16	2.0	4197	833	139	15	18	8	4	Formation gas
4595	5.50	2.0	4693	931	139	9	17	6	2	Formation gas
4621	9.30	0.5	7485	768	97	14	7	2	5	Trip gas
4625	13.80	3.0	1082	1467	181	15	22	6	3	Formation gas
4631	13.00	3.0	1037	1382	169	15	19	6	3	Formation gas
4636	12.70	3.0	1002	1327	164	14	19	7	3	Formation gas
4645	11.00	3.0	8782	1332	174	16	21	7	4	Formation gas
4651	11.60	3.0	9181	1407	187	17	22	7	4	Formation gas
4655	14.50	3.0	1132	1687	233	21	28	7	5	Formation gas
4620	6.70	0.2	5838	612	62	8	8	4	2	Trip gas
4679	21.90	15.0	1696	3463	438	38	48	10	6	Formation gas
4684	17.90	0.5	1462	1587	141	16	18	7	3	Trip gas
4687	5.23	3.5	4324	1476	254	7	26	4	5	Formation gas
4708	9.20	2.0	7485	2231	467	19	50	8	6	Formation gas
4710	34.60	1.5	2507	2995	260	28	32	10	5	Trip gas
4711	8.59	7.5	6937	1498	197	19	21	8	4	Formation gas
4713	8.53	7.0	6917	1596	222	17	24	8	4	Formation gas
4727	2.74	1.8	2189	680	109	12	13	7	2	Formation gas
4749	3.53	2.5	2810	933	159	12	19	8	3	Formation gas
4759	4.37	3.0	3386	1369	236	20	29	8	3	Formation gas
4760	11.20	2.0	9837	1040	165	17	23	21	19	Trip gas
4779	6.27	2.0	5150	2463	426	16	50	10	4	Formation gas
4781	6.78	2.0	5386	2863	503	14	62	11	3	Formation gas
4784	1.36	0.8	1038	690	190	10	35	8	4	Connection gas
4784	26.10	0.2	2063	2925	335	25	45	9	5	Trip gas
4784	39.20	0.2	2662	3350	295	30	40	8	4	Trip gas
4793.5	6.09	2.5	4581	1859	344	9	36	6	6	Formation gas
4813.5	16.10	1.5	1282	1560	220	15	65	7	8	Trip gas
4827	14.94	2.0	1222	1563	164	18	23	6	5	Formation gas
4831	15.12	2.0	1232	1799	211	18	30	7	5	Formation gas
4834	14.48	2.0	1189	1617	183	18	25	6	5	Formation gas
4838	12.55	2.0	1050	1458	167	16	23	6	4	Formation gas
4853	7.34	3.5	6091	1480	221	15	27	6	4	Formation gas
4865	3.10	1.8	2378	1305	234	9	33	7	3	Formation gas
4868	3.37	2.0	2699	1308	232	9	32	9	3	Formation gas
4291	1.84	0.8	1437	49	110	10	20	1	5	Trip gas from
4615	15.13	2.0	1250	1432	156	13	22	5	3	Trip gas
4899	10.36	4.0	8310	3470	644	17	78	15	11	Formation gas
4901	11.32	3.0	9135	3979	725	18	86	15	6	Formation gas
4907	13.39	3.8	1057	4929	911	21	110	20	8	Formation gas

4916	12.94	3.0	1053	4779	907	24	113	23	8	Formation gas
4925	8.00	4.0	6823	2924	636	17	87	19	5	Formation gas
4943	10.15	3.5	8464	4290	873	19	118	26	2	Formation gas
4952	10.07	3.8	9085	3477	748	20	107	22	16	Formation gas
4957	8.44	2.5	7474	3698	810	17	115	24	12	Formation gas
4962	6.69	2.8	5481	3248	741	12	108	23	2	Formation gas
4974	7.18	2.6	5879	3119	718	11	111	24	2	Formation gas
4984	6.30	4.0	5278	2723	658	7	109	24	2	Formation gas
4989	7.13	4.3	5986	2507	606	8	103	23	2	Formation gas
4995	4.65	2.3	3781	2029	526	6	99	24	2	Formation gas
5010	5.74	1.3	4899	1414	341	9	67	22	3	Formation gas
5022	2.23	0.8	1866	502	169	4	43	16	2	Formation gas
5030	6.62	2.0	5774	1015	243	7	45	14	2	Formation gas
5038	5.87	3.6	5029	1398	334	4	60	16	3	Formation gas
5052	7.28	4.5	6051	1732	414	8	66	16	2	Formation gas
5057	7.98	4.0	6725	1849	420	9	64	16	2	Formation gas
5061	7.30	5.2	6073	1809	424	8	66	16	2	Formation gas
4530	27.50	2.0	2046	2228	218	19	30	7	5	Trip gas
5017	22.30	2.0	1797	842	90	18	16	6	4	Trip gas
4291	8.50	1.0	6647	1175	220	10	30	10	6	Trip gas from
4713	99.00	0.5	3852	13400	1410	135	160	25	15	Trip gas
4944	88.40	15.0	3578	8650	915	95	110	20	12	Trip gas
5080	72.00	6.0	3377	3550	350	45	60	15	8	Trip gas
5080	85.00	1.0	3532	12375	1665	190	165	38	17	Trip gas
5080	29.90	0.5	2267	1675	150	25	20	15	5	Trip gas

Table 5.4 Gas peak summary for 8½" hole section

5.3 Fluorescence in Core and Cuttings

Locally, a very slight to strong hydrocarbon odour was noted in the ditch cuttings, as well as a dull yellow surface fluorescence. For description of HC indications in cores see Core Description Sheets 1-3 – Appendix 1. Core 4 was recovered mainly shale and was not described at rigsite

Interval (m)	Source	Lithology	Shows Description
4546 – 4589	Cuttings	Sandstone/ siltstone	Moderate to strong hydrocarbon odour, very rare dull yellow surface fluorescence, slow clouding dull yellow flash cut.
4591 – 4629	Cuttings	Sandstone	Good hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.
4684 – 4690	Cutting	(Argillaceous) sandstone	No direct fluorescence, slight bluish white from local carbonaceous material.
4702 – 4709	Cuttings	(Argillaceous) sandstone	Very slight hydrocarbon odour, no direct fluorescence, slow streaming to diffuse bluish white cut fluorescence, bluish white residual fluorescence.

Table 5.5 Fluorescence in core and cuttings

6 CUTTING SAMPLES

Cuttings were collected and brought onshore in 5 litre buckets.

6.1 Routine Samples

The following sets of routine samples were collected from the wellbore

Cuttings:	1380 - 2248 m AHBDF	10 m interval
	2248 – 4306 m AHBDF	5 m interval
	4306 – 5080 m AHBDF	3 m interval

6.2 Distribution of Samples

The samples were distributed the following way:

a) NPD: Treated according to NPD regulations by ResLab, Sandnes, and transferred to NPD, Stavanger

b) Partners; Statoil, Total, Petoro.

c) Washed and divided into trade sets, stored at Reslab

7 CORING

7.1 Conventional Core

7.1.1 Introduction

According to the PL255 Licence Agreement core should be cut in all reservoir intervals of the commitment wells. All cores were attempted with 30 m core barrels. The following cores were acquired:

Core No.	Depth (m AHBDF)	Corehead	Formation	Recovery	Comments
1	4546.5 – 4561	MCP682	Ile	13.44 m (93%)	Stopped coring because of jamming, possibly due to junk in hole (wire retrieved from the liner on core recovery).
2	4591-4621	MCP682	Ile	27.7 m (92%)	Stopped coring because of end of core barrel.
3	4684 – 4710	MCP581	Tofte	26 m (100%)	
4	4784 – 4813.5	MCP682	Lower Ror	28.47 m (97%)	

Table 7.1 Core acquired – Well 6406/9-1

The core description is given in Appendix 1.

7.2 Sidewall Cores (RCOR)

11 rotary sidewall cores were attempted over the 8 ½" section from 4687.5 – 5023 m. 10 cores were recovered.

SWC (no)	Depth (m AHBDF)	Length (inch)	Core Description	Comments
1	5023	0	Not Recovered	1st Descent
2	5021	7/8"	Siltstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone, trace micro pyrite.	1st Descent
3	5016	¾"	Siltstone / Sandstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone, trace micro pyrite.	2nd Descent
4	5007	1 ½"	Siltstone / Sandstone : dark grey, olive black, hard, micromicaceous, grading to very fine Sandstone, translucent quartz grains, very fine to fine, siliceous cement, well cemented in part, trace micro pyrite.	2nd Descent
5	4997	7/8"	Siltstone / Sandstone : dark grey, greyish black, olive black, dark grey brown, hard, micromicaceous, grading to very fine Sandstone, translucent quartz grains, very fine to fine, siliceous cement, well cemented in part, trace micro pyrite, trace kaolin, no visible porosity.	3rd Descent
6	4988.5	1 1/8"	Siltstone / Sandstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone, translucent quartz grains, very fine to fine, siliceous cement, well cemented in part, trace micro pyrite.	3rd Descent
7	4934	1 ½"	Siltstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone, trace micro pyrite.	3rd Descent
8	4908.5	1 ½"	Siltstone / Sandstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone, trace micro pyrite.	3rd Descent
9	4892	1 ½"	Siltstone : dark grey, greyish black, olive black, hard, micromicaceous, grading to very fine Sandstone: translucent quartz grains, very fine to fine, siliceous cement, trace micro pyrite.	3rd Descent
10	4834	1 7/8"	Siltstone : dark grey, greyish black, olive black, hard, non-calcareous, micromicaceous, grading to very fine Sandstone: translucent quartz grains, very fine to fine, siliceous cement, trace micro pyrite.	3rd Descent
11	4687.5	1 ½"	Siltstone : dark grey, olive black, hard, non-calcareous, micromicaceous, grading to very fine Sandstone: translucent quartz grains, very fine to fine, siliceous cement, trace micro pyrite.	3rd Descent

Table 7.2 Sidewall core data – Well 6406/9-1

8 FORMATION PRESSURES AND TEMPERATURES

8.1 Pore pressure estimate

The pore pressure prognosis was based on the available data of the surrounding wells.

For the overburden especially the Tott East well (6406/5-1T2) was used. The Tott East well experienced a kick in the Springar formation (whilst drilling with 1.65sg MW) and during the sidetrack after having increased MW still some inflow. Estimates from the kick (standpipe pressure) gave a pore pressure (PP) of ca. 1.70-1.72sg at 2600 m. In the sidetrack some inflow occurred, which required a further increase of Mudweight (MW) indicating PP of ca. 1.79sg.

Ranges of low, most likely and high pore pressure were supplied to aid in the casing design and MW (mudweight) selection.

Pore pressure (PP) estimates during drilling are based on interpretations from recorded data such as ROP, gas (background, trip and connection gases or absence thereof), torque, resistivity and flowline temperature combined with results from D'exponent calculations. Also MW (mudweight) and cavings/cuttings appearance were used.

Resistivity data and Dxc data were analysed with Equipoise software by the wellsite geologist. The exact estimation of overburden pressure remains a challenge in the area, due to the lack of permeable formations and therefore the lack of direct pressure measurements. All the 'whille drilling' estimates rely on indirect methods. The lack of calibration points, as well as the lack of 'normal' compaction curves for the different overburden formations, with their different lithology (and clay mineralogy) result in a lack of absolute/certain values.

The encountered pore pressures in the overburden are believed to be very close to the most likely prognosed. The pore pressure at top reservoir (top Ile) was again very close to the P50 prognosis.

The LOT and FIT preformed in the well, are very close to the expected Fracture Gradient:

LOT at 1368m BDF, 20" casing shoe: 1.74 sg EMW

FIT at 2205m BDF, 16" liner shoe: 1.89 sg EMW

LOT at 2780m BDF, 13 3/8" casing shoe: 1.99 sg EMW

LOT at 4291m BDF, 9 7/8 casing shoe: 2.13 sg EMW

A final estimate of the pore pressure profile and fracture gradient are plotted in Figure 8.1.The final PP estimate attempts to integrate all the available data (incl. the mudlogging, wireline data, seismic velocities etc.), but is limited in some sections due to lack of actual pressure measurements.

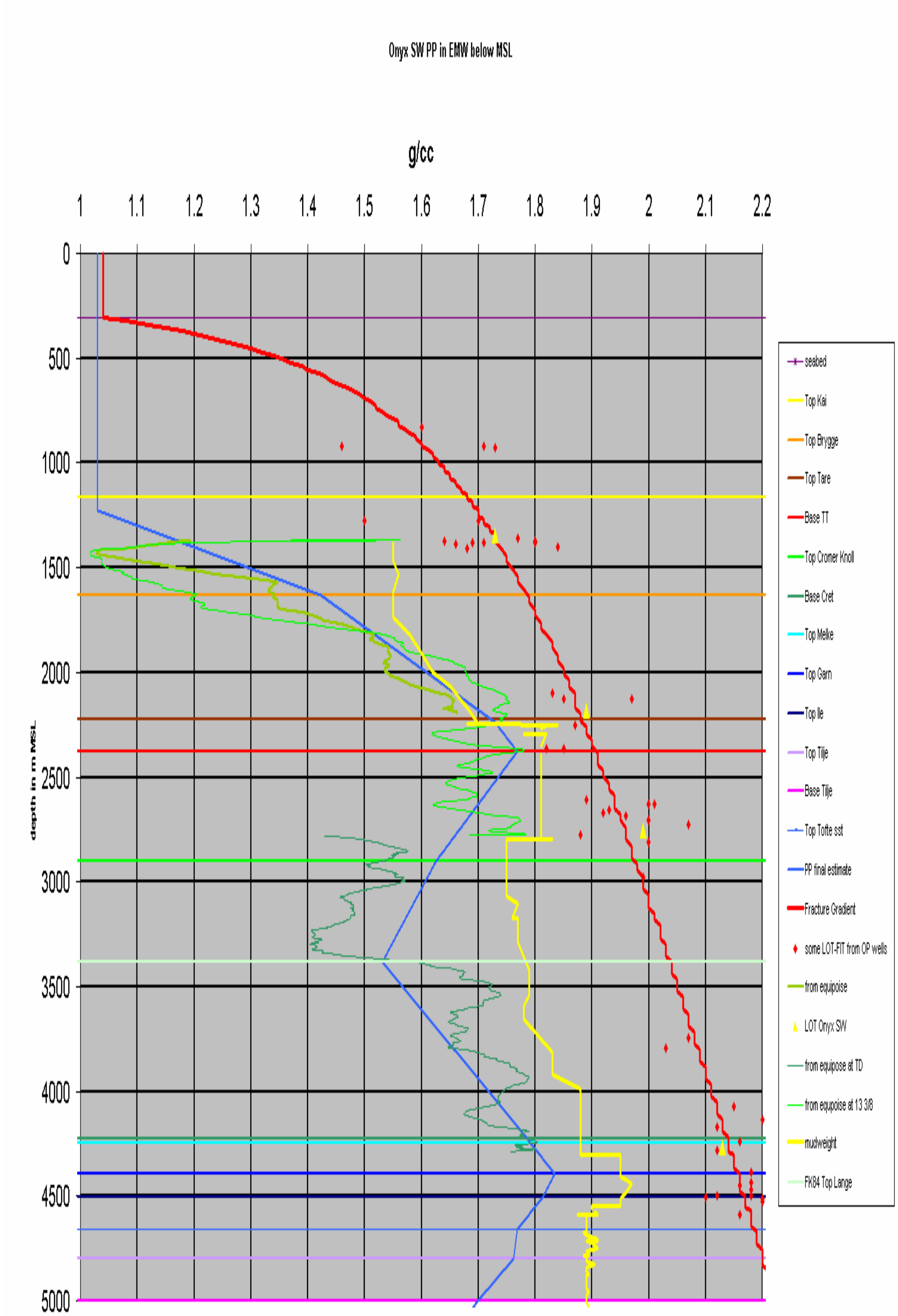

Figure 8.1 PP of well 6406/9-1 in EMW below MSL

8.2 Formation Pressure Measurements, Fluid Samples and Mini-DST's

Formation pressure was measured both in while-drilling (FPWD) mode after drilling into Garn and Ile formations, and then on wireline at TD over all reservoir formations. Wireline fluid samples and Mini-DST's were also acquired.

8.2.1 Formation Pressure While Drilling

Schlumberger's Stethoscope tool was used to acquire this data. The primary objectives of this data acquisition was to obtain representative formation pressure to enable optimisation of mud weight before coring

12 pressures were attempted, in 2 main areas: There were 3 tests in uppermost Garn and 9 tests in uppermost Ile. The tests have been classified as either "questionable", or "fair data, near formation pressure". This means that the test did not stabilise (still building), or the test stabilised to a pressure, but that pressure could well be supercharged. A further definition of "good formation pressure" was defined but no pressures achieved this quality.

8.2.2 Garn FPWD pressures

3 tests were attempted in the Garn; 1 at 4411.46m MD (Drillers depth), followed by two at 4412.02m: The first two tests failed to stabilise and are "questionable". The third and final test did reach a stabilised pressure of questionable quality. The generally poor Garn pressure build- up response helped confirm the cuttings and LWD information that indicated Garn as non-reservoir in this area. The planned coring run was subsequently abandoned.

8.2.3 Ile FPWD pressures

9 tests were attempted at four discrete depths; MD (Drillers depth)

- 4528.96 m. 2 tests; both "fair data, near formation pressure"
- 4533.62 m. 1 test; "questionable"
- 4533.95 m. 1 test; "questionable"
- 4536.02 m. 5 tests; all "fair data, near formation pressure"

A spread of about 90 psi / >6 bar spread in the 5 pressures from the same depth point at 4536.02m. This is clearly an indication that supercharging is having an effect. However the last recorded pressure point falls very close to the extrapolated gradient from subsequent RCI pressure data

From these results the operational objectives to optimise the mud weight were met, as the mud weight was lowered from 1.95 g.cc to 1.9 g.cc.

Table 8.1 documents the FPWD results. A detailed time breakdown of the operation is available in appendix C. The results are reported in Reference 10.

Test No.	Test MD	Test TVD	Test Type	Remarks	Gauge Name	Formation Pressure	Last-Read Buildup	Last-Read Buildup Invest.	Mud Before	Mud After	Temp.	Time & Date	Circ Rate	Time After Drilling
	METER	METER				psia	psia	psia	psia	psia	°C		lpm	hr
1	4411,46	4410,80	Test Type B	Both Tests Building and Not Stabilized	AQAP	6975,80	6975,80	7181,7	12858	12860	104,3	11.12.2004 05:24	1800	7,9
2	4412,02	4411,30	Test Type B	Both Tests Building and Not Stabilized	AQAP	6853,20	6853,20	7052,4	12865	12870	104,6	11.12.2004 06:40	1800	9,03
3	4412,02	4411,30	Test Type A	Invest Pretest Building, Not Stabilized, Final No Draw Down but stabilized at a pressure.	AQAP	11043,30	11043,30	7138,1	12759	12775	103	11.12.2004 07:26	1400	9,79
4	4528,96	4528,20	Test Type B	Invest Pretest near stabilized, Final loose and regain seal then Build Up, stabilized. Supper Charged.	AQAP	11649,50	11698,10	11684,2	13071	13066	108,4	12.12.2004 11:27	1785	5,03
5	4528,96	4528,20	Test Type A	Invest Pretest Stabilized, no Final Pretest, Used Invest Mobility. Supper Charged.	AQAP	11682,90		11682,9	12980	12973	107,3	12.12.2004 11:56	1425	5,52
6	4533,62	4532,90	Test Type B	Both Tests Building and Not Stabilized	AQAP	8068,20	8068,20	7969,3	13106	13077	110,2	12.12.2004 13:19	1735	5,71
7	4533,95	4533,20	Test Type B	Both Tests Building and Not Stabilized	AQAP	7768,10	7768,10	8503,7	13099	13089	109,2	12.12.2004 13:51	1770	6,21
8	4536,02	4535,30	Test Type B	Both Tests Stabilized, Supper Charged.	AQAP	11696,70	11696,70	11692	13084	13082	111,1	12.12.2004 15:38	1800	6,41
9	4536,02	4535,30	Test Type A	Both Tests Stabilized, Less Supper Charged then tests 8.	AQAP	11677,50	11677,50	11679,4	12990	12996	108,4	12.12.2004 16:07	1440	6,89
10	4536,02	4535,30	Test Type B	Both Tests Stabilized, Less Supper Charged then tests 9.	AQAP	11634,20	11623,60	11631,2	12714	12724	108,9	13.12.2004 17:33	1785	32,33
11	4536,02	4535,30	Test Type A	Both Tests Stabilized, Less Supper Charged then tests 10.	AQAP	11623,90	11623,90	11628,8	12626	12623	107,2	13.12.2004 17:52	1420	32,64
12	4536,02	4535,30	Test Type A	Both Tests Stabilized, Less Supper Charged then tests 11. Closest to formation Pressure	AQAP	11613,70	11613,70	11615,1	12302	12288	106,8	13.12.2004 18:26	0	33,21

Table 8.1 Overview of FPWD results

8.2.4 Wireline (RCI) Formation Pressures.

Pressures were obtained in the Ile, Tofte and Tilje formations. An overview of the complete set of pressure points taken for the Ile, Tofte and Tilje is presented in Table 8.2.

Run	Pre-test No. on Run	Reservoir	Log Depth mAHRT	Depth mTV MSL	Gauge Res. Pressure (Bar)	Mobility md/cp	Key Point	Comment	How stable?	Interpretation
2C	1	Ile	4576,1	4551,8	0,000	0,00		Tight abort	Still building	Not representative
2C	2a	Ile	4577,8	4553,5	0,000	0,00		Tight abort	Still building	Not representative
2C	2b	Ile	4577,8	4553,5	0,000	0,00		Tight abort	Still building	Not representative
2C	3	Ile	4577,8	4553,5	0,000	0,00		Tight abort	Still building	Not representative
2C	4	Ile	4593,2	4568,9	0,000	0,00		Tight abort - file not complete	Still building	Not representative
2C	5	Ile	4597,4	4573,1	801,854	1,00		Good test	repeated 3 times	40 mins to build - may be a little unreliable
2C	6a	Ile	4603,1	4578,8	801,368	6,80		1st dd- good	Repeated twice	Superceded by final dd
2C	6b	Ile	4603,1	4578,8	801,414	9,60		2nd dd- good	Repeated 3 times	Superceded by final dd
2C	6c	Ile	4603,1	4578,8	801,468	13,30	Yes	3rd dd- good	Repeated 3 times	Good pressure
2C	7	Ile	4610,8	4586,5	801,823	1,80	Yes	Good test	Repeated more than 3 times	30 mins to build - may be a little unreliable
2C	8	Ile	4615,0	4590,7	673,510	0,00		Tight abort	Still building	Not representative
2C	9a	Ile	4617,0	4592,7	801,805	7,80		1st dd- good	Repeated three times	Superceded by final dd
2C	9b	Ile	4617,0	4592,7	801,792	11,70	Yes	2nd dd- good	Repeated twice	Good pressure
2C	10	Ile	4623,5	4599,2	802,072	108,00	Yes	Good test	Repeated 4 times	Good pressure
2C	11a	Ile	4625,3	4601,0	802,590	134,30		1st dd- good	Stable but did not repeat	Superceded by final dd
2C	11b	Ile	4625,3	4601,0	801,824	541,20		2nd dd- good	Repeated 4 times	Superceded by final dd
2C	11c	Ile	4625,3	4601,0	801,892	353,20	Yes	3rd dd- good	Repeated 5 times	Good pressure
2C	12a	Ile	4623,5	4599,2	802,296	9,50		1st dd- good	Stable but did not repeat	Superceded by final dd
2C	12b	Ile	4623,5	4599,2	802,149	400,10		2nd dd- good	Stable but did not repeat	Superceded by final dd
2C	12c	Ile	4623,5	4599,2	802,191	314,00	Yes	3rd dd- good	Repeated 6 times	Good pressure
2C	13a	Ile	4625,3	4601,0	801,614	66,70		1st dd- good	Stable but did not repeat	Superceded by final dd
2C	13b	Ile	4625,3	4601,0	802,248	44,90	Yes	2nd dd- good	Repeated 3 times	Good pressure
2C	14	Ile	4628,5	4604,2	802,328	0,90		good test	oscillating around final pressure	Take this pressure but it did take around 20 mins to build'
2C	15	Ile	4617,0	4592,7	801,922	5,50	Yes	good test	Repeated 3 times	Good pressure
2C	16	Ile	4632,0	4607,7	0,000	0,00		Tight abort	Still building	Not representative
2C	17a	Ile	4562,2	4537,9	0,000	0,00		1st dd- not stabilised	Did not stabilise - still building	20 mins to build - may be a little unreliable
2C	17b	Ile	4562,2	4537,9	801,098	0,90		2nd dd- not stabilised/supercharged?	Not stabilised - still building	40 mins to build - unreliable
2C	18	Ile	4553,0	4528,7	0,000	0,00		Tight abort	Still building	Not representative
2C	19	Ile	4552,1	4527,8	0,000	0,00		Tight abort	Still building	Not representative
2C	20	Ile	4531,5	4507,3	0,000	0,00		Tight abort	Still building	Not representative
2C	21	Ile	4533,5	4509,3	0,000	0,00		Tight abort	Still building	Not representative
2C	22	Tofte	4681,5	4657,1	0,000	0,00		Tight abort	Still building	Not representative
2C	23	Tofte	4682,0	4657,6	808,371	53,00	Yes	Good test	Repeated 3 times	Good pressure
2C	24a	Tofte	4685,5	4661,1	808,191	2,20		1st dd- good not stable	Repeated twice	Superceded by final dd
2C	24b	Tofte	4685,5	4661,1	808,457	1,90	Yes	2nd dd- good not stable	close to stable but did not repea	Good pressure but it did not quite stabilise
2C	25a	Tofte	4686,8	4662,4	808,215	2,40		1st dd- good	Repeated twice	Superceded by final dd
2C	25b	Tofte	4686,8	4662,4	808,475	2,10	Yes	2nd dd- good	Repeated 3 times	Good pressure
2C	26a	Tofte	4687,7	4663,3	808,396			1st dd- good not stable	Not stabilised - still building	Superceded by final dd
2C	26b	Tofte	4687,7	4663,3	808,470			2nd dd- good not stable	Not stabilised - still building	Superceded by final dd
2C	26c	Tofte	4687,7	4663,3	808,505	2,30	Yes	3rd dd- good	Repeated 3 times	Good pressure
2C	27	Tofte	4710,0	4685,6	0,000	2,10		Tight abort	Still building	Not representative
2C	28	Tofte	4710,5	4686,1	0,000	1,20		Tight abort	Still building	Not representative
2C	29a	Tofte	4710,2	4685,8	809,296	2,20		1st dd- good not stable	Not stabilised - still building	Superceded by final dd
2C	29b	Tofte	4710,2	4685,8	809,417	0,80		2nd dd- good	Repeated 3 times	Good pressure - did take 15 mins to build
2C	30a	Tilje	5024,0	4998,1	832,893	10,20		1st dd- good not stabilised	Not stabilised - still building	Superceded by final dd
2C	30b	Tilje	5024,0	4998,1	833,034	22,80		2nd dd- good not stable	Not stabilised - still building	Not representative
2C	31a	Tilje	5023,0	4997,1	832,990	0,00		File not available	Not stabilised - still building	
2C	31b	Tilje	5023,0	4997,1	832,920			File not available	Not stabilised - still building	
2C	32	Tilje	5023,0	4997,1	832,940			File not available	Not stabilised - still building	
2C	33	Tilje	5022,0	4996,1	0,000	0,00		File not available - lost seal		
2C	34a	Tilje	5015,0	4989,2	832,630	21,30		1st dd- good not stable	Not stabilised - still building	Superceded by final dd
2C	34b	Tilje	5015,0	4989,2	832,619	7,10	Yes	2nd dd- good	Repeated 2 times	Good pressure
2C	35	Tilje	5010,0	4984,2	0,000	0,40		Tight abort	Still building	Not representative
2C	36a	Tilje	5010,5	4984,7	832,876	0,00		dd1 Good - not stabilised	Not stabilised - still building	Not representative
2C	36b	Tilje	5010,5	4984,7	832,456	Not calculated		dd with pump-good not stable	Not stabilised - still building	Not representative
2C	37a	Tilje	5020,0	4994,1	833,126	5,60		dd1 Good - not stabilised	Not stabilised - still building	Not representative
2C	37b	Tilje	5020,0	4994,1	832,945	Not calculated	Yes	dd with pump-good	Repeated 5times	Good pressure
2C	38a	Tilje	5007,0	4981,2	0,000	0,00		dd1 - still building	Not stabilised - still building	Tight
2C	38b	Tilje	5007,0	4981,2	832,263	Not calculated	Yes	dd with pump-good	Repeated 5times	Good pressure
2C	39	Tilje	4997,0	4971,3	831,875	Not calculated		dd with pump-good not stable	Not stabilised - still building	Not representative
2C	40	Tilje	4834,0	4809,2	0,000	0,00		Lost seal	Lost seal	

Run	Pre-test No. on Run	Reservoir	Log Depth mAHRT	Depth mTV MSL	Gauge Res. Pressure (Bar)	Mobility md/cp	Key Point	Comment	How stable?	Interpretation
2D	1	Ile	4623,5	4599,2	801,986	Not calculated	Yes	Good test	Repeated 6 times	Good pressure
2D	2	Ile	4623,5	4599,2	801,978	Not calculated	Yes	Good test	Repeated 6 times	Good pressure
2D	3a	Ile	4625,4	4601,1	802,025	Not calculated	Yes	Good test- pre-sample	Repeated 3 times	Good pressure
2D	3b	Ile	4625,4	4601,1	802,152	Not calculated	Yes	Good test- post-sample	Repeated 3 times	Good pressure
2D	4a	Tofte	4682,1	4657,7	808,239	2,30	Yes	Good test- pre-sample	Repeated 3 times	Good pressure
2D	4b	Tofte	4682,1	4657,7	808,405	11,30	Yes	Good test- post-sample	Repeated 3 times	Good pressure
2D	5a	Tilje	5021,9	4996,0	832,698	Not calculated		ignore	Not stable	Not representative
2D	5b	Tilje	5021,9	4996,0	832,877	375,40	Yes	Good test- pre-sample	Repeated 4 times	Good pressure
2D	5c	Tilje	5021,9	4996,0	832,925	395,00	Yes	Good test- post-sample	Repeated 6 times	Good pressure
2D	6	Tilje	4834,0	4809,2	0,000	0,00		Tight abort	Still building	Not representative
2D	7	Tilje	4833,5	4808,7	0,000	0,00		Tight abort	Still building	Not representative
2D	8	Tilje	4890,8	4865,8	0,000	0,00		Tight/pumped	Still building	Not representative
2D	9	Tilje	4900,0	4874,9	830,030	0,00		Tight -not stabilised	Still building	Not representative
2D	10a	Tilje	4912,0	4886,8	835,833	Not calculated		dd1 - Supercharged	Still building	Not representative
2D	10b	Tilje	4912,0	4886,8	832,228	0,80		dd2 - good	repeated 4 times	Took 15 mins to build - may be unreliable
2D	10c	Tilje	4912,0	4886,8	832,424	0,60		dd3 - good	Repeated 3 times	20 mins to build - may be a little unreliable
2D	11	Tilje	4935,0	4909,7	835,510	0,00		Tight - supercharged	Still building	Not representative
2D	12a	Tilje	4908,5	4883,4	831,805	18,00		dd1 - good test	repeated 3 times	Superceded by final dd
2D	12b	Tilje	4908,5	4883,4	831,850	14,30	Yes	dd2 - good	Repeated 4 times	Good pressure
2D	13a	Tilje	4890,0	4865,0	0,000	0,00		Tight abort	Still building	Not representative
2D	14a	Tilje	4891,8	4866,8	832,880	0,00		dd1 - good test	repeated 4 times	Superceded by final dd
2D	14b	Tilje	4891,8	4866,8	832,824	0,60		dd12- good test	not quite stable - oscillating	Took 15 mins to build-up - may be a little unreliable
2D	15a	Tilje	4899,5	4874,4	834,660	0,00		dd1 - supercharged	not stable - still building	30 mins to reach pressure
2D	15b	Tilje	4899,5	4874,4	833,910	0,00		dd12- supercharged	not stable - still building	unreliable - 60 mins to get to pressure
2G	1a	Tilje	4908,5	4883,4	831,799	0,00	Yes	1st dd- pre-sample good not stable	Not stabilised - still building	Superceded by final dd
2G	1b	Tilje	4908,5	4883,4	831,767	Not calculated	Yes	2nd dd- pre-sample good not stable	Close to stable - repeated twice	Good pressure but it did not quite stabilise
2G	1c	Tilje	4908,5	4883,4	831,884	Not calculated	Yes	1st dd- post-sample good not stable	Close to stable - repeated twice	Good pressure but it did not quite stabilise
2H	1	Tilje	5022,0	4996,1	832,908	11,20	Yes	Good test	Repeated 5 times	Good pressure
2H	2	Tilje	5020,0	4994,1	832,793	3,90	Yes	Good test	Repeated 5 times	Good pressure
2H	3a	Tilje	5015,0	4989,2	832,585	4,60		dd1 - good not stable	Not stabilised - still building	Superceded by final dd
2H	3b	Tilje	5015,0	4989,2	832,693	6,50	Yes	dd2-good test	Repeated 6 times	Good pressure
2H	4	Tilje	5010,0	4984,2		0,00		Tight/abort	Still building	Not representative
2H	5	Tilje	5010,5	4984,7	832,521	0,00		good test	table repeated twice - 20 minut	Good pressure but it did not quite stabilise
2H	6	Tilje	5007,0	4981,2	0,000	0,00		Tight/abort	Still building	Not representative
2H	7	Tilje	4997,0	4971,3	0,000	0,00		Tight/abort	Still building	Not representative
2H	8a	Tilje	5023,0	4997,1	832,810	316,80		dd1 -good test	Repeated twice	Superceded by final dd
2H	8b	Tilje	5023,0	4997,1	832,903	392,90	Yes	dd2 -good test	Repeated 5 times	Good pressure
2H	9a	Tilje	5017,0	4991,1	832,498	0,00		dd1 - good not stable	Not stabilised - still building	Superceded by final dd
2H	9b	Tilje	5017,0	4991,1	832,773	46,00	Yes	dd2-good test	Repeated 4 times	Good pressure

Table 8.2 Overview of wireline (RCI) formation pressures

8.2.5 Wireline (RCI) Fluid Sampling

The second run of the RCI (Run 2D) was the key run for targeting samples from the Ile, Tofte and Tilje. An additional sample depth was tested in the Tilje in Run 2G. In total four sample depths were tested (1 Ile, 1 Tofte and 2 Tilje) and a total of 15 sample chambers were recovered with fluid samples. An overview of the samples recovered is given in Table 8.3.

Summary of RCI sample bottles from Onyx SW															
Shell Onyx S.W.				Well : 6406/9-1											
No.	Run	Sampling Depth (MD RKB)	Formation Name	Fluid type	Reservoir Pressure (Bar)	Reservoir Temp (Deg C)	Carrier Position	Bottle Type	Bottle Size (cc)	Bottle Serial No.	Opening Pressure (bara)	Opening Temp.(C)	Final Pressure on leaving rig (bara)	Final Temp. in tank(C)	Comments
1	2D	4625,5	Ile	Gas	802,1	161,9	Upper 1	PVT	840	10056340	< 5	8,9	Empty	Empty	Attempted to analyse but found to be empty
2	2D	4625,5	Ile	Gas	802,1	161,9	Lower 6	PVT	840	369214	420	8,8	Empty	Empty	Analysed on rig and remaining sample transferred to Bottle PT 2122
3	2D	4682,1	Tofte	Gas	808,4	162,8	Upper 2	PVT	840	10056346	370	9,9	360	5	
4	2D	4682,1	Tofte	Gas	808,4	162,8	Lower 1	PVT	840	369212	360	8,8	180	5	nalysed on ri
5	2D	5021,9	Tilje	Gas	832,9	173,3	Upper 6	PVT	840	10056348	410	8,9	80	5	nalysed on ri
6	2D	5021,9	Tilje	Gas	832,9	173,3	Lower 2	PVT	840	369213	<5	8,6	Empty	Empty	Attempted to analyse but found to be empty
7	2D	4625,5	Ile	Gas	802,1	161,9	Upper 3	SPS	450	10056448	340	5,9	340	5	
8	2D	4625,5	Ile	Gas	802,1	161,9	Upper 5	SPS	450	10075875	480	5,8	480	5	
9	2D	4682,1	Tofte	Gas	808,4	162,8	Upper 4	SPS	450	10056453	490	6,3	480	5	
10	2D	4682,1	Tofte	Gas	808,4	162,8	Lower 3	SPS	450	10056370	490	6,2	490	5	
11	2D	5021,9	Tilje	Gas	832,9	173,3	Lower 4	SPS	450	10056373	510	5,7	510	5	
12	2D	5021,9	Tilje	Gas	832,9	173,3	Lower 5	SPS	450	10056392	410	6,2	Empty	Empty	nalysed on R
13	2G	4908,5	Upper Tilje	Gas	831,8	170,5	Tank 4	SPS	450	10056425	490	12,7	490	9,5	
14	2G	4908,5	Upper Tilje	Gas	831,8	170,5	Tank 5	SPS	450	10056426	490	12,4	490	9,5	
15	2G	4908,5	Upper Tilje	Gas	831,8	170,5	Tank 1	PVT	840	10047689	330	11,9	170	9,5	nalysed on ri

Table 8.3 Summary of RCI sample chambers from well 6406/9-1

Two types of sample chambers were used: seven normal PVT sample chambers (840 cc) and eight nitrogen charged chambers (SPS, 450 cc). All normal PVT chambers were overpressured downhole with the pump. In general the opening pressures of the SPS samples were around 50-100 bar higher than the PVT bottles. This demonstrated the limited impact of the nitrogen and in these cases only 450 cc samples could be retrieved. The quality of the samples was not believed to be jeopardised (given that the fluid is a lean gas condensate).

At least one sample chamber per sample depth was analysed by Petrotech on the rig. The results were then corrected for oil based mud contamination by Dewpoint. All remaining samples were transported to Reslab for further analysis. A summary is given below.

Reservoir Pressure (Bar)	Reservoir temperature (Deg. C)	OBM Contamination (wt% stock tank oil)	GOR (Sm3/m3)	Dewpoint (Bar)	H2S (PPM)	CO2 (Mol %)	Density at RC's (g/cc)
Ile – sample depth: 4625.5 m AHBDF:							
802.1	161.9	58%	33865	320	1-2	6.7%	0.293
Tofte – sample depth: 4682.1 m AHBDF:							
808.4	162.8	62%	9361	426	6	6.7%	0.316
Lower Tilje – sample depth: 5021.9 m AHBDF:							
832.9	173.3	66%	20939	391	3-4	6.3%	0.296
Upper Tilje – sample depth: 4908.5 m AHBDF:							
831.8	170.5	63%	10459	390	36	7.3%	0.324

Table 8.4 RCI fluid sampling summary

8.2.6 Overview of Mini DST's

The main results from each mini-DST are presented below. A comprehensive Baker Atlas evaluation of the mini DST's is available as a separate report (Baker Atlas RCI Post job report: Mobility prediction Mini DST analysis and Sampling summary).

Mini DST No	Depth (m AHBDF)	Run	Formation	Comments
1	4552.0-4553.0	2E	Upper Ile	Very low permeability. Build up not come out of tool storage. Unreliably high final build up pressure.
2	4624.0-4625.0	2E	Lower Ile	Very high permeability. Unable to create large enough DD for build-up / Kh interpretation.
3	4562.4-4563.4	2F	Upper Ile	Build up just out of tool storage. <1 mD. No gas breakthrough.
4	4683.5-4684.5	2F	Tofte	Interpretation uncertain. Gas breakthrough. Unclear hump in log-log derivative subject to interpretation (tool or formation response).

Table 8.5 Summary of mini DST's.

8.3 Temperature

The temperature measured on the different openhole wireline logging runs are listed below

Pass	Date logged	Interval logged (m)	Log Acquired	Operation Time (hrs)*	Max BHT (°C)	Time since last Circ. (hrs)
1A	25/10/04	4308 - 2777 (DSI through casing)	EMS-DSI-GPIT-AIT-GR-ACTS	/	141	26
1B	26/10/04	4308 – 2777(GR surface)	LDS-APS-HGNS-ACT	/	146	41
2A	02/02/05	4291 – 5058	EMS-DSI-GPIT-AIT-GR-ACTS	/	177	85.16
2B	03/02/05	4291 – 5058	CMR+-LDS-APS-ECS-HGNS-ACTS	/	180	104.5
2C**	03/02/05 BA	4500 - 5024	RCI pressure	2	181	143
2D	07/02/05 BA	4625.5 – 5022	RCI Samples & pretests	2	177	45
2E	09/02/05 BA	4522 – 4620	2 RCI mini-DSTs only	/	166	80
2F	10/02/05 BA	4563 – 4684	2 RCI mini-DSTs only	/	169	115
2G	14/02/05 BA	4908.5 – 4909	RCI mini-DSTs (failed) and sample	8	170	27
2H	15/02/05	5007 – 5022	RCI mini-DST (failed) & pre tests	/	174	42
2I	16/02/05	4300 – 5075	Earth Imager	8	168	52
2I	16/02/05	4300 – 5075	Earth Imager	8	158	59
2I	16/02/05	4300 – 5075	Earth Imager	8	172	68
2J***	17/02/05	1500 - 5075	VSP	/	179	/
2K	18/02/05	4682 - 5023	RCOR	8	180	100

* The circulation period prior to pumps off is not known for all runs

** Highest recorded wireline temperature 181 ºC.

*** VSP temperature was found inside jobnotes on final CD

Table 8.6 Temperature data of well 6406/9-1

8.3.1 Temperatures from pretest and samples

Figure 8.2 shows temperatures from RCI pretests and samples, logging runs, mini-DST's, and DST's.

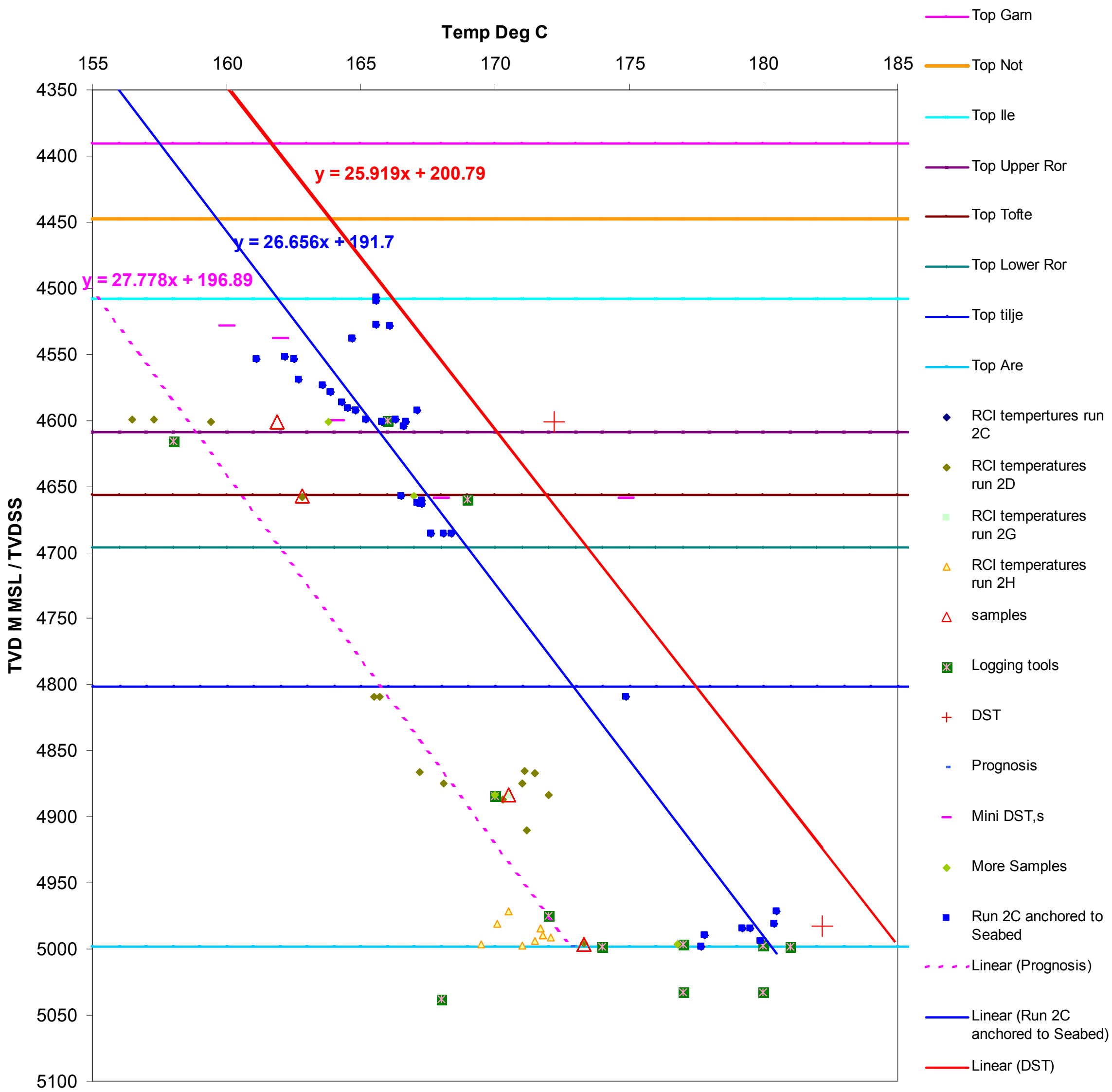

Figure 8.2 Temperature as a function of TVDSS

9 PETROPHYSICAL EVALUATION

9.1 M/LWD Data

An extensive amount of M/LWD data was acquired by Schlumberger Drilling & Measurements during 17 runs in the well. The main purposes were:

- To provide information on hole quality and drilling environment (ARC calliper, APWD).
- To provide data over intervals not planned to be logged with wireline (GR/Res in overburden, and in deepened section of 8 ½ hole).
- To provide early stratigraphic information and other data required for operational decisions, primarily core point selection (GR/Res/FPWD) and mud weight optimisation for coring (FPWD).
- To provide redundancy & safeguard reservoir data acquisition objectives (GR/Res/Density-neutron from Ecoscope).

An ARC phase resistivity calliper was measured in 17.5"x20" and 14.5x17.5" sections to check that the hole opener was working as required. This was a new technology deployment and the data met the desired objectives.

A planned core in the Garn was dropped. The formation was found to be shaly/tight from cuttings and ARC GR/RES data. The mud weight was reduced for core intervals after successful formation pressure data while drilling (FPWD) data was acquired (section 8.2.1).

Annular Pressure While Drilling information and directional/survey data were also obtained. A field trial of the new technology Schlumberger Ecoscope (formerly DVD) LWD tool was undertaken. Data was acquired over Melke, Garn, Ile, Tofte and the upper part of the Tilje. This data was mostly acquired while reaming to bottom before commencing drilling new hole (deepening the 8 1/2" hole); the tool failed after 31m of new formation had been drilled. The density and resistivity data from the Ecoscope overlaid the wireline density closely in all but a few select intervals. The neutron data overestimated in comparison to the wireline. In general, all the M/LWD logs functioned as required.

The M/LWD logs were shifted to the reference WL logs.

Table 9.1 provides an overview of the M/LWD runs. Table 9.2 provides the wireline runs of the well.

Logging String	Date Logging ceased	Bit Run No.	LWD/MWD Data. Comments	Start Depth log	Stop Depth log
MWD (realtime GR)	16/Jun/2004	**3**	36" Hole Real time recorded at surface. Lost last 24m of data	346	384
MWD (realtime GR)	24/Jun/2004	**4**	26" Hole	391	1363
MWD/ARC_B	04/Jul/2004	**5**	17.5"x20" Hole (GR-Res-Cal)	1367.8	2235
MWD/ARC_B	19/Jul/2004	**6,7**	14.5"x17.5" Hole (GR-Res-Cal)	2231	2784
MWD/ARC_A	23/Nov/2004	**8,9.10**	12.25" Hole (GR_Res)	2779.6	4291
MWD/ARC_A/TST6-Stethoscope	9-12/Dec/2004	**11**	8.5" Hole(GR_Res_FPWD) 12 TST points attempted. Mixture of drilling & reaming data	4289	4541.2
MWD/ARC_A	19/Dec/2004-22/01/05	**12-15**	8.5" Hole (GR_Res) Mixture of drilling & reaming data	4541.2	4591
MWD/DVD-Ecoscope	26/Jan/2005	**16**	8.5" Hole (GR_Res, Dens,Neut) Field Test. Ream data to 4874m then drilling to 4878m	4291	4878
			MWD Tool failed at 4881m.Power to Ecoscope lost (no battery).		
MWD/ARC_A	06/Feb/2005	**17**	8.5" Hole (GR_Res) tool failed 5073m	4865	5068

Table 9.1 M/LWD data from well 6406/9-1

Logging String	Date Logged	Run No.	Wireline Data. Comments	Start Depth	Stop Depth
EMS-MSIP-GPIT-LDS-APS-HGNS-ACTS	20/Jul/2004		Cancelled due to hole conditions		
AIT-DSI-IS-EMS-GR-ACTS-GPIT	25/Nov/2004	**1A**	Tool zeroed incorrectly (1hr lost time) DSI through casing to 2320	2777 (GR sur)	4308
LDS-APS-HGNS-ACTS-ECRD	26/Nov/2004	**1B**	Plus GR through casing to surface	2777	4308
AIT-DSI-IS-EMS-GR-ACTS-GPIT	02/Feb/2005	**2A**	Repeat AIT over bottom section due to tool spiking	4291	5058
CMR-LDS-APS-ECS-HGNS-ACTS-ECRD	03/Feb/2005	**2B**	No repeat due to hole/tool conditions	4291	5058
RCI pressure	04/Feb/2005	**2C**	40 pretest depths , 61 drawdowns 181.4DEG C BHT.	4500	5024
RCI Samples	08/Feb/2005	**2D**	3 sample points (12 bottles) and 11 pretest depths	4625.5	5022
RCI mini-DST	10/Feb/2005	**2E**	2 mini-DST, packer failed on 3rd setting.	4522	4620
RCI mini-DST	11/Feb/2005	**2F**	2 mini-DST, packer failed on 3rd setting.	4563	4684
RCI mini-DST	15/Feb/2005	**2G**	Packer fail on 1st test.Take sample with probe	4908.5	4909
RCI mini-DST	15/Feb/2005	**2H**	Packer fail on 1st test.Take 10 pretests with probe	5007	5022
Earth Imager	16/Feb/2005	**2I**	First run failed after 83m,second after 112m, 3rd run pad 6 failed	4300	5075
VSP	17/Feb/2005	**2J**		1500	5075
RCOR	18/Feb/2005	**2K**	11 attempted - 10 recovered before tool failure	4684	5023
MFC-READ	06/Mar/2005	**3A**		326	4184
CBL	06/Mar/2005	**3B**	For 7" liner & 9 7/8" csg. Delivered as 2 hardcopies-1 for each string	3510	5047
MFC-READ/Junk Basket	16/Mar/2005	**4A**		4100	5020
CBL	16/May.2005	**5A**	To Check Cement squeeze quality	3096	3813.5

Table 9.2 Wireline data from well 6406/9-1

9.2 Wireline logs

Wireline data was acquired in the 12 ¼" and 8 ½" hole sections (Table 9.2). In general, the data acquisition requirements as outlined were fulfilled. The purpose was to acquire sufficient data to allow a thorough evaluation of all (potential) reservoir sections penetrated by the well, including; net sand determination, porosity and hydrocarbon saturation. Formation pressure, fluid type / distribution and productivity information was obtained. Seismic and geological data were also acquired to fulfil future data needs for seismic inversion and modelling of further reservoir potential in the licence area.

The suite of logs across the reservoir sections includes all the key logs Spectral GR – Density – Neutron – Resistivity and Sonic (compress ional and shear). In addition, NMR, ECS, borehole Images, VSP, rotary sidewall cores, wireline formation pressures, samples and dual packer tests. Runs 1A, 1B, 2A, 2B were Schlumberger, with all subsequent runs operated by Baker Atlas.

All tools were subject to rigorous QA/QC and heat checking procedures prior to the job. All tools were individually heat tested to 175 ºC.

Higher than expected temperatures were encountered near TD (181 ºC) which exceeded the tool temperature rating of 175 ºC. This was because the well was deepened past the planned TD's in addition to a steeper than prognosed temperature gradient. Significant problems were encountered at various stages of the logging operations, resulting in down-time and the need for several re-runs.

Comments on the wireline logging and data quality from the various sections are summarised below. A longer summary can be found in Reference 1.

9.2.1.1 14.5"x 17.5" Section.

Logging was planned in this section but due to poor hole conditions it was decide to cancel logging and run casing

9.2.1.2 12-1/4" Section.

Complete logs were acquired across the section. The DSI log of run **1A** was continued up through casing to 2320m. Visual analysis of the waveform data allows QC of the compressional sonic data. For most of the log there seems to be a strong formation arrival. Towards the top of the log the pick seems to move to an earlier (probably casing) arrival as the formation response weakens. If necessary it may be possible to reprocess or edit the data to get a better compressional sonic estimate over the upper part of the sonic-through-casing data.

A GR through casing to near surface was acquired at 3600 m/hr in run **1B**. The data was highly attenuated, with little character. It was not used in depth matching the LWD logs. Potentially a slower logging speed could increase the data quality.

9.2.1.3 8-1/2" Section.

Due to the HTHP nature of the well and the requirement for inflatable packers on the formation testing run, it was decided to use Baker Atlas' RCI tool as opposed to the Schlumberger MDT. Hence Schlumberger logged the first two runs and Baker Atlas performed the rest of the logging. Both contractors had a full complement of equipment (including winch unit) and personnel.

The first run **(2A**) was the AIT/DSI/GPIT/EMS/GR/LEH. The main logging pass was started with the AIT not functioning however it started working again above 4800 m and functioned normally for the rest of the pass. The AIT was re-run from the casing shoe to TD and back, without failure. It was thought that the failure was caused by the temperature being above the tool specifications. A repeat section was performed without opening the EMS calipers due to a failure. A qualitative top of cement log was attempted in the 9 7/8" casing but the results proved inconclusive.

Run **(2B)** was CMR/LDS/APS/ECS/HNGS/ACTS/LEH. The APS and HNGS failed while logging up. Logging continued with the CMR/LDS/ECS with the HNGS functioning again above 4840 m. Towards the top of the log overpull was experienced, the surface cable tension coming close to its safe limit (9700 lbs). It was decided to RIH in order to perform the APS/ HGNS log again, which was obtained without incident.

For runs **Runs 2C – 2H** the Baker Atlas Reservoir Characterisation Instrument (RCI) was used for the wireline pressure/sampling/testing programme, as there was more confidence that this tool could successfully deploy dual packers for mini-DST tests in the high temperatures prognosed.

The operation undertaken by the RCI was the most challenging job this tool has encountered to date. The challenges included: operating for long periods of time in high pressures and temperatures; sampling gas in a low permeability; oil based mud environment; attempting mini DST's with the packer module.

The maximum RCI tool temperature recorded during a pressures run was 181 ºC. While sampling the maximum temperature was 177 ºC and during mini-DSTs 174 ºC. Formation pressure was 800-830 bar

The key challenges of the RCI operation were recognised in advance. Extensive planning attempted to mitigate and manage risks as far as possible. The results of all the RCI planning work were captured in the "Recommended RCI procedures" document (Reference 9).

Run 2C

The first Baker Atlas run **(2C)** was the GR/GR/RCI/TTRM designed for pretests only using the single probe module. Two GR tools were used in case of failure due to the high temperatures. Generally pressures were taken from top down. No pre-tests were attempted in the Garn due to the results from the FPWD (all tight in Garn) and the interpretation from the logs that Garn could be considered as non-reservoir in this well. A total of 40 pre-test depths were attempted: 21 in the Ile, 8 in the Tofte and 11 in the Tilje. Towards the end of the run (in the Tilje) problems were encountered with seal failures and the run was terminated.

Run 2D

GR/GR/RCI/TTRM was dressed for pretests and samples using the single probe module, and with 6 PVT tanks / 6 Single Phase tanks. The primary focus of this run was to obtain samples from the Ile, Tofte and Tilje. After one unsuccessful attempt to find a point to sample the Ile (lost seal), successful sampling was achieved on the Ile, Tofte and Tilje (1 sample depth each). Following this a further 11 pre-test depths were attempted on the Tilje. On completion, the sample bottles were removed (under H_2S procedures) and selected samples were analysed offshore by Petrotech.

Run 2E

GR/GR/RCI/TTRM was dressed for the Mini-DST/sample programme with the straddle packer module and the single probe modules. Two successful packer settings and mini DST's were completed, one on the Upper Ile and one on the lower Ile. However, the large volume pump (RB) failed to work during the run and all pumping had to be performed with the lower volume pump (BB). This restricted the flexibility of the mini-DST's. A third packer setting was attempted on the lower Ile but the packer failed. The run was then terminated. No sampling or pre-test depths with the probe were attempted in this run.

Run 2F

This run was operationally similar to Run 2E. The full configuration was used and two successful packer settings and mini DST's were completed. The first was on the Upper Ile and the second on the Tofte. A third packer setting was attempted on the Tilje but failed. The run was then terminated. As in Run 2E no sampling or pre-test depths with the probe were attempted.

Run 2G

GR/GR/RCI/TTRM was dressed for the Mini-DST and sampling. However, the packer failed while attempting the first setting on the Tilje. Following this a sample was successfully obtained with the probe on the middle Tilje. No further pre-tests or samples were then attempted.

Run 2H

As in Run 2G the full RCI configuration was used but the packer failed while attempting the first setting on the Tilje. Due to the uncertainty in the reliability of the pressures obtained in the Tilje in Run 2C a further 10 pre-test depths were attempted on the Tilje in this run.

Run 2I

EI/GR/TTRM encountered various problems with tool rotation and pad failure with several toolstrings. Eventually however after several attempts employing separate tools the entire open hole section was covered. The formation image data is relatively poor quality.

Run 2J

This was the rig based VSP survey using the two-level ASP tool. No good checkshots were taken whilst RIH due to casing ringing. The VSP survey started at 5075m and after 5060m the levels were taken at 20m intervals until 2800m after which checkshot were taken every 100m. A last checkshot level was taken at 1700m after which the seismic signal was again affected by excessive noise due to casing ringing.

Run 2K

This was the RCOR/GR/TTRM to take a programme of maximum 30 rotary sidewall cores. On the first descent the drilling rate was very slow and only one core (5021m) was retrieved. The coring bit was replaced with a more aggressive bit. This time two cores were taken (5016, 5007m), on the third attempt (at 5007m) the bit block assembly could not be rotated through 90 degrees into the coring position and would not return to the stored position – POOH. The toolstring was RIH again and a further 7 cores were taken before the coring block again could not be rotated further. It was decided to abandon further coring.

Runs 3A to 5A included two multi-fingered caliper runs (MFC-READ Well Services) to evaluate casing wear, and two cement bond logs to assess top of cement and cement squeeze success (Table 9.2).

9.3 Net Sand Determination

Net sand was determined for the Garn, Ile, Tofte, Tilje and Åre formations. All Garn and Åre formation encountered was non net. In the 12 ¼" section a hydrocarbon bearing interval in the Cenomanian Lange sandstone member was evaluated, and is dealt with separately in Section 9.8.1 Lange Sandstone Member.

The reservoirs are separated by the mainly shaly zones of Not and Upper/Lower Ror. The reservoirs generally consist of sands of variable thickness and quality, separated by shales and with some calcite-cemented streaks, some sands may fall into the "thin beds' category below wireline resolution. The best quality sands were found in the base Ile, Tofte and base Tilje reservoirs. The determination of net sand has concentrated on excluding the tight streaks and clear shale intervals. Suitable log cut-offs were evaluated on the basis of a broad inspection of available logs, and with reference to core and sidewall core descriptions. A Vshale cut-off was used to define net sand, with a further water saturation cut-off to define net pay:

VSH < 0.4 (excludes shales)

Sw < 70 %

Both cut-offs have been applied in * TD in drillers depth

Table 9.3.

9.4 Porosity Calculation

The porosity was calculated in two fashions, both from the density log and using a density magnetic resonance calculation (DMR). The DMR processing suggests that the density porosity is an overestimate. DMR porosity (DMRP) has been used in the final evaluation.

The DMRP calculation can be approximated by the equation (Reference 3):

*DMRP = 0.6 * Density porosity + 0.4 * TCMR*

The density is effected by the gas saturations in the good sands leading to an over estimate of porosity, while the CMR data under reads porosity in these zones. DMR processing was conducted using a density porosity (grain density from the ECS RHGR channel, fluid density 0.88 g/cc as below) and CMR porosity, to produce a gas corrected porosity (Reference 2).

A standard Density porosity was also calculated according to the equation:

$$\Phi = \frac{\rho(ma) - \rho(b)}{\rho(ma) - \rho(fl)}$$

The bulk density ρ (b) was taken from the density log.

The matrix density ρ (ma) was determined from the available core data. The average matrix density for all the core plugs is 2.68 g/cc for the Ile/Tofte and 2.69 g/cc for the Tilje which was used in the calculations.

The fluid density ρ (fl) was determined from a correlation of log density and compaction corrected core porosity. No core porosities under stress are yet available, so a compaction factor of 0.98 was assumed based on regional experience. A fluid density of 0.88 g/cc was used, which is reasonable since the well was drilled with oil based mud with a filtrate density of 0.8 g/cc.

9.5 Water Saturation Calculation

The water saturation was calculated from the Archie equation:

$$S_w = \left(\frac{R_w}{R_t * \phi_m} \right)^{1/n}$$

The true formation resistivity R_t was taken from the deep resistivity log.

The cementation exponent m and the saturation exponent n taken as

m = 2.2

n = 2.0

Since no water zones were observed in the well there remains a large uncertainty of the water resistivity Rw. Salinity values from offset wells were used:

Ile/Tofte 60000 ppm NaCl

Tilje 80000 ppm NaCl

From the above values and the temperature log obtained from the EMS tool a continuous Rw curve was calculated over the reservoir sections.

In several areas log calculated saturations correlate poorly with core Dean-Stark derived water saturations, which give a lower water fraction. There are variety of possible explanations for this discrepancy arising from uncertainties in both data sets. Refining the Archie log saturation with Rw, m,n parameters is a key aim of future data acquisition and core analysis. Factors effecting the accuracy of the core water saturation measurements include: evaporation of formation water from the core due to high temperatures, and the expansion of the pore volume due to a decrease in confining pressure

Water samples were attempted through centrifuging of 3 core samples from the Ile reservoir but no water was produced by this method.

9.6 Fluid Distribution

Hydrocarbons were interpreted from logs in the Ile, Tofte and Tilje formations. No contacts were observed in any of the formations. This is confirmed by RCI pressure and sample data. in the Ile, Tofte and Tilje. This appears to be a stacked reservoir sequence with small pressure differences between the formations. All reservoirs are highly overpressured (consistent with what was expected in this area). It is clear that the Ile, Tofte and Tilje are different pressure regimes. From the overview plot it is also apparent (using the typical gas gradient as a guide) that the all reservoirs contain gas (assuming reliable data).

9.7 Permeability

Stress corrected air permeability is here estimated using a combination of two core (this well only) based predictions from stress corrected core porosity. No stress corrections were available for this well. Porosity was corrected using an assumed multiplication factor of 0.98. Permeability was corrected using a regional relationship of 0.429*CKH^1.078

High Permeability (mD) = 10 ^ (31.276 * core por – 4)

Low Permeability (mD) = 10 ^ (14.835 * core por – 2.5274)

If High permeability > 0.7mD then High Perm, else, use low permeability.

Core permeability ranges between 0.1 and 1500 md, with most of the data in the 1-5 md range This is consistent with the permeabilities measured on the RCOR samples. As a result of the DMR processing permeability has been estimated from the CMR using the DMR porosity and the Timur-coates equation. The RCI pre-tests, mini-DST's, and full DST tests confirmed the permeability range.

In places the NMR (DMR processed) based permeability is higher than the core permeability. In general the core permeability is lower than that derived from other sources. The conventional core plugs could be damaged by the cleaning process and underestimate permeability. Special core analysis will aim to answer these questions. Because of the lack of core in the highest quality sands, this uncertainty is based around the lesser quality reservoirs.

9.8 Results

The Garn formation was shaled out and no reservoir rock observed. The interpretation confirms that Ile, Tofte and Tilje are hydrocarbon bearing with no contact observed in any of the formations but a gas down to (GDT). The average porosity, average HC saturation and permeability is shown it the table below.

The main reservoir sections (Ile and Tilje) exhibit the best properties towards the base. In the lower Ile (4618-4631mah) the average porosity was 16% and permeability was 110 mD in the lower Tilje (5018-5025 mah) in the Ile the average porosity was 21% and permeability was 105 mD .

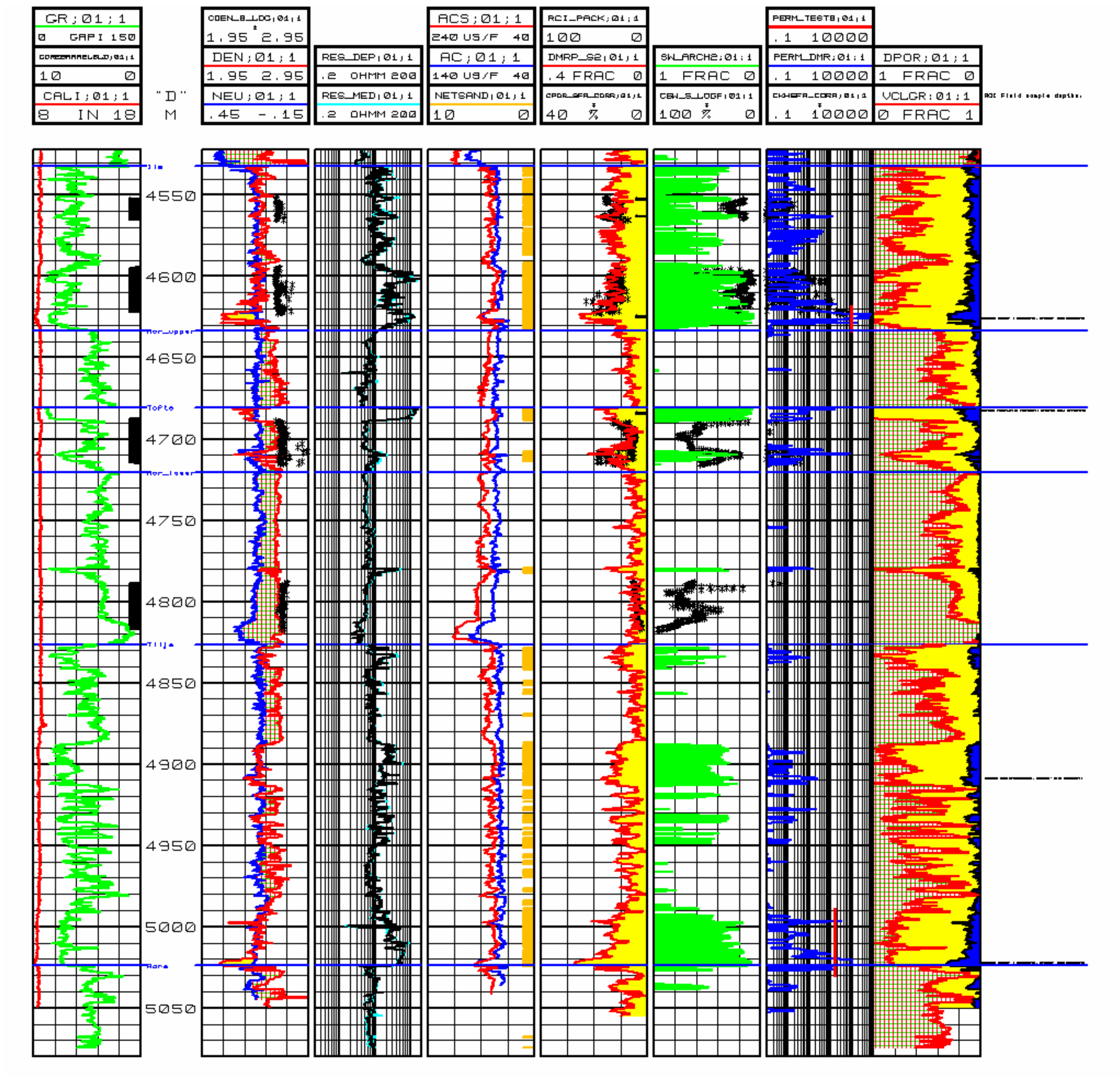

Figure 9.1 CPI plot of all reservoir formations

The results for the individual zones are summarised in the table below. No cut-offs have been used beyond those specified for net sand calculation.

Formation /	*subzone*	Top MD (M)	Base MD (M)	Top TVD MSL (M)	Base TVD MSL (M)	Gross Thickness MD (M)	Net Pay MD (M)	N/G ratio	Porosity	Water Saturation	Perm (mD)
Garn		**4414,5**	**4471,5**	**4390,3**	**4447,28**	**57**	**0**	**0**	**0**	**1**	**0**
Not		**4471,5**	**4532**	**4447,28**	**4507,76**	**60,5**	**0**	**0**	**0**	**1**	**0**
Ile		**4532**	**4634**	**4507,76**	**4609,67**	**102**	**72,2**	**0,71**	**0,134**	**0,344**	**198,6**
	Ile Upper	*4532*	*4591,5*	*4507,76*	*4567,22*	59,5	*34,3*	*0,58*	*0,127*	*0,435*	*4,2*
	Ile Lower	*4591,5*	*4634*	*4567,22*	*4609,67*	*42,5*	*37,9*	*0,89*	*0,140*	*0,270*	*374,2*
Tofte - Ror		**4634**	**4826**	**4609,67**	**4801,2**	**192**	**14,8**	**0,08**	**0,138**	**0,269**	**26,8**
	Ror_upper	*4634*	*4681*	*4609,67*	*4656,61*	*47*	*0,0*	*0,00*	*0,000*	*1,000*	*0,0*
	Tofte	*4681*	*4721*	*4656,61*	*4696,55*	*40*	*12,2*	*0,31*	*0,140*	*0,260*	*31,7*
	Ror_lower	*4721*	*4826*	*4696,55*	*4801,29*	*105*	*2,6*	*0,03*	*0,130*	*0,310*	*3,7*
Tilje		**4826**	**5024,5**	**4801,29**	**4998,9**	**198,5**	**75,6**	**0,38**	**0,130**	**0,336**	**55,1**
	Tilje Upper	*4826*	*4886*	*4801,29*	*4861,01*	*60*	*8,6*	*0,14*	*0,110*	*0,490*	*1,0*
	Tilje Middle	*4886*	*4990*	*4861,01*	*4964,54*	*104*	*37,1*	*0,36*	*0,117*	*0,401*	*1,5*
	Tilje Lower	*4990*	*5024,5*	*4964,54*	*4998,9*	*34,5*	*29,9*	*0,87*	*0,151*	*0,242*	*137,2*
Aare		**5024,5**	**5080***	**4998,9**	**5054,4**	**55,5**	**0**	**0**	**0**	**1**	**0**

* TD in drillers depth

Table 9.3 Overview of reservoir properties

9.8.1 Lange Sandstone Member

In the 12 ¼" hole section the Lange Sand Member (of the Lysing Formation) was found to be hydrocarbon bearing around 3970-4025 m. Petrophysical input parameters to porosity and hydrocarbon saturation are unconstrained. Evaluation results are shown in Figure 9.2 and Table 9.4.

NET SAND has been defined by VSH <50%. Two NET PAY calculations are defined reflecting the uncertainty in pay definition: VSH <50%, POR > 0.1, Sw < 0.6 and VSH <50%, POR > 0.1, Sw <0.4.

A standard Density porosity was calculated according to the equation:

$$\Phi = \frac{\rho(ma) - \rho(b)}{\rho(ma) - \rho(fl)}$$

The bulk density ρ (b) was taken from the density log. The matrix density ρ (ma) was assumed to be 2.67g/cc, and fluid density 0.9 g/cc.

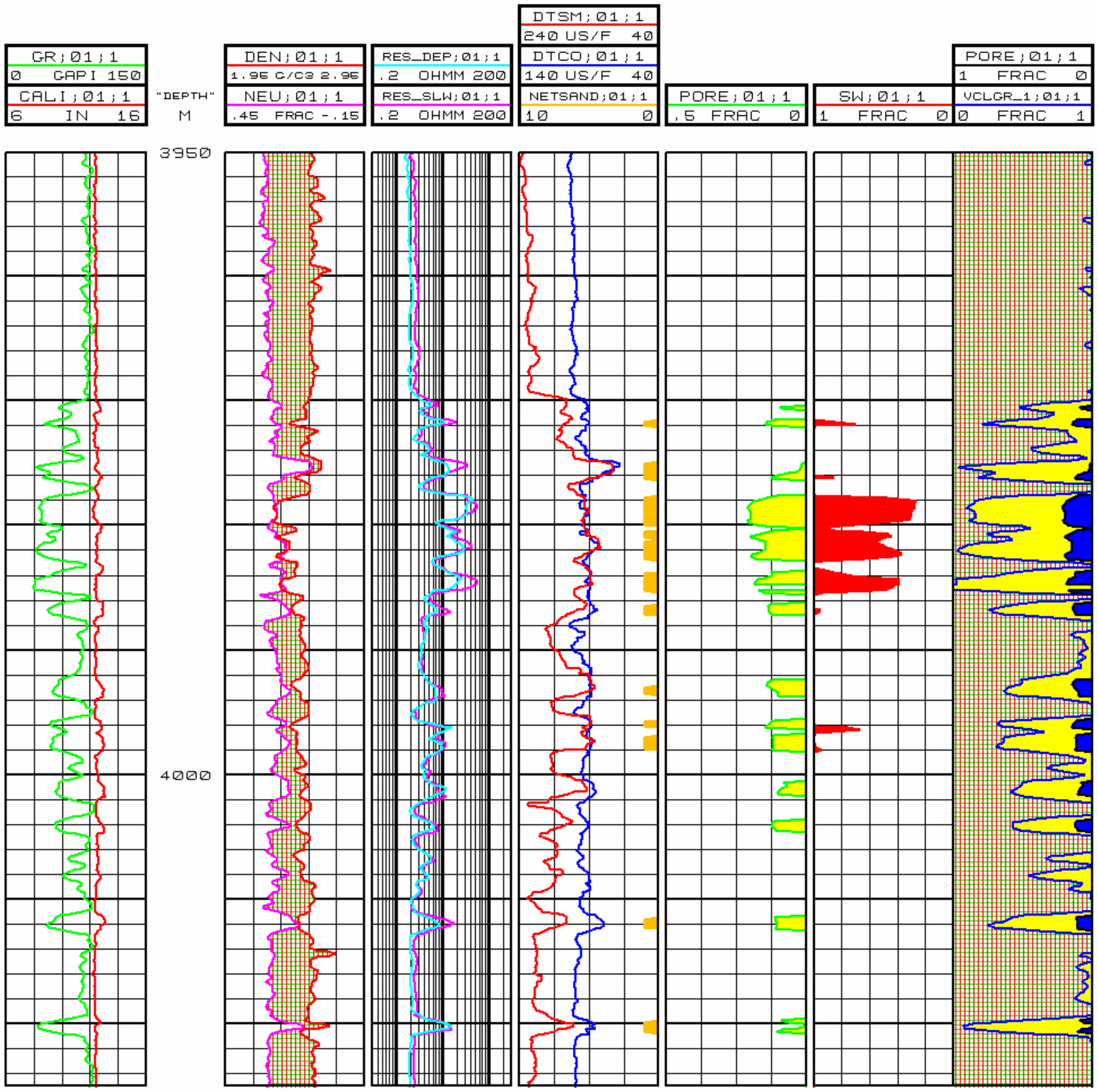

Figure 9.2 CPI plot of the Lange Sandstone Member

Hydrocarbon saturation calculation is highly uncertain as there is no salinity known and there is little analogue data to rely on. An Archie water saturation has been calculated using the following input parameters:

M = 2.2

N =2

Rw calculated using salinity of 35 kppm and temperature gradient of 3.75 ºC /100m.

Zone Name	Cut-Off	Zone Top MD (M)	Zone Base MD (M)	Gross Thickness MD (M)	Net Pay MD (M)	Porosity (FRAC)	Water Saturation (FRAC)
Lange Sst Mbr	VSH < 50%	3970	4025	55	17.68	0.13	0.72
Lange Sst Mbr	VSH < 50%, Por > 10%, Sh > 0.4	3970	4025	55	5.33	0.18	0.4
Lange Sst Mbr	VSH < 50%, Por > 10%, Sh > 0.6	3970	4025	55	2.59	0.19	0.32

Table 9.4 Evaluation results

10 WELL TESTING

10.1 Well test summary

Following the encouraging results from the wire line logs, two full well tests were performed on the most promising Formations: the Lower Tilje and the Lower Ile. The selection of the perforation intervals was mainly driven by sampling considerations. To ensure stable flow conditions and adequate clean-up, the perforation intervals were targeted at the best sands.

The maximum rate achieved during both well test was around 1.4 mln m3/day, which was highly tubing constrained. In view of the dryness of the gas and therefore low quantities of produced condensate, it was difficult to obtain accurate measurements of the condensate production rate. The CGR's quoted below were measured over Petrotech's Minilab.

	Units	DST 1 Lower Tilje	DST 2 Lower Ile
Perforation interval	m rt	4989.2 – 5029.75	4619 – 4633.7
Gross thickness	m	40.55	14.7
Main flow period			
Choke size	1/64“	56/64“	48/64“
FTHP	Bar	229	285
FTHT	°C	43	49
Gas rate	mln m3/d	1.41	1.44
CGR	m3/E6 m3	< 1	20–30
Sampling flow			
Choke size	1/64“	28/64“	24/64“
FTHP	Bar	560	575
FTHT	°C	26	33
Gas rate	mln m3/d	0.87	0.77
CGR	m3/E6 m3	< 1	20–30
Main build-up period			
Duration	hours	79	75

Table 10.1 Summary of well test results

More detailed information on the well test interpretations can be found in “Onyx South West Well Test Analyses Report”, currently under preparation.

10.2 DST 1 – Lower Tilje

After some initial problems with a hydrate plug, the well came on stream at a rate of about 1.1 mln m3/day, although limited by a minimum FTHP of 500 Bar to avoid going below likely dew-point before sampling. This rate confirmed the high productivity of the Lower Tilje.

However, it soon became apparent that the clean-up of the well was going to be problematic, with the OBM contamination only slowly dropping from an initial 70% to around 35%. As the gauges were running out of memory, it was decided to round-off the multi-rate flowing periods and focus on the main build-up first.

A second flow period was introduced after the main build-up, in an attempt to further clean-up the well. The well was flowed at the highest possible rate, around 1.4 mln m3/day, and the

OBM contamination dropped further to around 10%. The well was then beaned-back for sampling. Several wellhead samples were collected at a FTHP of around 560 Bar, which is almost certainly above dew-point and these samples are likely to be the most representative of the fluid in the Lower Tilje of all samples collected during this test.

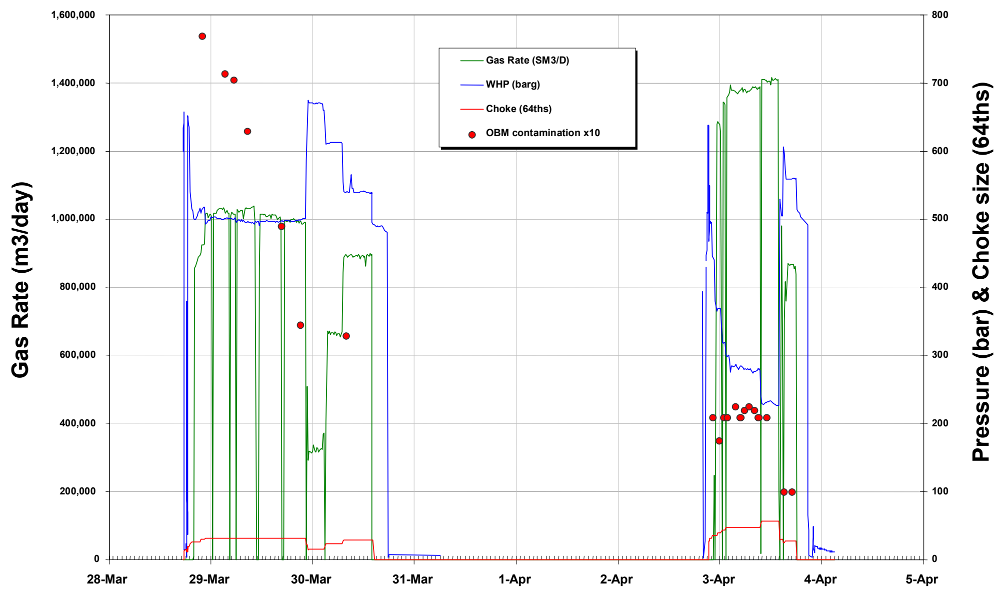

Figure 10.1 DST 1 Lower Tilje in well 6406/9-1

10.3 DST 2 – Lower Ile

Taking into account the learning from DST 1, the design of the second DST was adapted to achieve a faster clean-up. The perforation interval was limited to only a high quality sand at the bottom of the Ile Formation and during the clean-up period the well was due to be flowed at the highest achievable rate.

After perforations and initial flow & build-up, the well was slowly beaned-up to a maximum rate of 1.44 mln m3/day, confirming the high productivity of the Lower Ile. The clean-up was indeed accelerated with the OBM contamination soon dropping to around 2%. After about 10 hours flow the well was declared sufficiently cleaned-up to start taking iso-split WH recombination samples over the mini-lab.

The well was then beaned-back in two steps to achieve sampling conditions with a FTHP of 575 Bar. As in DST 1, the wellhead pressure was almost certainly above dew-point, making the wellhead samples collected during this sampling flow period likely to be representative of the fluid in the Lower Ile.

To obtain a third rate in a multi-rate sequence, the well was subsequently bean-up to around 1.1 mln m3/day. To conclude the well was shut-in for a final build-up of 75 hours or 3.1 days. There was no need for a second flow period.

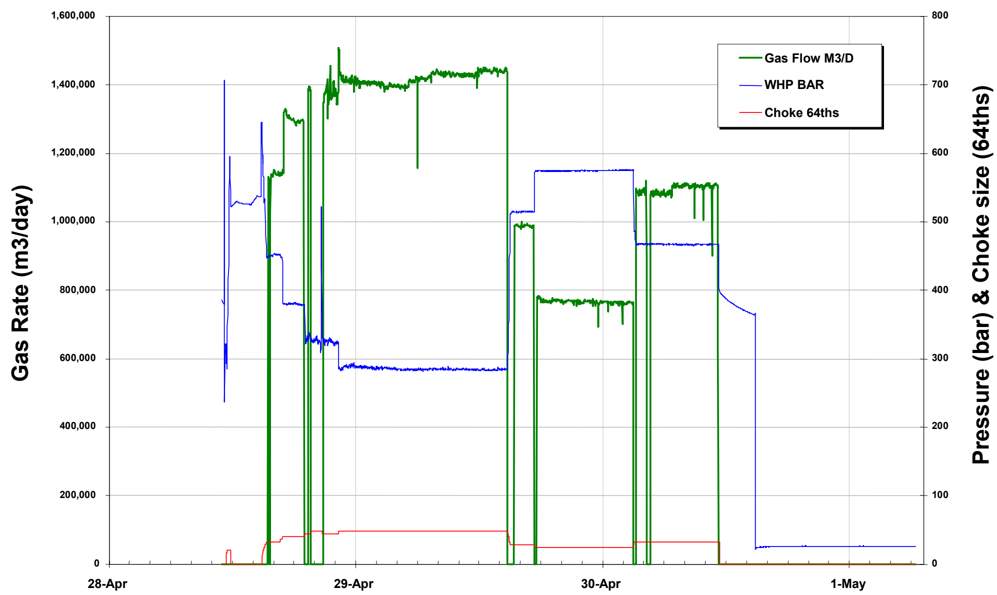

Figure 10.2 DST 2 Lower Ile Formation in well 6406/9-1

10.4 Non-hydrocarbon gases and contaminants

During the well tests, due care was taken to establish non-hydrocarbon gas content and contaminants concentrations. Some of these components are absorbed in the metal of sample bottles and therefore have to be measured on a live well. Petrotech provided on-site analysis for the following components (Mercaptans and Carbonyl Sulphide not detected):

	Units	DST 1 Lower Tilje	DST 2 Lower Ile
$C0_2$	mole %	7 – 8	7 – 8
H2S	ppm	Peak 40, avg 20-30	Peak 20, avg 15 – 18
Mercury	ug/m3	up to 350	10 – 20
Radon	Bq/m3	not detected	10 – 35

Table 10.2 Average non-hydrocarbon gas content and contaminant concentration

11 REFERENCES

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2. CMR-DMR Processing and Interpretation, Schlumberger Feb 2005
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4. Conventional core analysis Final report. Reslab AS. 6406/9-1. Report
5. Coring report. Corpro. December 2004- January 2005
6. End of Well Report for 6406/9-1, Onyx SW, HPHT Exploration, A/S Norske Shell EP200511203045
7. Logtek log curve curve editing & joining report 1. Composite-composite and Petrophysical composite WLC_COMPOSITE_1.DLIS
8. Logtek log curve curve editing & joining report 1. WLC_PETROPHYSICAL_COMPOSITE_1.DLIS
9. RCI Post job report: Mobility prediction Mini DST analysis and Sampling summary (Baker Atlas)
10. Schlumberger Stethoscope complete report. DCS analysis report for A/S Norske Shell. 6406/9-1

APPENDIX 1

Core description sheets

Core 1

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**	**1**
Date:	17.12.04		**Core diameter :**	**4”**
Logging Witness:	Graham Wheatley / Chris Greene		**Hole size :**	**8½”**
Cored interval:	4546.5 m to 4561m	**Recovered :**	4546.5 m to 4559.94 m	**92.6 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4546.5	**Argillaceous, micaceous SANDSTONE** : moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue.	X			X			
4547.3	**Argillaceous, micaceous SANDSTONE** : as above (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			
4548.0	**Argillaceous, micaceous SANDSTONE** : moderate brown to moderate brownish grey, slightly more argillaceous, traces of medium and rare coarse Muscovite flakes else as above (very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			
4548.2	**Argillaceous, micaceous SANDSTONE** : as 4546.5m (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**			**Core Number :**	**1**
Date:	17.12.04			**Core diameter :**	**4”**
Logging Witness:	Graham Wheatley / Chris Greene			**Hole size :**	**8½”**
Cored interval:	4546.5 m to 4561m	**Recovered :**	4546.5 m to 4559.94 m		**92.6 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4548.6	**Argillaceous, micaceous SANDSTONE** : as 4546.5m (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			
4549	**Argillaceous, micaceous SANDSTONE** : as 4546.5m (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			
4549.15	**Argillaceous, micaceous SANDSTONE** : as 4546.5m (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare dispersed microcrystalline pyrite, rare light green ?feldspar, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue).	X			X			
4550.75	**SILTSTONE :** Moderate to dark brownish grey, very hard, brittle, quartz silt, silica cement, slightly argillaceous matrix (?kaolinitic in part), traces very fine to fine muscovite, localised micaceous partings and laminations, no visible intergranular porosity, no hydrocarbon odour, NOSFC	-			-			
4551.7	**Micaceous Siltstone / Claystone interface.** **SILTSTONE :** dark brownish grey, very hard, brittle, quartz silt, siliceous cement with slightly argillaceous matrix,, abundant very fine to fine muscovite and pale brown ?phlogopite micas, poor –no visible intergranular porosity. Traces black tarry stain on surface of bedding plane, moderate-strong hydrocarbon odour, dull yellow fluorescence, slow clouding dull yellow fluorescent cut, weak yellow-white fluorescent residue, no visible residue. **CLAYSTONE :** dark grey to grayish black, hard, brittle, traces very fine to fine muscovite mica, non calcareous.	X				X		

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**	**1**
Date:	17.12.04		**Core diameter :**	**4”**
Logging Witness:	Graham Wheatley / Chris Greene		**Hole size :**	**8½”**
Cored interval:	4546.5 m to 4561m	**Recovered :**	4546.5 m to 4559.94 m	**92.6 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4551.9	**Micaceous SANDSTONE grading to SILTSTONE :** moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown & light grey smoky quartz, very fine to fine grained commonly grading to siltstone, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), traces very fine to fine and occasionally medium flakes of muscovite and moderate brown (?phlogopite?) mica, rare light green mica, poor visible intergranular porosity, weak hydrocarbon odour, no visible surface fluorescence, very weak flash fluorescent cut, slightly improved on crushing, no visible or fluorescent residue.	X			X			
4552.3	**Micaceous SANDSTONE grading to SILTSTONE :** moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, extremely fine to very fine and rarely fine grained, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), commonly grading to siliceous siltstone, common to abundant very fine to fine and occasionally fine to medium flakes of muscovite mica, no-poor visible intergranular porosity, slight hydrocarbon odour, no visible surface fluorescence, weak dull yellow fluorescent crush cut, no visible or fluorescent residue.	X			X			
4552.78	**Micaceous SANDSTONE grading to SILTSTONE :** locally showing graded bedding / fining sequence, moderate hydrocarbon odour, else as above (moderate dark brown to brownish grey, very hard, brittle, comprising clear to translucent, colourless to light brown and light grey smoky quartz, extremely fine to very fine and rarely fine grained, subangular, subspherical, well cemented with silica, indications of some secondary silica recrystallisation, argillaceous matrix (kaolinitic in part?), commonly grading to siliceous siltstone, common to abundant very fine to fine and occasionally fine to medium flakes of muscovite mica, no-poor visible intergranular porosity, no visible surface fluorescence, weak dull yellow fluorescent crush cut, no visible or fluorescent residue.	X			X			
4553.1	**Micaceous SILTSTONE :** moderate brownish grey, very hard to hard, brittle, comprising quartz silt and common extremely fine to very fine quartz sand grains, subangular, subspherical, abundant very fine to occasonally medum muscovite and pale brown ?phlogopite mica, siliceous cement with moderately argillaceous matrix, no visible intergranular porosity, weak hydrocarbon odour, no surface fluorescence, slow clouding dull yellow fluorescent cut, slightly improved with crushing,	-			X			
4554.2	**Micaceous SILTSTONE :** common to abundant very fine to medium muscovite and pale brown ?phlogopite mica, occasional flakes fine green mica, else as above (moderate brownish grey, very hard to hard, brittle, comprising quartz silt and common extremely fine to very fine quartz sand grains, subangular, subspherical, siliceous cement with moderately argillaceous matrix, no visible intergranular porosity, weak hydrocarbon odour, no surface fluorescence, slow clouding dull yellow fluorescent cut, slightly improved with crushing,	-			X			

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**	**1**
Date:	17.12.04		**Core diameter :**	**4”**
Logging Witness:	Graham Wheatley / Chris Greene		**Hole size :**	**8½”**
Cored interval:	4546.5 m to 4561m	**Recovered :**	4546.5 m to 4559.94 m	**92.6 %**

Chip Depth	**Lithology and shows**	**∅ P**	**∅ F**	**∅ G**	**Shows T**	**Shows P**	**Shows F**	**Shows G**
4555.0	**Micaceous SILTSTONE :** moderate brown to brownish grey, very hard, brittle, comprising quartz silt, siliceous cement with moderately argillaceous matrix, no visible intergranular porosity, weak hydrocarbon odour, no surface fluorescence, very weak slow clouding dull yellow fluorescent cut, slightly improved with crushing. Localised micaceous claystone partings and laminae, black to dark grey, hard, carbonaceous, non calcareous,	-			X			
4555.3	**Micaceous SILTSTONE grading to extremely fine SANDSTONE :** dark brownish grey to brownish black, moderately to very argillaceous matrix, slight to moderate hydrocarbon odour else as above (very hard, brittle, comprising quartz silt, siliceous cement, no visible intergranular porosity, no surface fluorescence, very weak slow clouding dull yellow fluorescent cut, slightly improved with crushing.	-			X			
4555.65	**Micaceous SILTSTONE grading to extremely fine SANDSTONE :** dark brownish grey to brownish black, very hard, brittle, comprising quartz silt, moderately to very argillaceous matrix, frequent to common very fine muscovite mica, non calcareous, no visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow fluorescent flash cut, slightly improved with crushing.	-			X			
4557.0	**Fractured? Core damage? Poorly cemented SILTSTONE** : rubbly soft formation, friable, infiltrated by mud. Fragments have hard brittle centres of greyish black micaceous SILTSTONE as above at 4555.65m. Strong-moderate hydrocarbon odour, no surface fluorescence, instant-fast clouding dull yellow cut (OBM filltrate?)		X ?			X ?		
4557.3	**Fractured? Core damage? Poorly cemented SILTSTONE** : rubbly soft formation, friable, infiltrated by mud. Fragments have hard brittle centres of greyish black micaceous SILTSTONE as above at 4555.65m. Strong-moderate hydrocarbon odour, no surface fluorescence, instant-fast clouding dull yellow cut (OBM filltrate?)		X ?			X ?		
4558.0	**Micaceous SILTSTONE grading to extremely fine SANDSTONE :** dark brownish grey to brownish black, very hard, brittle, comprising quartz silt, moderately to very argillaceous matrix, frequent to common very fine muscovite mica, non calcareous, no visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow fluorescent flash cut, slightly improved with crushing.	X			X			
4558.2	**Micaceous SILTSTONE grading to extremely fine SANDSTONE :** as above (dark brownish grey to brownish black, very hard, brittle, comprising quartz silt, moderately to very argillaceous matrix, frequent to common very fine muscovite mica, non calcareous, no visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow fluorescent flash cut, slightly improved with crushing).	X			X			
4559.0	**Micaceous SILTSTONE grading to extremely fine SANDSTONE :** as above (dark brownish grey to brownish black, very hard, brittle, comprising quartz silt, moderately to very argillaceous matrix, frequent to common very fine muscovite mica, non calcareous, no visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow fluorescent flash cut, slightly improved with crushing).	X			X			

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**	**1**
Date:	17.12.04		**Core diameter :**	**4"**
Logging Witness:	Graham Wheatley / Chris Greene		**Hole size :**	**8½"**
Cored interval:	4546.5 m to 4561m	**Recovered :**	4546.5 m to 4559.94 m	**92.6 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4559.5	**COAL :** Black, hard brittle, bright vitreous lustre, localised fragments of striated pyritised plant material 3 x 0.5 cms, interbedded wth micaceous siltstone grading to extremely fine sandstone as above (dark brownish grey to brownish black, very hard, brittle, comprising quartz silt, moderately to very argillaceous matrix, frequent to common very fine muscovite mica, non calcareous, no visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow fluorescent flash cut, slightly improved with crushing). Localised micaceous laminae and partings, abundant very coarse – medium muscovite and phlogopite micas, irregular undulating bedding surfaces. This 1m section of core shows severe spiral fracturing.	X			X			
4559.9	**Micaceous SILTSTONE:** moderate brownish grey, very hard, subfissile, quartz silt grading to extremely fine SANDSTONE, silica cemented, slightly argillaceous matrix, locally abundant fine to coarse muscovite mica, localised laminae/thin beds/partings, rare depressions on bedding surfaces possibly indicating bioturbation. Poor visible intergranular porosity, slight hydrocarbon odour, no surface fluorescence, very weak dull yellow flash cut, very slow clouding dull yellow cut, slightly improved on crushing.	X			X			

Core 2

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**	**Core Number :**	**2**
Date:	28.12.04	**Core diameter :**	**4”**
Logging Witness:	Dave Jobson / Chris Greene	**Hole size :**	**8½”**
Cored interval:	4591.0 m to 4621.0 m **Recovered :**	4591.0 m to 4618.94 m	**93.0 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4591.0	SILTSTONE: black to greyish black, very hard, subfissile, very micaceous, non calcareous.	X						
4592.0	SANDSTONE: brownish grey, clear to translucent quartz, mica, very fine to fine, rare medium, well sorted, angular to subangular, very hard, well cemented, non calcareous, silica cemented, moderate to poor visible porosity, faint hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.	X			X			
4593.0	SANDSTONE: brownish grey, clear to translucent quartz, trace mica, fine to coarse, moderate to poorly sorted, angular to subangular, moderately hard, well to moderately cemented, non calcareous, silica cemented in parts, moderate to good visible porosity, faint hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4594.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, medium to coarse, moderately sorted, subrounded to subangular, moderately hard, moderately cemented, non calcareous, silica cemented in parts, good visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.			X		X		
4595.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, fine to medium, rarely coarse, moderately sorted, subrounded to subangular, moderately hard, well cemented, non calcareous, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4596.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, fine to medium, rarely coarse, moderately sorted, subrounded to subangular, moderately hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4597.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, fine to medium, moderately sorted, subrounded to subangular, moderately hard, well cemented, argillaceous non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4598.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, fine to coarse, moderate to poorly sorted, subrounded to subangular, moderately hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4599.0	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, medium to coarse, moderate to poorly sorted, subrounded to subangular, moderately hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**	**2**
Date:	28.12.04		**Core diameter :**	**4”**
Logging Witness:	Dave Jobson / Chris Greene		**Hole size :**	**8½”**
Cored interval:	4591.0 m to 4621.0 m	**Recovered :**	4591.0 m to 4618.94 m	**93.0 %**

Chip Depth	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4600	SANDSTONE: brownish grey to dark grey, clear to translucent quartz, trace mica, medium to coarse, moderate to poorly sorted, subrounded to subangular, moderately hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4601	SANDSTONE: brownish grey to brownish black, clear to translucent quartz, trace mica, very fine to fine, rarely medium, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, moderate to poor visible porosity, hydrocarbon odour, dull yellow direct fluorescence, slow, blooming yellowish white cut fluorescence.	X				X		
4602	SILTSTONE: black to greyish black, clear to translucent quartz, micaceous, very fine, very hard, well cemented, blocky to sub fisslie, argillaceous, non calcareous matrix, abundant silica cementing, abundant laminea of white to translucent Muscovite Mica within the Siltstone, poor to no visible porosity.	X						
4603	SANDSTONE: brownish grey to brownish black, clear to translucent quartz, trace mica, very fine to fine, rarely medium, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence.	X				X		
4604	SANDSTONE: brownish grey to brownish black, clear to translucent quartz, trace mica, very fine to fine, rarely medium, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence.	X				X		
4605	SANDSTONE: brownish grey to brownish black, clear to translucent quartz, trace mica, very fine to fine, rarely medium, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence.	X				X		
4606	SANDSTONE: brownish grey to medium grey, clear to translucent quartz, abundant mica predominantly Muscovite also Biotite, very fine to fine, rarely course, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous/silty non calcareous matrix, abundant silica cementing, poor to moderate visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence.		X			X		
4607	CLAYSTONE: Greyish black, firm to moderately hard, blocky, micromicaceous, slightly calcareous.							

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**			**Core Number :**	**2**
Date:	28.12.04			**Core diameter :**	**4"**
Logging Witness:	Dave Jobson / Chris Greene			**Hole size :**	**8½"**
Cored interval:	4591.0 m to 4621.0 m	**Recovered :**	4591.0 m to 4618.94 m		**93.0 %**

Chip Depth	**Lithology and shows**	**∅**				**Shows**		
		P	**F**	**G**	**T**	**P**	**F**	**G**
4608	CLAYSTONE/SANDSTONE interface: SANDSTONE: brownish grey to medium grey, clear to translucent quartz, abundant mica predominantly Muscovite also Biotite, very fine to fine, rarely course, well sorted, subrounded to subangular, very hard to hard, very well cemented, argillaceous/silty non calcareous matrix, abundant silica cementing, poor to moderate visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence. CLAYSTONE: Greyish black, firm to moderately hard, blocky, micromicaceous, slightly calcareous.		X			X		
4609	SANDSTONE: brownish grey to medium grey, clear to translucent quartz, abundant mica predominantly Muscovite also Biotite, very fine to fine, rarely course, well sorted, subrounded to subangular, very hard to hard, well cemented, argillaceous/silty non calcareous matrix, abundant silica cementing, poor visible porosity, good hydrocarbon odour, very dull yellow white direct fluorescence, slow, blooming yellowish white cut fluorescence	X				X		
4610	SANDSTONE: brownish grey, clear to translucent quartz, trace mica, fine to medium, occasionally course, moderately sorted, subrounded to angular, moderately hard, well cemented, argillaceous/silty non calcareous matrix, abundant silica cementing, moderate visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, moderate, blooming to streaming yellowish white cut fluorescence.		X				X	
4611	SANDSTONE grading to SILTSTONE: brownish grey, clear to translucent quartz, abundant mica, very fine to fine, moderately sorted, subrounded to angular, very hard, very well cemented, argillaceous/silty non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, dull yellow white direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X				X		
4612	SANDSTONE: brownish grey, clear to translucent quartz, trace mica, fine to medium, occasionally course, moderately sorted, subrounded to subangular, very hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X				X		
4613	SANDSTONE: brownish grey, clear to translucent quartz, trace mica, very fine to fine, moderately sorted, subrounded to subangular, very hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X				X		
4614	SANDSTONE: brownish grey, clear to translucent quartz, trace mica, very fine to fine, moderately sorted, subrounded to subangular, very hard, well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X				X		
4615	SANDSTONE: brownish grey to light brownish grey, clear to translucent quartz, abundant mica, very fine to fine, moderately sorted, subrounded to subangular, very hard, very well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, feint hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X			X			

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**				**2**			
Date:	28.12.04		**Core diameter :**				**4"**			
Logging Witness:	Dave Jobson / Chris Greene		**Hole size :**				**8½"**			
Cored interval:	4591.0 m to 4621.0 m	**Recovered :**	4591.0 m to 4618.94 m				**93.0 %**			

Chip Depth	**Lithology and shows**	**∅ P**	**∅ F**	**∅ G**	**Shows T**	**Shows P**	**Shows F**	**Shows G**
4616	MICACEOUS SANDSTONE: very light grey, rare clear to translucent quartz, very micaceous, very fine to fine, moderately sorted, subrounded to subangular, very hard, very well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, feint hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X			X			
4617	SANDSTONE: brownish grey to light brownish grey, clear to translucent quartz, trace mica, very fine to fine, moderately sorted, subrounded to subangular, very hard, very well cemented, argillaceous, non calcareous matrix, abundant silica cementing, poor visible porosity, feint hydrocarbon odour, very dull yellow direct fluorescence, moderate, blooming yellowish white cut fluorescence.	X			X			
4618	SANDSTONE: brownish grey to light brownish grey, clear to translucent quartz, brown staining on some grains, trace mica, very fine to fine, poorly sorted, subrounded to subangular, moderately hard, moderately cemented, argillaceous, non calcareous matrix, abundant silica cementing, good visible porosity, good hydrocarbon odour, moderate dull yellow direct fluorescence, moderate, blooming to streaming yellowish white cut fluorescence.			X			X	
4618.94	SANDSTONE: brownish grey to light brownish grey, clear to translucent quartz, brown staining on some grains, trace mica, very fine to fine, poorly sorted, subrounded to subangular, moderately hard, moderately cemented, argillaceous, non calcareous matrix, abundant silica cementing, good visible porosity, good hydrocarbon odour, moderate dull yellow direct fluorescence, moderate, blooming to streaming yellowish white cut fluorescence.			X			X	

Core 3

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**	**Core Number :**	**3**
Date:	05/01/2005	**Core diameter :**	**4”**
Wellsite Geologists:	Dave Jobson / Richard Howes	**Hole size :**	**8½”**
Cored interval:	4684.0m to 4710.0m **Recovered :**	4684.0m-4710.08m	**100%**

Chip Depth (m)	**Lithology and shows**	**∅ P**	**∅ F**	**∅ G**	**T**	**Shows P**	**Shows F**	**Shows G**
4684	SANDSTONE: dark grey to greyish black, moderately hard to hard, clear to translucent Quartz, occasionally clouded grains, fine to coarse, predominantly medium to coarse, subangular to subrounded, subspherical to spherical, moderately sorted, moderate to good siliceous cement, welded grain boundaries, common brownish black argillaceous matrix, intergranular micropyrite, occasional trace kaolinite, trace muscovite mica flakes, local carbonaceous material, poor to fair visible porosity, no direct fluorescence, slow streaming to diffuse bluish white cut fluorescence, dull yellowish blue residual fluorescence.	X	X		X			
4685.17	Argillaceous SANDSTONE: greyish black, hard, clear to translucent Quartz, locally milky, very fine to coarse, angular to subrounded, subspherical, poorly sorted, strong siliceous cement, welded grains, common to abundant brownish black argillaceous/silty matrix, trace altered feldspars?, carbonaceous material, micropyritic, micaceous (muscovite), very poor visible porosity, no direct fluorescence, slow streaming to diffuse bluish white cut fluorescence, dull yellowish blue residual fluorescence.	X			X			
4686	Argillaceous SANDSTONE: medium dark grey to dark grey, hard to very hard, clear to translucent Quartz, very fine to fine, silty, angular to subrounded, subspherical, poor to moderately sorted, strong siliceous cement, welded grains, common argillaceous/silty matrix, local carbonaceous matrix, trace micropyrite, abundant mica, mica/argillaceous/carbonaceous rich partings, very poor visible porosity, no direct fluorescence, slight bluish white from carbonaceous material.	X			X			
4687	SANDSTONE: brownish grey to medium grey in part, with local greyish black partings, moderately hard to hard, clear to translucent Quartz, light grey in part, very fine to fine, silty in part, subangular to subrounded, spherical, moderate to well sorted, moderate siliceous cement, quartz overgrowths, trace kaolinitic/argillaceous matrix, local micropyrite and carbonaceous material, trace mica, local argillaceous/carbonaceous/mica rich parting, poor visible porosity. No Shows.	X						
4688	SANDSTONE: brownish grey to medium grey, with local greyish black argillaceous/micaceous partings, moderately hard to hard, subfissile, clear to translucent Quartz, occasional light grey clouded grains, very fine to fine, rare medium grains, silty in part, subangular to subrounded, spherical, moderate to well sorted, moderate siliceous cement, welded grain boundaries, trace kaolinitic/argillaceous matrix, local micropyrite and carbonaceous material, trace mica, poor visible porosity, no direct fluorescence, very feint diffuse bluish white cut.	X						
4689	SANDSTONE: olive grey to brownish grey, hard, clear to translucent, locally light grey Quartz, very fine to fine, silty in part, subangular to subrounded, subspherical to spherical, moderately sorted, well developed siliceous cement, quartz overgrowths, trace argillaceous matrix, trace kaolinite, common carbonaceous laminations/debris and associated pyrite, trace mica, very poor visible porosity. No Shows.	X						

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**		**Core Number :**			**3**				
Date:	05/01/2005		**Core diameter :**			**4”**				
Wellsite Geologists:	Dave Jobson / Richard Howes		**Hole size :**			**8½”**				
Cored interval:	4684.0m to 4710.0m	**Recovered :**	4684.0m-4710.08m			**100%**				
Chip Depth (m)	**Lithology and shows**		**∅**			**Shows**				
			P	**F**	**G**	**T**	**P**	**F**	**G**	
4690	Sandstone with Claystone interface: Argillaceous SANDSTONE: medium dark grey, hard, very fine to fine, silty, subangular to subrounded, subspherical to spherical, good siliceous cement, common intergranular pyrite, occasional trace kaolinite, argillaceous matrix, occasional Claystone clasts/flakes, common carbonaceous debis, very poor visible porosity, no direct fluorescence, slight bluish white cut from carbonaceous material. CLAYSTONE: olive black to greyish black, hard, greasy lustre, slightly flaky in part, common to abundant micropyrite, micaceous, trace carbonaceous material, slightly calcareous in part.		X			X				
4690.8	Silty CLAYSTONE: olive black, hard, slightly greasy to dull, common micropyrite and carbonaceous material, micaceous, non calcareous, silty, very arenaceous in part with very fine to fine Quartz, local lenses of argillaceous Sandstone, grades in parts to sandy Siltstone.									
4692	Sandy SILTSTONE: greyish black, hard, dull, abundant carbonaceous material with associated micropyrite, micaceous, non calcareous, very finely arenaceous in part, locally grading to argillaceous Sandstone.									
4693	Sandy SILTSTONE: greyish black, hard, dull, carbonaceous, common micropyrite, micaceous, non calcareous, very fine to fine quartz, locally grades to argillaceous Sandstone.									
4694	Sandy SILTSTONE: olive black to greyish black, hard, dull, common carbonaceous material and associated micropyrite, common to abundant mica, non calcareous, very fine to fine quartz, locally grades to argillaceous Sandstone.									
4695	Sandy SILTSTONE: olive black to greyish black, hard, dull, common carbonaceous material and associated micropyrite, common to abundant mica, non calcareous, very fine to fine quartz, locally grades to argillaceous Sandstone.									
4696	Sandy SILTSTONE: olive black to greyish black, hard, irregular to subfissile break, dull to slightly greasy, very carbonaceous, non calcareous, local carbonaceous/micaceous/pyritic partings, very finely arenaceous, grades to silty Sandstone in places. No visible porosity or Shows.									
4697	Claystone with lenses of sandy Siltstone locally grading to silty Sandstone. CLAYSTONE: greyish black, moderately hard, slightly flaky in part, trace micromica and disseminated pyrite, non calcareous, locally intercalated with sandy Siltstone/silty Sandstone. Sandy SILTSTONE: olive black to greyish black, hard, irregular to subfissile break, dull to slightly greasy, very carbonaceous, non calcareous, local carbonaceous/micaceous/pyritic partings, very finely arenaceous, grades to silty Sandstone in places. No visible porosity or Shows.									
4698	Sandy SILTSTONE: olive black, hard, brittle to crumbly break, dull to slightly greasy, common carbonaceous material, trace disseminated pyrite and mica, very fine to finely arenaceous, occasional medium grains, matrix supported, locally grades to silty/argillaceous Sandstone. No visible porosity or Shows.									
4699	Sandy SILTSTONE: dark brownish grey, hard, dull, trace disseminated pyrite and micromica, very finely arenaceous, local calcareous fossil shells (bivalves), trace carbonaceous fragments/plant remains, slightly calcareous in part, rarely grades to silty Sandstone. No visible porosity or Shows.									

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**			**Core Number :**	**3**
Date:	05/01/2005			**Core diameter :**	**4”**
Wellsite Geologists:	Dave Jobson / Richard Howes			**Hole size :**	**8½”**
Cored interval:	4684.0m to 4710.0m	**Recovered :**	4684.0m-4710.08m		**100%**

Chip Depth (m)	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4700	Silty SANDSTONE: brownish grey, hard, very fine to medium, dominantly very fine to fine, silty, subangular to subrounded, subspherical to spherical, poorly sorted, moderate calcareous cement, also siliceous cement in part, trace to common argillaceous matrix, trace micropyrite and occasional carbonaceous material, trace mica/micromica, poor visible porosity. No Shows.	X						
4701	Argillaceous SANDSTONE: olive black, hard, silt to fine, locally medium, occasionally coarse, subangular to subrounded, subspherical to spherical, poorly sorted, siliceous cement in part, abundant silt/argillaceous matrix, also common micropyrite cement/matrix, matrix to grain supported, carbonaceous debris, good trace muscovite mica, very slightly calcareous in part, locally grades to sandy Siltstone, very poor visible porosity. No Shows.	X						
4702	SANDSTONE: olive grey to medium dark grey, hard to very hard, clear to translucent Quartz, locally milky, very fine to very coarse, angular to subrounded, subspherical to spherical, poorly sorted, strong siliceous cement, also local intercalations of very fine to fine, silty/argillaceous and micaceous Sandstone, very poor visible porosity. No Shows.	X						
4703	Argillaceous SANDSTONE: brownish grey, hard, very fine to medium, subangular to subrounded, poor to moderately sorted, slight to moderate dolomitic cement, common to abundant silty/argillaceous matrix, common altered feldspar? grains, rare carbonaceous debris, trace mica, poor to moderate visible porosity, no direct fluorescence, slow diffuse bluish white cut fluorescence, dull to moderate bluish residual fluorescence.	X	X		X			
4704	SANDSTONE: brownish black, hard, clear to translucent Quartz, brownish stain in part, very fine to coarse, rarely very coarse, dominantly fine to medium, angular to subrounded, subspherical, poor to moderately sorted, moderate siliceous cement, trace brownish black argillaceous matrix, trace carbonaceous material and mica, good visible porosity, no direct fluorescence, slow streaming to diffuse bluish white cut fluorescence, bluish white residual fluorescence, very slight hydrocarbon odour.			X	X			
4705	SANDSTONE: dusky yellowish brown, friable, clear to translucent Quartz, yellowish brown staining, very fine to coarse, dominantly fine to medium, subangular to subrounded, subspherical to spherical, moderately sorted, moderate siliceous cement, trace brownish black argillaceous matrix, occasional trace mica and carbonaceous material, good to excellent visible porosity, no direct fluorescence, slow streaming bluish white cut fluorescence, bluish white residual fluorescence, very slight hydrocarbon odour.			X	X			
4706	SANDSTONE: brownish grey, local brownish black argillaceous intercalations, hard to very hard, clear to translucent Quartz, local milky/ cloudy grains, very fine to coarse, dominantly fine to medium, angular to subrounded, subspherical, generally poorly sorted, moderate calcareous cement, also siliceous cement in part, local argillaceous matrix, silty, trace carbonaceous debris, occasional mica, generally poor to locally fair visible porosity. No Shows.	X	X					

A/S NORSKE SHELL
Core Description Sheet

Well Number:	**6406/9-1**	**Core Number :**	**3**
Date:	05/01/2005	**Core diameter :**	**4”**
Wellsite Geologists:	Dave Jobson / Richard Howes	**Hole size :**	**8½”**
Cored interval:	4684.0m to 4710.0m **Recovered :**	4684.0m-4710.08m	**100%**

Chip Depth (m)	**Lithology and shows**	**∅**			**Shows**			
		P	**F**	**G**	**T**	**P**	**F**	**G**
4707	Argillaceous SANDSTONE: olive black, hard, silt to medium, predominantly very fine to fine, subangular to subrounded, subspherical to spherical, poorly sorted, moderate siliceous cement, slight to locally moderate dolomitic cement, abundant silt/argillaceous matrix, also carbonaceous matrix in part, trace micropyrite, micaceous, poor visible porosity, no direct fluorescence, slow diffuse bluish white cut fluorescence, dull bluish white residual fluorescence.	X			X			
4708	SANDSTONE: medium dark grey to dark brownish grey, moderately hard to hard, slightly friable in part, clear to translucent Quartz, slight brownish staining, very fine to medium, rarely coarse, dominantly fine to medium, subangular to subrounded, subspherical, generally poor to moderately sorted, strong siliceous cement, welded grain boundaries, good trace brownish argillaceous matrix, trace kaolinite, common altered feldspars?, occasional mica and carbonaceous material, generally poor to locally fair visible porosity. No Shows.	X	X					
4709	SANDSTONE: medium light grey, hard to very hard, clear to translucent Quartz, rarely opaque, fine to very coarse, predominantly medium to coarse, subrounded to rounded, spherical to locally subspherical, moderately sorted, strong calcareous cement, occasional argillaceous matrix, trace altered feldspars? and lithic fragments, poor visible porosity, slight dull mineral fluorescence. No Shows.	X						
4710.08	Argillaceous SANDSTONE: dark grey to dark olive grey, hard, very fine to coarse, dominantly fine to medium, very silty, angular to subrounded, subspherical, poor to moderately sorted, siliceous cement, abundant argillaceous/silty matrix, good trace mica, local micropyrite, trace altered feldspars?, carbonaceous material, very slightly calcareous, poor to moderate visible porosity, no direct fluorescence, slow diffuse bluish white cut fluorescence, dull bluish white residual fluorescence.	X	X		X			

APPENDIX 2

Core analysis RESLAB

Note : Plugs no with .11 are 1½" vert. Plug for Dean & Stark and Vert Perm.The plugs are taken offshore.

CORE	PLUG	Depth(m)	Hor.Perm: Kn²(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn²(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm³)	Vert.Gr. Density(g/cm³)
1	1	4546,70	NMP	NMP			15,1			2,65	
1	2	4546,90	NMP	NMP			16,0			2,65	
1	3	4547,12	0,252	0,158			16,1			2,66	
1	4	4547,23	0,149	0,090			14,9			2,66	
1	4,11	4547,42			0,105	0,062		14,5	16,4		2,67
1	5	4547,46	NMP	NMP			15,0			2,65	
1	6	4547,90	0,494	0,322			16,1			2,65	
1	7	4548,02	0,211	0,131			15,0			2,65	
1	7,11	4548,02			0,141	0,085		15,5	13,8		2,66
1	8	4548,25	0,626	0,414			15,9			2,66	
1	9	4548,59	0,314	0,199			15,4			2,66	
1	10	4548,75	1,99	1,41			15,4			2,66	
1	11	4549,02	0,082	0,048			11,9			2,67	
1	11,11	4549,02			0,050	0,028		12,0	22,8		2,68
1	12	4549,25	0,339	0,216			9,7			2,69	
1	13	4549,50	5,89	4,88			10,9			2,68	
1	14	4549,75	0,504	0,329			10,7			2,69	
1	15	4550,14	3,39	2,68			11,4			2,67	
1	15,11	4550,14			0,047	0,026		11,3	29,5		2,68
1	16	4550,25	0,078	0,045			10,8			2,67	
1	17	4550,50	0,464	0,302			9,2			2,71	
1	18	4550,72	5,00	4,09			9,6			2,69	
1	18,11	4551,19			0,055	0,031		10,1	36,2		2,73
1	19	4551,22	0,152	0,092			11,2			2,69	
1	20	4551,35	NMP	NMP			11,1			2,67	
1	21	4551,50	0,148	0,090			10,4			2,67	
1	22	4551,94	0,141	0,085			11,6			2,65	
1	23	4552,02	1,23	0,846			11,1			2,65	
1	23,11	4552,02			0,082	0,048		13,2	22,8		2,68
1	24	4552,38	0,121	0,072			10,7			2,69	
1	25	4552,57	4,42	3,57			12,6			2,67	
1	26	4552,75	0,383	0,246			12,4			2,67	
1	26,11	4553,15			0,027	0,015		10,6	30,3		2,69
1	27	4553,25	0,115	0,068			10,0			2,68	
1	28	4553,50	0,085	0,050			10,2			2,69	
1	29	4553,75	0,258	0,162			12,0			2,67	
1	30	4553,90	0,377	0,242			8,0			2,71	
1	31	4554,15	0,082	0,048			11,3			2,69	
1	31,11	4554,15			0,061	0,035		11,8	28,2		2,70
1	32	4554,50	0,180	0,111			12,5			2,67	
1	33	4554,75	0,111	0,066			11,9			2,69	
1	34	4554,95	0,102	0,061			13,1			2,67	
1	35	4555,02	0,059	0,034			11,0			2,69	
1	35,11	4555,02			0,061	0,035		12,0	26,8		2,69
1	36	4555,20	0,378	0,242			13,0			2,67	
1	37	4555,47	0,183	0,113			14,0			2,67	
1	38	4555,75	0,173	0,106			14,5			2,67	
1	39	4556,14	0,397	0,256			13,2			2,67	
1	39,11	4556,14			0,225	0,140		14,2	19,8		2,67
1	40	4556,40	0,152	0,092			11,7			2,69	
1	41	4556,70	0,294	0,186			13,3			2,67	
1	42	4556,85	0,394	0,254			7,8			2,73	
1	43	4557,12	0,323	0,206			15,2			2,66	
1	43,11	4557,12			0,194	0,120		14,9	13,1		2,66
1	44	4557,38	0,928	0,628			16,5			2,66	
1	45	4557,58	0,797	0,534			17,1			2,67	
1	46	4557,78	0,392	0,252			15,7			2,66	
1	47	4558,16	0,262	0,164			15,4			2,65	
1	47,11	4558,16			0,216	0,134		15,3	15,7		2,67
1	48	4558,37	0,203	0,125			14,3			2,66	
1	49	4558,62	0,428	0,277			12,5			2,65	
1	50	4558,80	0,160	0,098			12,9			2,66	
1	51	4559,00	0,169	0,103			11,1			2,66	
1	52	4559,72	0,371	0,238			7,1			2,72	

CORE	PLUG	Depth(m)	Hor.Perm: Kn²(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn²(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm³)	Vert.Gr.Density(g/cm³)
2	53	4591,12	0,034	0,019			7,7			2,72	
2	53,11	4591,05			0,136	0,082		11,2	NMP		2,69
2	54	4591,25	0,161	0,098			14,2			2,69	
2	55	4591,50	NMP	NMP			10,3			2,68	
2	56	4591,75	0,147	0,089			9,3			2,65	
2	56,11	4592,00			0,050	0,028		10,9	18,8		2,67
2	57	4592,09	NMP	NMP			11,4			2,66	
2	58	4592,25	0,166	0,102			10,8			2,66	
2	59	4592,42	9,49	8,1			10,8			2,66	
2	60	4592,60	0,105	0,062			11,2			2,66	
2	60,11	4592,95			0,019	0,010		6,9	59,2		2,85
2	61	4593,09	0,483	0,314			11,1			2,65	
2	62	4593,25	0,739	0,493			12,9			2,65	
2	63	4593,50	0,16	0,097			10,4			2,66	
2	64	4593,75	2,92	2,28			12,6			2,65	
2	64,11	4593,90			NMP	NMP		10,9	7,8		2,66
2	65	4594,00	0,211	0,131			9,6			2,66	
2	66	4594,25	7,45	6,27			14,8			2,66	
2	67	4594,50	2,81	2,19			12,6			2,65	
2	68	4594,75	11,9	10,2			14,5			2,65	
2	68,11	4594,90			0,181	0,111		11,5	15,3		2,67
2	69	4595,02	NMP	NMP			11,3			2,66	
2	70	4595,25	0,132	0,080			9,6			2,66	
2	71	4595,50	NMP	NMP			11,6			2,68	
2	72	4595,75	0,223	0,139			10,2			2,66	
2	72,11	4595,95			0,205	0,127		11,9	18,5		2,67
2	73	4596,03	0,224	0,139			10,9			2,66	
2	74	4596,20	0,170	0,104			10,9			2,66	
2	75	4596,50	1,02	0,697			14,3			2,65	
2	76	4596,75	13,1	11,2			16,0			2,65	
2	76,11	4596,95			1,42	0,985		12,9	8,5		2,65
2	77	4597,00	1,11	0,758			13,3			2,65	
2	78	4597,25	NMP	NMP			11,3			2,65	
2	79	4597,50	0,131	0,079			12,2			2,66	
2	80	4597,75	0,560	0,368			9,3			2,65	
2	80,11	4597,95			0,638	0,422		12,5	10,4		2,67
2	81	4597,97	2,52	1,94			8,8			2,64	
2	82	4598,25	33,2	28,8			13,4			2,65	
2	83	4598,50	9,71	8,26			14,2			2,65	
2	84	4598,75	0,374	0,24			9,9			2,65	
2	84,11	4598,95			4,89	3,99		12,8	8,5		2,65
2	85	4598,96	36,0	31,5			13,2			2,65	
2	86	4599,25	31,1	27,0			14,3			2,65	
2	87	4599,50	123	111			13,6			2,64	
2	87,11	4599,95			3,31	2,61		12,8	5,8		2,65
2	88	4600,00	0,948	0,643			13,2			2,65	
2	89	4600,25	1,37	0,948			13,7			2,65	
2	90	4600,50	0,836	0,562			12,2			2,65	
2	91	4600,75	0,590	0,389			12,1			2,65	
2	91,11	4600,95			0,192	0,118		13,7	20,8		2,69
2	92	4600,96	0,212	0,131			11,9			2,70	
2	93	4601,25	0,133	0,080			8,8			2,74	
2	94	4601,50	0,928	0,628			9,6			2,80	
2	95	4601,75	3,85	3,08			12,7			2,67	
2	95,11	4601,90			NMP	NMP		10,6	11,6		2,70
2	96	4602,00	NMP	NMP			11,4			2,70	
2	97	4602,25	0,367	0,235			14,0			2,66	
2	98	4602,50	1,11	0,756			13,7			2,69	
2	99	4602,75	1,52	1,06			13,0			2,72	
2	99,11	4602,95			0,228	0,142		13,8	14,4		2,68

CORE	PLUG	Depth(m)	Hor.Perm: Kn^2(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn^2(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm^3)	Vert.Gr. Density(g/cm^3)
2	100	4603,00	0,261	0,164			13,9			2,67	
2	101	4603,50	0,165	0,101			12,9			2,66	
2	102	4603,75	0,340	0,217			13,3			2,66	
2	102,11	4603,90			0,628	0,416		14,1	NMP		2,67
2	103	4603,96	0,276	0,174			14,5			2,66	
2	104	4604,25	0,665	0,441			12,1			2,68	
2	105	4604,50	0,591	0,389			11,9			2,68	
2	106	4604,75	0,439	0,284			8,1			2,73	
2	106,11	4604,90			0,199	0,123		12,0	13,6		2,67
2	107	4604,95	0,715	0,476			12,6			2,71	
2	108	4605,25	0,200	0,123			6,1			2,79	
2	109	4605,50	0,093	0,055			12,5			2,68	
2	110	4605,80	0,490	0,319			12,3			2,70	
2	110,11	4605,95			0,077	0,045		10,1	23,1		2,77
2	111	4606,05	0,111	0,066			10,0			2,66	
2	112	4606,25	0,530	0,347			13,3			2,67	
2	113	4606,50	0,448	0,290			11,3			2,68	
2	114	4606,75	0,318	0,202			12,9			2,67	
2	114,11	4606,90			NMP	NMP		8,3	32,5		2,85
2	115	4606,94	0,782	0,524			10,6			2,74	
2	116	4607,25	162	148			22,1			2,67	
2	117	4607,50	0,208	0,129			13,1			2,67	
2	118	4607,75	0,659	0,437			12,5			2,66	
2	118,11	4607,90			0,639	0,423		11,8	9,2		2,66
2	119	4607,97	0,681	0,452			14,2			2,66	
2	120	4608,25	2,60	2,01			10,7			2,65	
2	121	4608,50	NMP	NMP			10,0			2,66	
2	122	4608,75	1,63	1,14			10,7			2,65	
2	122,11	4608,90			32,7	27,9		14,3	6,5		2,66
2	123	4608,95	6,78	5,66			11,9			2,65	
2	124	4609,25	0,271	0,17			10,3			2,66	
2	125	4609,50	0,766	0,513			12,6			2,66	
2	126	4609,75	5,30	4,35			15,0			2,68	
2	126,11	4609,90			1,95	1,38		15,0	9,8		2,67
2	127	4609,95	2,11	1,60			14,6			2,66	
2	128	4610,25	0,045	0,025			5,7			2,77	
2	129	4610,50	0,186	0,114			10,7			2,66	
2	130	4610,75	0,162	0,099			9,7			2,66	
2	130,11	4610,87			0,138	0,083		10,6	18,2		2,69
2	131	4610,92	0,289	0,182			9,7			2,66	
2	132	4611,25	2,29	1,75			10,2			2,66	
2	133	4611,50	4,24	3,42			16,5			2,67	
2	134	4611,75	264	243			25,5			2,67	
2	134,11	4611,90			0,933	0,632		16,3	12,2		2,67
2	135	4611,96	4,74	3,86			18,5			2,67	
2	136	4612,25	0,318	0,202			13,2			2,68	
2	137	4612,50	0,536	0,351			12,1			2,68	
2	138	4612,75	0,283	0,179			12,3			2,67	
2	138,11	4612,95			0,382	0,245		13,6	14,8		2,68
2	139	4613,00	3,31	2,61			18,4			2,67	
2	140	4613,25	8,04	6,80			17,6			2,66	
2	141	4613,50	0,636	0,421			11,8			2,67	
2	141,11	4613,90			39,5	34,0		17,5	8,5		2,65
2	142	4613,97	46,5	40,8			15,1			2,65	
2	143	4614,25	2,52	1,94			14,7			2,66	
2	144	4614,50	0,322	0,204			13,2			2,68	
2	145	4614,75	0,617	0,407			13,4			2,67	
2	145,11	4614,90			0,042	0,023		10,3	31,4		2,73
2	146	4614,98	0,075	0,044			11,9			2,71	
2	147	4615,25	0,121	0,072			13,8			2,67	
2	148	4615,50	0,127	0,076			13,9			2,75	
2	149	4615,75	0,109	0,065			12,5			2,67	
2	149,11	4615,90			0,146	0,089		13,2	22,9		2,70
2	150	4615,96	0,114	0,068			13,3			2,73	

CORE	PLUG	Depth(m)	Hor.Perm: Kn²(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn²(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm³)	Vert.Gr. Density(g/cm³)
3	161,11	4684,00			0,587	0,387		11,3	10,6		2,65
3	162	4684,10	0,921	0,623			12,3			2,65	
3	163	4684,30	0,133	0,080			11,4			2,69	
3	164	4684,50	0,311	0,197			12,5			2,67	
3	165	4684,75	0,155	0,094			13,7			2,68	
3	166	4684,95	0,117	0,070			10,7			2,69	
3	166,11	4685,00			0,102	0,060		12,1	31,9		2,69
3	167	4685,25	0,059	0,034			5,8			2,71	
3	168	4685,50	0,091	0,053			7,2			2,70	
3	169	4685,75	0,050	0,028			6,6			2,69	
3	170	4686,04	0,148	0,090			8,1			2,72	
3	170,11	4686,05			0,038	0,021		9,6	59,4		2,69
3	171	4686,25	0,067	0,039			7,9			2,71	
3	172	4686,50	0,062	0,036			10,3			2,68	
3	173	4686,75	0,077	0,045			11,3			2,69	
3	174	4686,95	0,061	0,035			10,9			2,68	
3	174,11	4687,05			0,041	0,023		9,8	51,5		2,71
3	175	4687,18	0,047	0,027			7,3			2,70	
3	176	4687,50	0,044	0,025			7,8			2,70	
3	177	4687,75	0,076	0,045			9,7			2,70	
3	178	4688,00	0,053	0,03			8,9			2,71	
3	178,11	4688,05			0,034	0,019		5,9	61,3		2,72
3	179	4688,17	0,145	0,088			9,8			2,69	
3	180	4688,40	0,064	0,037			6,0			2,72	
3	181	4688,70	0,060	0,034			5,2			2,71	
3	181,11	4689,05			0,036	0,020		9,2	61,4		2,73
3	182	4689,12	0,065	0,037			7,4			2,71	
3	183	4689,30	0,071	0,041			9,0			2,69	
3	184	4689,50	0,063	0,036			6,7			2,75	
3	185	4689,75	0,071	0,041			6,7			2,74	
3	185,11	4690,05			0,037	0,021		8,9	55,6		2,73
3	186	4690,12	0,067	0,039			8,7			2,69	
3	187	4690,30	0,087	0,051			6,1			2,73	
3	188	4690,50	0,538	0,352			8,5			2,73	
3	189	4690,75	NMP	NMP			8,3			2,73	
3	190	4690,97	0,056	0,032			9,4			2,69	
3	190,11	4691,00			0,022	0,012		7,8	58,2		2,75
3	191	4691,25	0,043	0,024			7,1			2,71	
3	192	4691,50	0,235	0,146			6,5			2,71	
3	193	4691,75	0,117	0,070			6,5			2,70	
3	194	4692,00	0,041	0,023			5,0			2,73	
3	194,11	4692,10			0,016	0,009		5,8	68,9		2,73
3	195	4692,18	0,041	0,023			4,0			2,71	
3	196	4692,50	0,036	0,020			4,6			2,76	
3	197	4692,75	0,034	0,019			4,4			2,75	
3	198	4693,00	0,038	0,021			4,5			2,74	
3	198,11	4693,10			0,018	0,009		4,7	77,7		2,75
3	199	4693,18	0,033	0,018			4,4			2,73	
3	200	4693,50	0,036	0,020			4,5			2,73	
3	201	4693,75	0,036	0,020			4,5			2,72	
3	202	4694,00	0,035	0,019			5,0			2,75	
3	202,11	4694,10			0,021	0,011		5,0	67,6		2,74
3	203	4694,19	0,045	0,025			4,6			2,72	
3	204	4694,50	0,046	0,026			4,5			2,72	
3	205	4694,75	0,041	0,023			5,2			2,73	
3	206	4695,00	0,041	0,023			4,9			2,72	
3	206,11	4695,10			0,026	0,014		6,2	65,9		2,73
3	207	4695,15	0,045	0,025			5,5			2,71	
3	208	4695,45	0,051	0,029			5,7			2,72	
3	209	4695,75	0,048	0,027			5,0			2,71	
3	209,11	4696,10			0,028	0,015		5,5	66,5		2,74
3	210	4696,13	0,039	0,022			5,4			2,72	
3	211	4696,30	0,037	0,020			5,1			2,72	
3	212	4696,50	0,035	0,019			5,3			2,70	
3	213	4696,75	0,040	0,022			5,3			2,71	
3	213,11	4697,05			0,026	0,014		6,7	65,8		2,72
3	214	4697,13	0,048	0,027			6,1			2,69	
3	215	4697,35	0,055	0,031			7,3			2,68	
3	216	4697,55	0,143	0,086			7,3			2,69	
3	217	4697,80	0,068	0,039			4,7			2,70	
3	217,11	4698,05			0,020	0,011		5,9	64,7		2,73
3	218	4698,14	0,100	0,059			7,6			2,69	

CORE	PLUG	Depth(m)	Hor.Perm: Kn²(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn²(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm³)	Vert.Gr.Density(g/cm³)
3	219	4698,35	0,050	0,028			7,5			2,89	
3	220	4698,55	0,123	0,074			8,0			2,71	
3	221	4698,80	0,179	0,110			4,1			2,72	
3	221,11	4699,05			0,025	0,014		7,8	65,9		2,70
3	222	4699,12	0,040	0,023			7,1			2,69	
3	223	4699,35	0,063	0,036			9,4			2,73	
3	224	4699,60	0,053	0,030			7,2			2,71	
3	225	4699,85	0,044	0,025			8,1			2,85	
3	225,11	4700,05			0,028	0,016		10,4	64,1		2,88
3	226	4700,12	0,049	0,028			10,5			2,85	
3	227	4700,35	0,068	0,040			13,3			2,70	
3	228	4700,60	0,096	0,057			9,7			2,69	
3	229	4700,85	0,918	0,621			8,0			2,69	
3	229,11	4701,05			0,026	0,014		5,6	63,3		2,73
3	230	4701,13	0,045	0,025			5,0			2,71	
3	231	4701,35	0,172	0,105			7,4			2,68	
3	232	4701,60	0,056	0,032			4,3			2,73	
3	233	4701,85	1,03	0,704			5,6			2,71	
3	233,11	4702,00			0,024	0,013		9,4	52,5		2,71
3	234	4702,10	0,048	0,027			7,9			2,69	
3	235	4702,35	0,025	0,014			4,2			2,72	
3	236	4702,60	0,405	0,261			15,9			2,94	
3	237	4702,85	0,074	0,043			18,1			3,00	
3	238	4703,00	2,37	1,81			17,6			2,72	
3	239	4703,23	0,083	0,048			14,7			2,90	
3	239,11	4703,35			0,265	0,166		19,2	38,4		2,78
3	240	4703,50	0,148	0,09			15,5			2,90	
3	241	4703,75	2,90	2,26			19,2			2,74	
3	241,11	4704,05			0,311	0,197		14,3	25,6		2,77
3	242	4704,15	1,62	1,13			16,3			2,70	
3	243	4704,35	0,164	0,100			12,9			2,75	
3	244	4704,65	9,52	8,09			21,0			2,73	
3	245	4704,85	NMP	NMP			14,8			2,73	
3	245,11	4705,05			1,81	1,27		18,0	18,0		2,67
3	246	4705,15	0,523	0,342			13,2			2,69	
3	247	4705,35	0,318	0,202			15,8			2,67	
3	248	4705,55	0,358	0,229			13,6			2,67	
3	249	4705,75	0,034	0,019			4,4			2,70	
3	249,11	4706,00			0,019	0,010		7,5	35,6		2,73
3	250	4706,10	0,031	0,017			6,2			2,77	
3	251	4706,35	0,039	0,022			5,9			2,78	
3	252	4706,60	0,521	0,340			4,5			2,74	
3	253	4706,85	0,225	0,140			15,3			2,72	
3	253,11	4707,05			0,06	0,035		11,8	36,3		2,71
3	254	4707,18	0,218	0,135			15,2			2,68	
3	255	4707,35	0,260	0,163			15,0			2,70	
3	256	4707,60	0,330	0,210			15,5			2,69	
3	257	4707,85	0,458	0,298			16,0			2,69	
3	257,11	4708,05			0,072	0,042		13,9	39,3		2,73
3	258	4708,13	0,071	0,041			12,6			2,67	
3	259	4708,35	3,26	2,57			19,9			2,74	
3	260	4708,60	6,02	4,99			18,4			2,89	
3	261	4708,85	10,4	8,84			16,4			2,71	
3	261,11	4709,05			0,068	0,040		6,4	48,4		2,69
3	262	4709,12	0,027	0,015			10,8			3,42	
3	263	4709,35	0,076	0,044			5,9			2,69	
3	264	4709,60	0,063	0,037			13,8			2,86	
3	265	4709,80	0,531	0,347			10,9			2,69	
3	266	4709,97	0,129	0,078			13,9			2,72	
3	266,11	4710,05			0,052	0,029		11,8	55,6		2,75
4	267	4784,15	0,042	0,023			4,8			2,76	
4	267,11	4784,00			NMP	NMP		5,0	61,6		2,73
4	268	4784,31	NMP	NMP			6,0			2,75	
4	269	4784,60	1,40	0,968			5,6			2,73	
4	269,11	4785,00			NPP	NPP		NPP	NPP		NPP
4	270	4785,58	0,032	0,018			4,1			2,71	
4	271	4786,03	NMP	NMP			5,2			2,70	
4	271,11	4786,05			0,026	0,014		4,1	70,3		2,71
4	272	4786,30	0,028	0,015			3,7			2,71	
4	273	4786,65	0,025	0,014			3,8			2,72	
4	273,11	4787,20			NMP	NMP		11,2	16,3		2,69
4	274	4787,50	0,017	0,009			4,0			2,72	

CORE	PLUG	Depth(m)	Hor.Perm: Kn^2(mD)	Hor.Perm:KL(mD)	Vert.Perm:Kn^2(mD)	Vert.Perm:KL (mD)	Hor.Porosity(%)	Vert.Porosity(%)	Pore Sat.Water(%)	Hor.Gr.Density(g/cm^3)	Vert.Gr. Density(g/cm^3)
4	277	4788,70	0,077	0,045			4,2			2,72	
4	277,11	4789,00			NPP	NPP		NPP	NPP		NPP
4	278	4789,48	NMP	NMP			5,5			2,71	
4	279	4790,06	0,013	0,007			3,9			2,71	
4	279,11	4790,09			0,020	0,011		4,5	87,9		2,72
4	280	4790,47	0,029	0,016			3,8			2,70	
4	280,11	4791,00			0,021	0,012		4,6	74,5		2,73
4	281	4791,08	NMP	NMP			4,8			2,72	
4	282	4791,38	0,032	0,018			3,8			2,71	
4	283	4791,76	0,029	0,016			5,0			2,75	
4	283,11	4792,00			0,023	0,012		4,2	75,1		2,72
4	284	4792,07	0,021	0,011			3,5			2,70	
4	285	4792,50	0,219	0,136			3,7			2,70	
4	286	4792,90	0,032	0,018			3,7			2,71	
4	286,11	4793,30			0,021	0,011		4,5	72,9		2,73
4	287	4793,43	0,069	0,040			3,9			2,71	
4	288	4793,85	0,026	0,014			4,0			2,72	
4	288,11	4794,10			0,020	0,011		4,5	77,5		2,72
4	289	4794,07	NMP	NMP			5,1			2,71	
4	290	4794,70	0,110	0,065			4,1			2,71	
4	291	4795,10	0,022	0,012			3,8			2,71	
4	291,11	4795,15			0,033	0,018		4,7	67,4		2,72
4	292	4795,40	0,105	0,062			3,8			2,71	
4	293	4795,75	0,048	0,027			3,9			2,71	
4	294	4796,15	0,048	0,027			4,0			2,71	
4	294,11	4796,15			0,019	0,010		4,6	78,6		2,73
4	295	4796,59	0,028	0,015			3,5			2,71	
4	296	4797,06	NMP	NMP			4,5			2,72	
4	296,11	4797,15			0,021	0,011		4,5	54,0		2,73
4	297	4797,40	0,026	0,014			3,5			2,69	
4	298	4797,70	0,037	0,021			3,4			2,71	
4	299	4798,13	0,039	0,022			4,4			2,74	
4	299,11	4798,15			0,016	0,008		2,7	82,1		2,68
4	300	4798,60	0,032	0,018			3,8			2,73	
4	301	4799,06	0,028	0,016			3,3			2,70	
4	301,11	4799,10			0,021	0,012		4,4	51,3		2,72
4	302	4799,40	0,063	0,036			3,7			2,69	
4	303	4799,80	0,043	0,024			3,8			2,71	
4	304	4800,08	0,036	0,020			4,1			2,71	
4	304,11	4800,15			0,030	0,017		4,2	36,2		2,71
4	305	4800,50	0,031	0,017			2,1			2,66	
4	306	4800,80	0,034	0,019			3,7			2,70	
4	306,11	4801,00			0,022	0,012		4,2	48,5		2,71
4	307	4801,08	0,038	0,021			3,6			2,69	
4	308	4801,49	0,035	0,020			3,7			2,72	
4	308,11	4801,95			0,025	0,014		4,9	62,5		2,72
4	309	4802,08	0,092	0,054			4,0			2,71	
4	310	4802,60	0,046	0,026			3,7			2,70	
4	310,11	4803,00			0,028	0,015		4,0	54,0		2,71
4	311	4803,10	0,048	0,027			3,8			2,71	
4	312	4803,40	0,037	0,021			3,4			2,71	
4	312,11	4804,00			0,026	0,014		4,3	63,0		2,72
4	313	4804,10	0,028	0,016			3,8			2,71	
4	314	4804,53	0,033	0,018			4,1			2,72	
4	314,11	4804,95			0,025	0,014		4,3	52,3		2,72
4	315	4805,10	0,093	0,055			4,1			2,71	
4	316	4805,50	0,048	0,027			4,2			2,72	
4	316,11	4805,90			0,022	0,012		4,0	63,2		2,71
4	317	4805,95	0,027	0,015			3,9			2,71	
4	318	4806,56	0,034	0,019			4,0			2,71	
4	318,11	4807,00			NPP	NPP		NPP	NPP		NPP
4	319	4807,45	0,037	0,021			3,3			2,70	
4	319,11	4807,95			0,035	0,019		3,6	78,7		2,74
4	320	4808,00	0,026	0,014			2,5			2,71	
4	321	4808,38	0,023	0,013			2,6			2,73	
4	321,11	4808,93			0,023	0,013		3,9	76,7		2,74
4	322	4809,15	0,027	0,015			2,2			2,71	
4	322,11	4809,93			NMP	NMP		4,1	82,1		2,76
4	323	4810,05	0,012	0,006			2,9			2,73	
4	323,11	4810,93			0,025	0,013		4,4	86,8		2,78
4	324	4811,08	0,025	0,014			1,9			2,70	
4	325	4812,15	0,029	0,016			2,6			2,73	