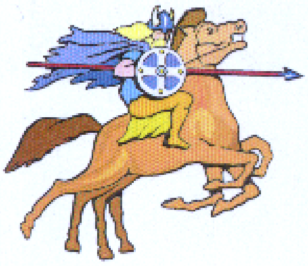

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15/9-21 S nr-18

Geological Report
Well 15/9-21 S
PL 046
Sleipner West Field

STATOIL

Report

Title
Geological Report **Well 15/9-21 S** **PL 046** **SLEIPNER WEST FIELD**

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P. Lightbound

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Drilling Results, Stratigraphic Tops, Structural Cross Section, FMT Summary, Composite Log, Formation Evaluation Log, CPI Log

Prepared by:	Name:	Date / Signature
GEOTEK OPGEO-S	Patrick Lightbound	P. Lightbound
Verified by:	**Name:**	**Date / Signature**
GEOTEK OPGEO-S	Jørn Slørdal	15/1-99 J. Slørdal
Approved by:	**Name:**	**Date / Signature**
SL-PETEK	Anne Elise Tjemsland	15.1.99 Anne Elise Tjemsland

CONTENTS

SUMMARY

All depths are referred to the rotary table (RT) unless otherwise stated (RT to MSL = 48 m).

Well 15/9-21 S was drilled from the Sleipner West platform, using the jack up rig "West Epsilon". The well was designed to appraise the oil potential of the Hugin Formation north of the Delta Structure. Another objective was to further appraise the Hugin Formation oil in the Sleipner Vest area, which had been discovered in well 15/9-B-4 T2.

The 24" section of well 15/9-21 S was spudded from the batch-set 32" conductor on 23rd March 1998. The Hugin target was penetrated approximately 2670 m East of the platform centre, at a depth of 4736.5 mMD (3592.0 mSS), 19.6 m deep to prognosis. Total depth was reached at 5126 mMD (3859.1 mTVD MSL) in the Skagerrak Formation.

Only minor hydrocarbons were found. The well was plugged back, and abandoned on 23rd May 1998.

The structural relationship of well 15/9-21 S to other wells penetrating the Hugin Formation is shown in the Top Hugin Formation structure map (Figure 1). A cross section demonstrating the structure and stratigraphic sequence encountered in this well is presented in Figure 2.

Figure 3 illustrates a summary of the FMT pressure points. Stratigraphic tops, casing, mud weight, LOT/FIT, cored intervals and FMT pressure points are presented graphically on the Well Information Plot in Figure 4.

Casing, logging, completion data are summarised in Table 1, and stratigraphic tops in table 3. The petrophysical parameters are shown in Table 4. A summary of sampling is recorded in Table 2.

A full directional survey listing is included as Attachment 1, and the wellsite core descriptions are found in Attachment 2. A composite log is found as Enclosure 1. Enclosure 2 is the formation evaluation log. The CPI log is found in Enclosure 3.

DRILLING SUMMARY

24" HOLE SECTION

The 32" conductor was batch set at 266 mMD, prior to drilling the well from the Sleipner "B" platform.

The 24" hole was drilled to 506 mMD in two bit runs. The hole angle at TD was 8°, with azimuth 85°. The section was drilled using seawater with high viscosity pills, and the hole was displaced to 1.12 sg water based mud before running casing. The 18 5/8" casing was run and set at 501.3 mMD.

17½" HOLE SECTION

The well was displaced to 1.20 sg KCl mud while drilling the float and cement. After drilling out the shoe and three metres of new formation, a formation integrity test was performed to 1.65 sg. The mud weight was gradually increased to 1.50 sg by 1680 mMD, then to 1.55 sg at 1746 mMD.

The 17½" section was drilled in two bit runs, both with a mud motor and Anadrill MWD/CDR tools. The first bit was pulled out of the hole at 1681 mMD. The bit had to be backreamed from 1340 mMD to the shoe due to increasing overpull. Large quantities of cuttings and cavings (up to handball size) were circulated out of the hole.

The second bit was run in the hole, and took weight at 1325 mMD. The assembly was reamed to bottom, then drilled and oriented to section TD at 2253 mMD.

The hole angle was built up to 28° by 1050 mMD, and then allowed to drift up to 34° by 1730 mMD, after which it was held between 31.6° and 35.4°. The azimuth was turned to 90.5° by 920 mMD, and drifted to 96.5° by section TD.

The 13 3/8" casing was run in, and was washed down from 2241 m to 2247 m. The casing was cemented with the shoe at 2248 mMD.

12¼" HOLE SECTION

The float, cement, shoe and 3 m of new formation were drilled using 1.55 sg KCl mud from the previous section, and a formation integrity test was performed to 1.75 sg. The hole was then displaced to 1.57 sg oil based mud before drilling ahead. The mud weight was reduced to 1.52 sg while drilling between 2821 mMD and 2828 mMD. High ECD values gave cause for concern, and the hole had to be circulated clean several times to reduce the ECD as measured by the PWD sub.

The first 12¼" bit was run with a mud motor and MWD/CDR, with a pressure while drilling sub (PWD). The hole was drilled and oriented to 2452 mMD, where the assembly was pulled after increases in both WOB and pump pressure. At surface, pieces of rubber from the motor were found blocking the bit nozzles.

The second 12¼" bit was run a rotary assembly with TRACS variable stabiliser and MWD/CDR. The bit was pulled at 2656 mMD due to bit hours. Tight spots were worked through at 2410 m, 2392 m and 2330 m, in the interbedded sands and clays of the Frigg Formation.

The final 12¼" bit was run with both TRACS and a mud motor. The TRACS was adjusted occasionally, and there was one period of steering to nudge the well to the left. The section TD was reached at 3457 mMD. There were no problems tripping out of open hole, but at 1535 mMD a 700 litre gain was observed in the trip tank. The well was shut in for 30 mins, but no pressure build up was seen and the well was static when flow checked.

The hole inclination was increased to 53° by 2690 mMD, and was then held between 51.5° and 54.7°. The azimuth was kept between 94.8° and 98.9°.

The 9 5/8" casing was run and cemented at 3451.8 mMD.

8½" HOLE SECTION

The same oil-based mud as the previous section, with a density of 1.55 sg, was used for the 8½" section. The float, cement, casing shoe and three metres of new formation were drilled and a formation integrity test was performed to 1.75 sg.

The hole inclination of 53° was maintained to 3940 m, after which the inclination gradually dropped to 45° by 4753 m (start of coring). The hole inclination more or less held while coring, then built to 48.5° by TD. The azimuth remained between 95° and 98°.

The first 8½" bit was run with a mud motor and TRACS. Drilling and occasional steering continued to 3666 mMD, where the bit was pulled due to low penetration rates.

The second 8½" bit was run with a new motor; the TRACS failed while running in and was replaced. The bit showed a tendency to walk to the right, and occasional steering was performed to correct this. The bit was pulled at 4231 mMD after the motor drive shaft broke.

The third 8½" bit was run on a stiff rotary assembly with TRACS. This was because the only spare motor on board was a low power motor. The stiff BHA caused problems with tight hole during the trip in, and the bit was washed and reamed to bottom. The bit was drilled to core point at 4747 m, 11m into a sandstone which was initially thought to be the Hugin Formation, but which later was palaeo-dated to be Heather Formation. During drilling, Finagreen ester base oil, Tritium and the chemical tracer isotag were added to the drilling mud. The bit was backreamed out of the hole, with tight hole experienced at 3710 mMD.

Four cores were cut through the lowermost Heather and the upper Hugin Formation, using gel-filled inner barrels.

Core assembly #1 was a 36 m coring assembly (4 barrels), which cored from 4747 mMD to 4753 mMD; at 4749 mMD the string stalled out and had to be picked off bottom to restart rotation and the same happened at 4752 mMD. No further progress was made after 4753 mMD, the pressure and torque having decreased, which indicated the core had jammed off. The average ROP was 3.5 m/hr. At surface 5.25m was recovered (87.5%) and the core had clearly jammed in the catcher. The problem seemed to be due to sandstone slipping along claystone laminae, and the apparent 45⁰ dip because of the hole angle. When breaking off the top of the core 65 ppm of H_2S was recorded. The drill floor was cleared for 15 mins until the readings came down to zero.

Core assembly #2 was a 55 m (6 barrels) coring assembly which cored from 4753 mMD to 4784 mMD, before jamming off. The average ROP was 6.2 m/hr. After pulling to surface 31.3 m of core was recovered (101% recovery).

Core assembly #3 was again a 55 m (6 barrel) assembly, with a memory-only CDR tool included to log the previously cored intervals. The interval 4784 - 4816 mMD was cored with an average penetration rate of 3.7 m/hr, until the core again jammed off and the BHA was pulled out of the hole. At surface 31.0 m of core was recovered (96.9%). Although the CDR log from the upper 15 mMD of the Hugin sandstone indicated water saturated reservoir, it was decided to continue coring as the upper part of core #3 had good shows indicating light oil present below 3630 mTVD MSL (a possible oil leg was expected to be present below 3640 mTVD MSL based on data from well 15/9-B-4 T2 located in the northern part of the main Sleipner West field).

Core assembly #4 again had a 55 m 6 barrel assembly with memory-only CDR. It cored from 4816 to 4843m MD, where it was pulled after a pressure spike was observed at surface. 27 m were recovered, giving 100 % recovery; the sandstones were often very tight, and only traces of shows were observed.

Further drilling was made with a conventional rotary assembly. While running in hole the cored interval from 4765 m MD to TD was reamed for CDR data. Drilling then continued from 4843 - 5022 mMD, where a bit change was required. After changing the bit, the same assembly was run in the hole and drilled to TD at 5126 mMD.

Western Atlas logging operations followed, starting May 15th 1998.

The first logging run included TTRM/DGR/MAC/HDIL and was run on wireline, logging the interval 4272 - 5125 mMD. Sonic data was poor through the Hugin Formation due to incorrect automatic picking of the first wave arrivals. Some overpull was encountered while pulling out through the Draupne Formation.

The second logging run included TTRM/DGR/CN/ZDL/HEXDIP on wireline, but was unable to pass 3564 mMD (Tor Formation). The tools were pulled to surface; the HEXDIP was removed and a knuckle-joint and hole-finder tool were added to the base of the tool string. At the second attempt the tool could not pass 3469 mMD, just 17 mMD into the open hole.

The third logging run was carried out on PCL and included CHT/GR/FMT/TTRM/DSL/CN/ZDL/HEXDIP. After running in to the shoe and attaching the wet connection the CN tool was found not to respond. ZDL/GR was logged down from 4272 - 5120 mMD and logged up from 5120 - 4719 mMD (to top Hugin). 27 FMT points (no samples) were then taken while running back into hole through the reservoir. Finally HEXDIP was logged up from 5119 - 4670 mMD, with ZDL logged up over the interval 4670 - 4272 mMD. The caliper arms could not be closed, and it was decided to pull out of hole rather than go down and take more FMT points as had been planned.

Logging operations ceased on May 19th 1998.

The well was then plugged and abandoned on the 23rd May 1998.

TABLE OF STRATIGRAPHIC TOPS

GROUP/Formation	Prognosed depth, m		Actual depth, m				
	TVD RT	TVD MSL	MD	TVD RT	TVD MSL	TVT	+/-
Top Utsira	858,0	810,0	873,0	866,0	818,0	245,4	8,0
Base Utsira	1108,0	1060,0	1144,0	1111,4	1063,4		3,4
Top Frigg	2037,0	1989,0	2233,2	2033,0	1985,0	198,4	-4,0
ROGALAND/Balder	2353,0	2305,0	2619,5	2325,3	2277,4	52,6	-27,6
Sele			2704,3	2378,0	2330,0	66,0	
Lista			2815,3	2444,0	2396,0	44,5	
Heimdal	2495,0	2447,0	2890,6	2488,5	2440,5	195,1	-6,5
Våle			3222,5	2683,5	2635,5	130,2	
SHETLAND/Ekofisk	2814,0	2766,0	3437,0	2813,7	2765,7	46,7	-0,3
Tor			3512,5	2860,4	2812,4	136,0	
Hod			3743,0	2996,4	2948,4	242,2	
Blodøks			4137,5	3238,7	3190,7	46,5	
Hidra			4208,0	3285,1	3237,1	42,2	
CROMER KNOLL/Rødby			4272,0	3327,3	3279,4	31,5	
Sola			4320,3	3358,8	3310,8	27,1	
Åsgard			4362,0	3385,9	3337,9	44,8	
VIKING/Draupne	3428,0	3380,0	4431,0	3430,7	3382,7	183,2	2,7
Heather			4700,0	3614,0	3566,0	47,6	
VESTLAND/Hugin	3642,0	3594,0	4766,5	3661,6	3613,6	183,4	19,6
Sleipner	3841,0	3793,0	5032,4	3845,0	3797,0	62,1	4,0
Total Depth	3900,0	3852,0	5126,0	3907,1	3859,1		7,1

LITHOLOGICAL DESCRIPTION

NORDLAND GROUP **Sea-floor@156 m - 2233.2 m MD** **Sea-floor@108m - 1985 m TVD MSL**

No returns to surface until start of drilling of the 17½" hole at 506 m MD.
Below 506 m MD, the claystones were medium dark grey to dark grey, occasionally brownish grey or olive grey, soft and plastic, sticky, subblocky, somewhat silty, locally sandy, and variably calcareous.

Below the Utsira Formation, the Nordland Group was dominated by claystones, with occasional thin limestone beds.
The claystones were generally olive grey to brownish grey, occasionally yellowish brown to brownish black, becoming greenish grey near the base of the formation. They were soft to firm, partly sticky, generally calcareous and somewhat silty and sandy.
The limestones were yellowish brown to light brown, soft to hard, microcrystalline to cryptocrystalline and partly argillaceous.

Utsira Formation **873 - 1144 m MD** **818 - 1063.4 m TVD MSL**

The massive sandstones of the Utsira Formation consisted of clear and occasionally translucent loose quartz grains. The grains ranged from very fine to coarse and were subangular to subrounded, occasionally well rounded, moderately sorted to occasionally well sorted, with occasional traces of kaolinitic matrix. Traces of limestone, claystone, mica, pyrite and glauconite were observed.

HORDALAND GROUP **2233.2 - 2619.5 m MD** **1985 - 2277 m TVD MSL**

Frigg Formation **2233.2 - 2619.5 m MD** **1985 - 2277 m TVD MSL**

The Frigg Formation consisted of claystones interbedded with minor sandstones and dolomites.
The claystones were greenish grey, olive grey to olive black and medium to medium dark grey. Towards the base of the formation dusky yellowish brown varieties of claystone were seen along with brownish grey and greyish red ones. The claystones were soft to firm, partly sticky, generally non calcareous, occasionally slightly calcareous and often silty.
The sandstones consisted of clear and transparent loose quartz grains which were fine to medium-grained, with occasional coarse grains. The grains were moderately to well sorted and subangular to subrounded. The lowermost sandstone probably was dolomite cemented.
The dolomites were very light grey to pale orange and dark yellowish orange to moderate yellowish brown, pale yellowish brown, moderately to very hard and generally blocky.

ROGALAND GROUP **2619.5 - 3437 m MD** **2277.4 - 2765.7 m TVD MSL**

Balder Formation **2619.5 - 2704.3 m MD** **2277.4 - 2330 m TVD MSL**

The tuffaceous Balder Formation consisted of tuffaceous claystones with thin tuff zones.
The claystones were greenish black, olive black and medium bluish grey, subblocky to blocky and moderately hard to firm.
The tuff was medium bluish grey to medium greenish grey, soft and non to slightly calcareous.
Traces of limestone were white to greyish white, moderately hard to hard, blocky and cryptocrystalline.

Sele Formation **2704.3 - 2815.3** **2330 - 2396 m TVD MSL**

The claystones of the Sele formation were brownish grey to greyish black and olive black. They were firm to hard, slightly to non calcareous and contained traces of limestone as well as traces of very fine to fine, subrounded to rounded, moderately to well sorted loose sand grains below 2790 m MD.

Lista Formation **2815.3 - 2890.6 m MD** **2396 - 2440.5 m TVD MSL**

The Lista Formation claystones were medium dark grey to dark grey and occasionally greenish grey, soft to moderately hard with subblocky cuttings.
Sandy intervals of thicknesses of up to 1 - 2 metres consisted of clear, transparent and occasionally milky quartz grains which were very fine to occasionally fine, subrounded to rounded and well sorted, with traces of pyrite nodules.

Heimdal Formation **2890.6 - 3222.5 m MD** **2440.5 - 2635.5 m TVD MSL**

The sandy Heimdal Formation consisted of sandstones interbedded with thin claystones and rare siltstones, in addition to rare thin limestone beds.
The sandstones consisted of clear to milky white quartz grains which were dominantly fine-grained, generally ranging from very fine to occasionally medium-grained with rare coarse grains. The grains were subangular to subrounded, moderately sorted and loose to slightly silica-cemented. The sandstones contained rare traces of pyrite and mica.
The siltstones were light grey to medium grey, light brownish grey, soft to moderately hard, subblocky, argillaceous, silica cemented and non calcareous.
The claystones were greenish grey, light to medium dark grey, brownish grey and olive grey, soft to moderately hard, partly sub-fissile, subblocky to blocky, partly silty, and non calcareous.
The limestones were light grey to medium light grey, soft to firm, cryptocrystalline and argillaceous.

Våle Formation **3222.5 - 3437 m MD** **2635.5 - 2765.7 m TVD MSL**

The Våle Formation consisted of claystones interbedded with sandstones and thin limestones.
The claystones were greenish black to greenish grey to olive grey to olive black, soft to moderately hard, generally silty and generally non calcareous.
The sandstones varied in thickness from less than a metre up to over 10 metres, and consisted of clear and occasionally milky grains which were fine- to medium-grained with occasional coarse grains, moderately sorted, and loose to slightly silica- and calcareously cemented.
The thin limestone beds consisted of greyish, pinkish and yellowish orange limestone, locally of argillaceous and moderate yellowish brown limestone, and locally of clean white limestone. The limestones were hard, blocky and cryptocrystalline.

SHETLAND GROUP 3437 - 4272 m MD 2765.7 - 3279.4 m TVD MSL

Ekofisk Formation 3437 - 3512.5 m MD 2765.7 - 2812.4 m TVD MSL

The massive, slightly argillaceous limestones of the Ekofisk Formation ranged in colour from white to light grey to greyish orange pink to olive grey, and were generally cryptocrystalline, moderately hard to hard and blocky, though occasionally soft and subblocky.

Tor Formation 3512.5 - 3743 m MD 2812.4 - 2948.4 m TVD MSL

The massive limestones of the Tor Formation were generally white to light grey and slightly less argillaceous than the Ekofisk Formation limestones, though otherwise very similar. Rare traces of dark grey and olive grey calcareous claystones were seen.

Hod Formation 3743 - 4137.5 m MD 2948.4 - 3190.7 m TVD MSL

The massive Hod Formation limestones were argillaceous and slightly marly near the base, becoming cleaner towards the top of the formation.
They were very light grey to light grey, pale brown to light brown to moderate brown, greyish orange pink, and light olive grey to olive grey when marly. They were brittle and moderately hard to hard, but soft to firm when marly, cryptocrystalline and variably argillaceous.

Blodøks Formation 4137.5 - 4208 m MD 3190.7 - 3237.1 m TVD MSL

The Blodøks Formation consisted of marly limestone at the base, grading into marl towards the top.
The marl was mottled olive grey to olive black, soft to firm with subblocky cuttings.
The limestones were medium light grey to medium grey, light yellowish brown and light brownish grey, occasionally mottled and marly, soft to moderately hard, cryptocrystalline and variably argillaceous.

Hidra Formation 4208.0 - 4272.0 mMD 3237.1 - 3279.4 mTVD MSL

The Hidra Formation consisted of limestone with common interbeds and laminations of marl. The limestones were off white to light grey, slightly to predominantly moderately argillaceous, occasionally very argillaceous, with rare glauconite. The marls were medium grey to olive grey, slightly micromicaceous and microcarbonaceous, and also contained rare glauconite.

CROMER KNOLL GROUP 4272.0 - 4431.0 mMD 3279.4 - 3382.7 mTVD MSL

Rødby Formation 4272.0 - 4320.3 mMD 3279.4 - 3310.8 mTVD MSL

This section was dominated by a medium grey to occasionally greenish grey, very silty, argillaceous and slightly micromicaceous limestone, which locally graded into calcareous and argillaceous siltstone. Thin dark grey to olive grey calcareous, and slightly micromicaceous claystones were also thinly developed.

Sola Formation 4320.3 - 4362.0 mMD 3310.8 - 3337.9 mTVD MSL

This interval contained a slightly to moderately calcareous, slightly to occasionally moderately micromicaceous, multicoloured claystone. The claystone was off white to light to dark grey to olive grey, light to medium dark greenish grey to brownish grey, and medium to dark brown to reddish brown. Traces of argillaceous, off white to pale greenish grey and pink limestone were also noted.

Åsgard Formation 4362.0 - 4431.0 mMD 3337.9 - 3382.7 mTVD MSL

This was a complex interbedded and intergrading sequence of claystones, marls and limestones. Two types of claystone were found. One type was light to medium greenish grey to olive grey to grey, moderately to very calcareous, and trace to slightly micropyritic. The other type was dark grey to olive black, non to very calcareous, carbonaceous, and slightly micromicaceous.

The marls were multicoloured, pale to medium dark olive grey, pale to medium grey, medium to dark brown to reddish brown, and slightly microcarbonaceous, while the limestones were white to pale grey to greenish grey and pink, slightly to very argillaceous, and locally micropyritic.

VIKING GROUP **4431.0 - 4766.5 mMD** **3382.7 - 3613.6 mTVD MSL**

Draupne Formation **4431.0 - 4700.0 mMD** **3382.7 - 3566.0 mTVD MSL**

This section comprised a thick claystone with minor to locally common limestone. The claystone was brownish black to olive black, non to slightly calcareous, slightly to occasionally moderately dolomitic, carbonaceous, locally silty and moderately micromicaceous. The limestones were white to very light grey to light grey, argillaceous in part, clean in part and slightly dolomitic.

Heather Formation **4700.0 - 4766.5 mMD** **3566.0 - 3613.6 mTVD MSL**

The Heather Formation consisted of claystone with common marl stringers. The lowermost 30 mMD of the formation consisted of sandstone, which was initially thought to be the top of the Hugin Formation, but which later palaeo-dating indicated to be from the Heather Formation.
The claystones were almost indistinguishable from those of the Draupne, but became more greyish black. The marls were light to medium grey to olive grey, slightly to moderately dolomitic grading to occasional calcareous claystone and minor argillaceous limestone.
Prior to coring, the sandstone was seen as 100% rock flour/matrix, which was partly light to medium grey to brownish grey, slightly argillaceous, non to very slightly calcareous, slightly dolomitic, and partly off white, moderately to very dolomitic, slightly calcareous, and both with occasional to common very fine to occasionally fine sand grains embedded. No shows were seen in the samples, and the gas readings were low.
Core # 1 (4747 - 4753 mMD) contained a thin dark grey, very argillaceous and dolomitic limestone, followed by very fine - fine grained, slightly agillaceous, generally pyritic sandstones, which had several claystone laminae and one pyritic coal lamina. The laminae were sometimes wavy and of limited extent, and sometimes persistent thin flat laminae.
The upper part of Core # 2 (4753 - 4766 mMD) consisted of interbedded very fine to fine-grained sandstones and brownish-black claystones.

VESTLAND GROUP **4766.5 - 5126.0 mMD (TD)** **3613.6 - 3859.1 mTVD MSL (TD)**

Hugin Formation **4766.5 - 5032.4 mMD** **3613.6 - 3797.0 mTVD MSL**

The top of the Hugin Formation is picked on palaeo-dating , occurring within the interval cored in Core # 2.
The lower parts of Core # 2 (4766 - 4784 mMD) consisted of fine to medium grained, massive, porous sandstones. Though shows were masked by coring gel and oil based mud invasion, the lower half of the core sometimes had slight hydrocarbon odour and dull brown to golden direct fluorescence and a dull white crush cut fluorescence.

Core # 3 down to 4798 mMD consisted of fine to medium and occasional coarse grained sandstones which were fairly hard, silica cemented and variably dolomitic, yet had fair to good porosities. The sandstones generally had a dull yellowish white direct fluorescence and a slow streaming bright white to yellowish cut fluorescence. The lower part of core # 3 consisted of somewhat more fine grained sandstones interbedded with claystones and siltstones. The sandstones changed colour from brownish grey to yellowish brown, light brownish grey and olive grey below 4798 mMD and were partly tight and partly had poor porosity, exhibiting only traces of shows.

Core # 4 consisted of tight and very tight sandstones, with only faint traces of shows which probably originated from the oil-based mud filtrate.

Please see the core descriptions for more detailed lithological descriptions (attachment 2).

Conventional drilling followed from 4843 mMD. The cuttings consisted of rock flour with traces of loose very fine to fine and occasional medium sand grains, and occasionally of olive grey and dark grey claystone. Traces of black, firm, brittle coal with angular break were seen locally.

There were no more shows below the cored interval.

Sleipner Formation **5032.4 - 5126 mMD (TD)** **3797.0 - 3859.1 mTVD MSL (TD)**

This is a sequence of interbedded sandstone, siltstone, claystone, carbonaceous claystone and coal.

The sandstone, which was mainly seen near the top of the formation, was light brown in colour, and consisted of clear, angular, loose quartz grains which were very fine to fine grained. Toward the very base of the section, traces of light brownish grey sandstone were seen, with clear to milky quartz grains, very fine to fine, with rare medium grains. The grains were loose, angular to subangular and generally moderately sorted. Small pyrite nodules were occasionally seen. In the final 4 - 6 metres above TD, a fine to medium grained sandstone was seen.

Minor siltstone was occasionally seen. It was brownish grey, soft to firm, non calcareous and varied from very finely arenaceous siltstone to silty sandstone, to a locally more argillaceous siltstone.

The claystones were commonly dark grey and olive grey, hard, fissile, and non calcareous. They were frequently silty. From 5039 mMD, the claystones were dominantly carbonaceous to a variable degree and sometimes graded to coal. The carbonaceous claystones were brownish black, dark grey, slightly hard, variably brittle and non calcareous, occasionally black and carbonaceous grading to coal.

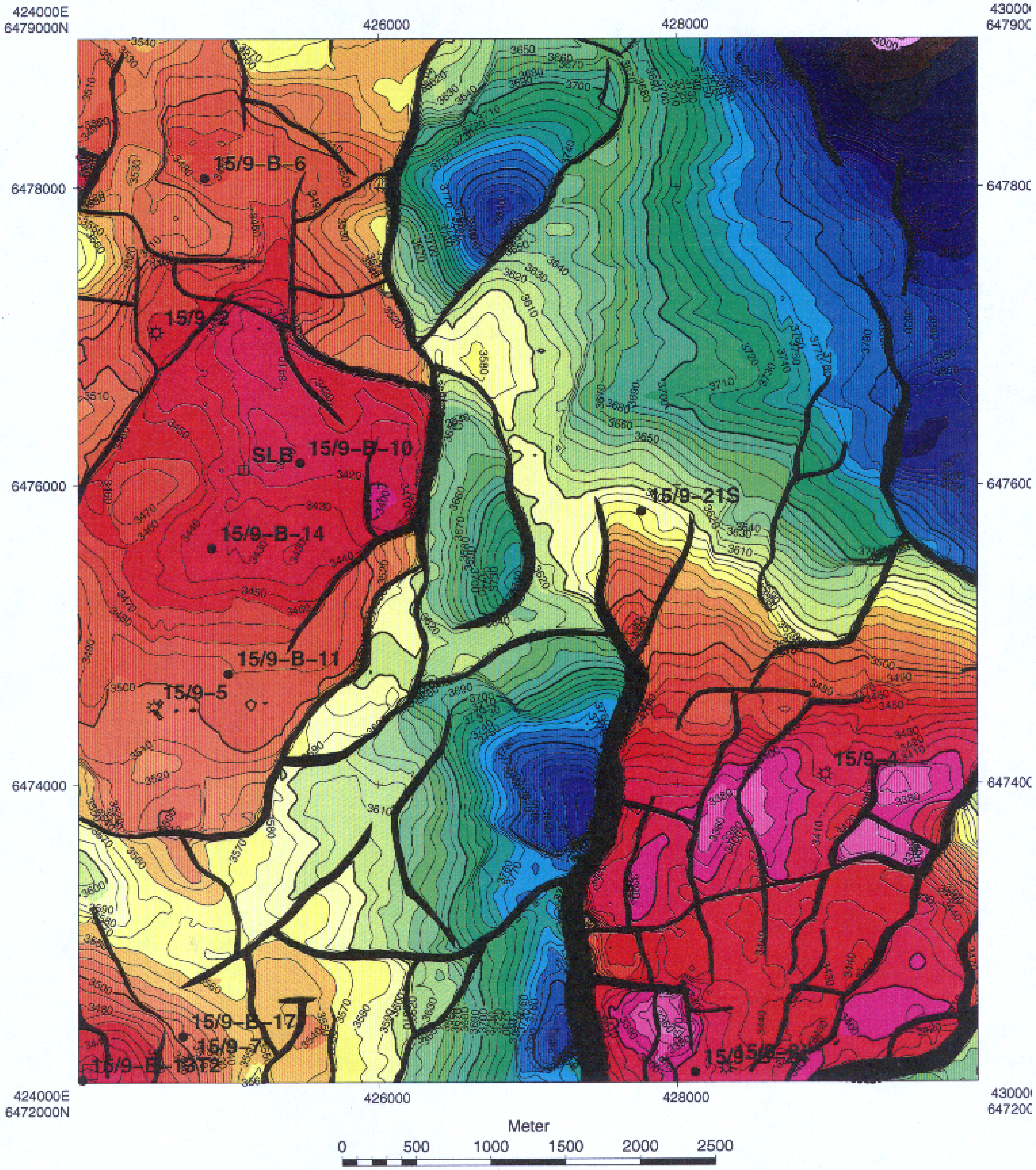
The coals were black, brittle and firm, with angular break and were occasionally slightly argillaceous.

The Sleipner Vest Field

Location and wellpath of well 15/9–21 S

C.I: 10m

STATOIL



1–Dec–98

SLEIPNER WEST DELTA STRUCTURE
STRUCTURAL CROSS-SECTION
15/9-21 S

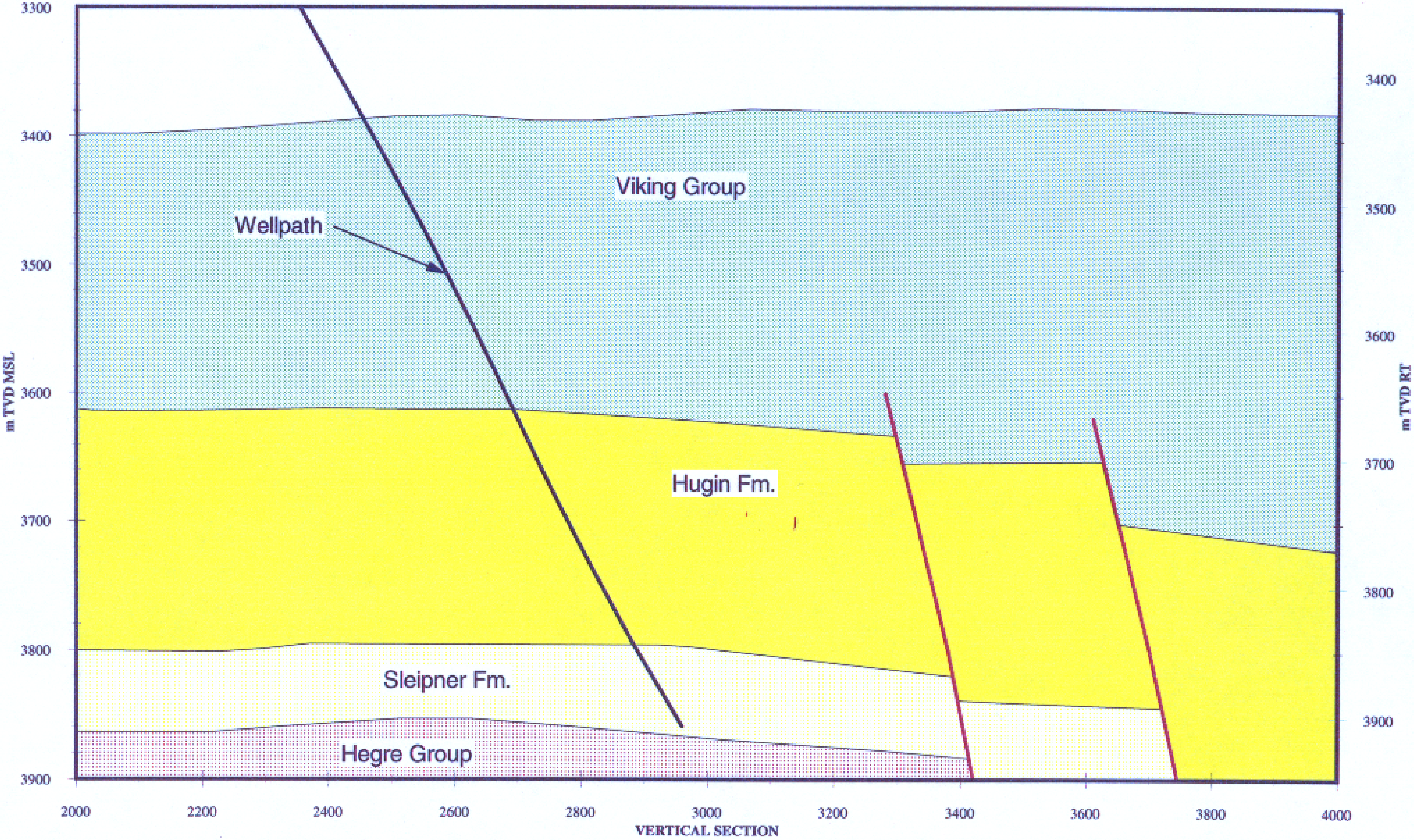


FIGURE 2

SLEIPNER WEST
FMT SUMMARY
WELL 15/9-21 S

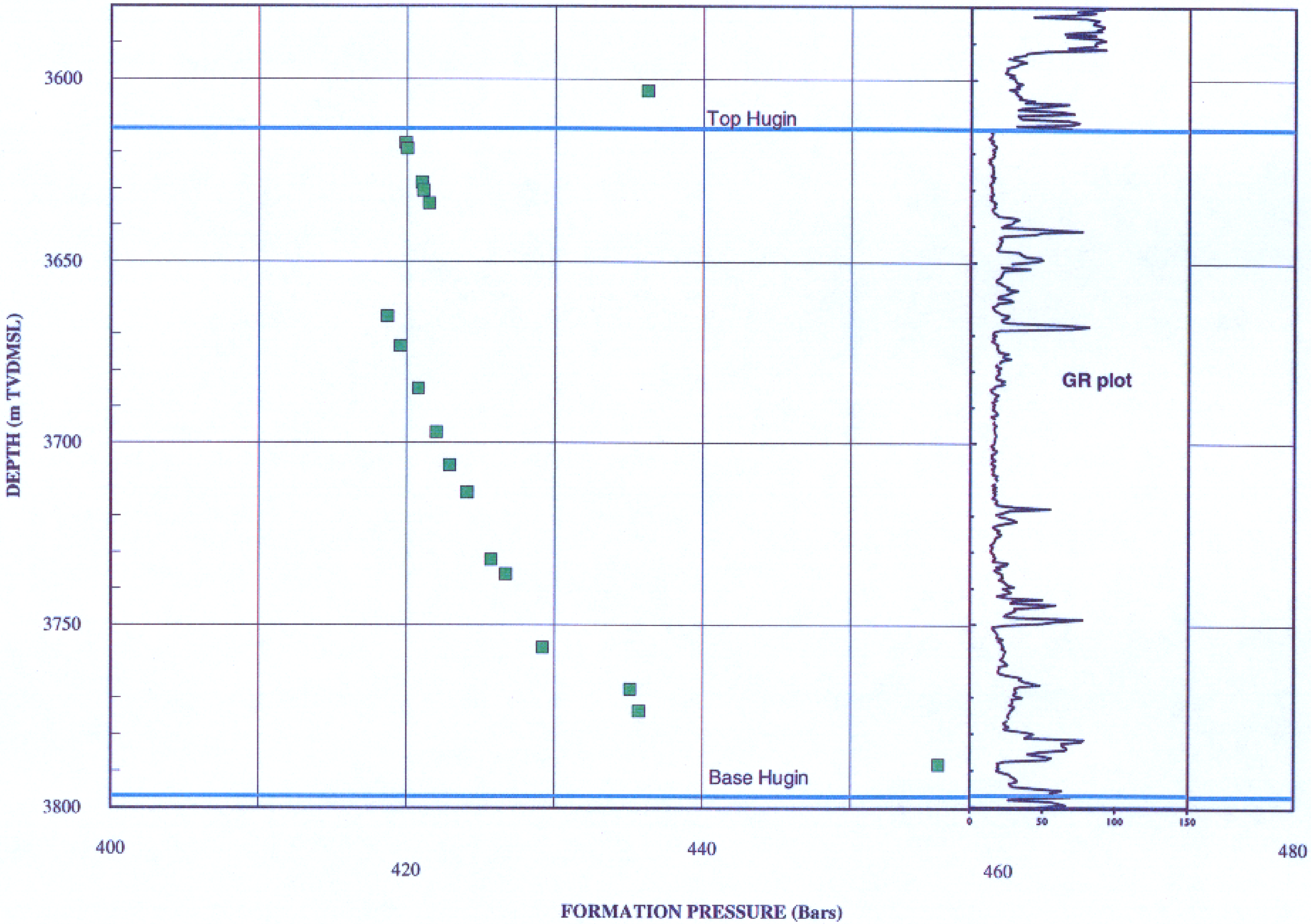
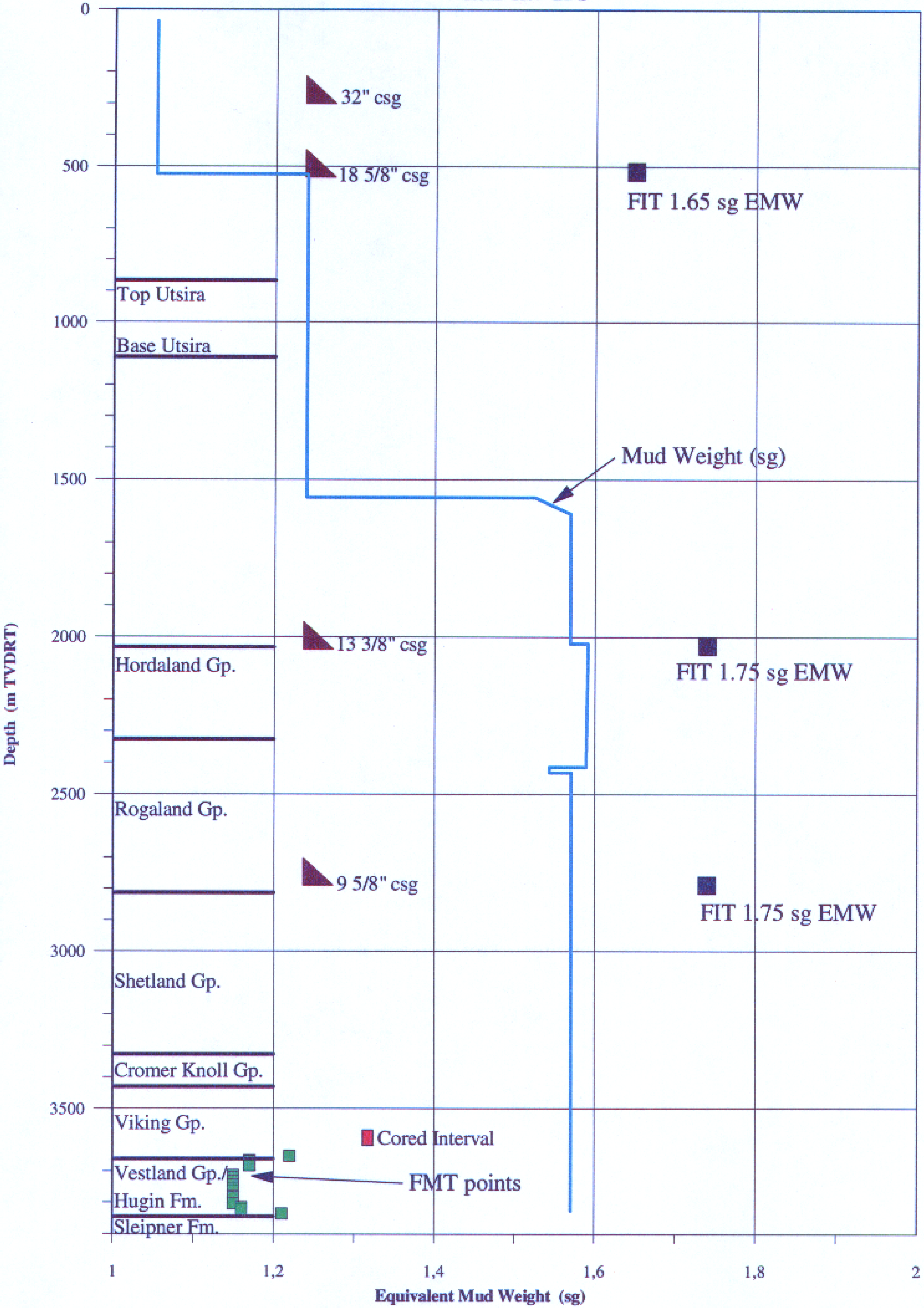


FIGURE 3

FIGURE 4

SLEIPNER WEST
WELL INFORMATION SUMMARY
WELL 15/9-21 S



WELL INFORMATION SUMMARY
SLEIPNER WEST
WELL 15/9-21 S

LICENCE:	:	PL 046
WELL TYPE	:	HUGIN OIL APPRAISAL
PLATFORM CENTRE	:	LAT 58° 25' 04.485" N LONG 01° 43' 04.383" E
RKB - MSL	:	48 m
WATER DEPTH	:	108 m
SPUD DATE	:	23.03.98. Drill out 32" conductor
REACHED TD	:	15.05.98
TOTAL DEPTH	:	5126 m MD 3859.1 m TVD MSL
TARGET LOCATION	:	UTM 6 475 821.87 mN 427 782.27 mE Top Hugin Fm.
CLOSURE AT TD	:	2945.6 (at 93.69° from wellhead)

CASING DEPTHS :

32"	at	265.8 mMD	265.8 mTVD
$18^5/_8$"	at	501.3 mMD	500.6 mTVD
$13^3/_8$"	at	2248.0 mMD	2045.5 mTVD
$9^5/_8$"	at	3451.8 mMD	2822.9 mTVD

CORING :

No. 1	4747 mMD - 4753 mMD	Rec. 5.25 m (87.5%)
No. 2	4753 mMD - 4784 mMD	Rec. 31.30 m (101%)
No. 3	4784 mMD - 4816 mMD	Rec. 31.00 m (96.9%)
No. 4	4816 mMD - 4843 mMD	Rec. 27.00 m (100%)

OPEN HOLE LOG RUNS:

RUN #	LOG TYPE	DATE	Interval (mMD)
	ANADRILL LWD		
1	MWD only	23.03.98	266 - 506
2 - 10	MWD/CDR	26.03 - 02.05.98	506 - 4747
11 - 12	CDR memory only	06 - 09.05.98	4747 - 4843
13 - 14	MWD/CDR	11 - 15.05.98	4843 - 5126
	WESTERN ATLAS		
1a	TTRM/DGR/MAC/HDIL (wireline log)	15 - 16.05.98	5125 - 4272
1a	CHT/GR/FMT/TTRM/DSL/CN/ZDL/HEXDIP (pipe conveyed)	17 - 19.05.98	5120 - 4272

COMPLETION INTERVALS : Plugged and abandoned

SUMMARY OF SAMPLING
SLEIPNER WEST
WELL 15/9-21 S

TYPE	INTERVAL m MD RT	FREQUENCY	SETS	REMARKS
WASHED LITHOLOGY	506 - 4340 4340 - 4508 4508 - 4580 4580 - 5126	10 m / 5 m 3 m 6 m 3 m		Samples taken for lithology descriptions only NOT RETAINED
UNWASHED PALEO	3457 - 4340 4340 - 4508 4508 - 4580 4580 - 5126	10 m 3 m 6 m 3 m	6 6 6 6	
WASHED AND DRIED	4340 - 4508 4508 - 4580 4580 - 5126	3 m 6 m 3 m	2 2 2	

STRATIGRAPHIC TOPS
SLEIPNER WEST
WELL 15-9-21 S

FORMATION/GROUP	MEASURED DEPTH	TVD DEPTH	SUBSEA DEPTH	ISOCHORE THICKNESS	EAST UTM	NORTH UTM
Utsira Fm	873,0	866,0	818,0	245,3	425 179.75	6 476 113.29
Frigg Fm	2233,2	2033,0	1985,0	198,4	425 870.79	6 476 064.42
ROGALAND GROUP	2619,5	2325,3	2277,3	488,3	426 119.14	6 476 038.27
Balder Fm	2619,5	2325,3	2277,3	52,6	426 119.14	6 476 038.27
Sele Fm	2704,3	2378,0	2330,0	66,0	426 185.00	6 476 029.59
Lista Fm	2815,3	2444,0	2396,0	44,5	426 273.38	6 476 016.59
Heimdal Fm	2890,6	2488,5	2440,5	195,0	426 333.40	6 476 007.37
Våle Fm	3222,5	2683,5	2635,5	130,2	426 599.50	6 475 971.76
SHETLAND GROUP	3437,0	2813,7	2765,7	513,6	426 768.36	6 475 948.07
Ekofisk Fm	3437,0	2813,7	2765,7	46,7	426 768.36	6 475 948.07
Tor Fm	3512,5	2860,4	2812,4	136,0	426 827.29	6 475 941.12
Hod Fm	3743,0	2996,4	2948,4	242,2	427 012.13	6 475 920.46
Blodøks Fm	4137,5	3238,7	3190,7	46,5	427 321.73	6 475 887.19
Hidra Fm	4208,0	3285,1	3237,1	42,2	427 374.23	6 475 880.16
CROMER KNOLL GROUP	4272,0	3327,3	3279,3	103,4	427 421.93	6 475 873.43
Rødby Fm	4272,0	3327,3	3279,3	31,4	427 421.93	6 475 873.43
Sola Fm	4320,3	3358,8	3310,8	27,1	427 458.23	6 475 868.24
Åsgard Fm	4362,0	3385,9	3337,9	44,8	427 489.50	6 475 863.52
VIKING GROUP	4431,0	3430,7	3382,7	209,3	427 541.39	6 475 855.59
Draupne Fm	4431,0	3430,7	3382,7	183,2	427 541.39	6 475 855.59
Heather Fm	4700,0	3614,0	3566,0	47,7	427 736.41	6 475 828.27
VESTLAND GROUP	4766,5	3661,6	3613,6	183,4	427 782.27	6 475 821.87
Hugin Fm	4766,5	3661,6	3613,6	183,4	427 782.27	6 475 821.87
Sleipner Fm	5032,4	3845,0	3797,0	62,1	427 972.65	6 475 794.99
TOTAL DEPTH	5126,0	3907,1	3859,1		428 042.07	6 475 784.64

RESERVOIR ROCK PROPERTIES
SLEIPNER WEST
WELL 15/9-21 S

Formation	Fluid	Depth m MD	Depth m TVD MSL	TVT m	PHIF	SW	N/G	H.PERM-A md
Heather	Water	4700.0 - 4766.5	3566.0 - 3613.5	47.6	0.173	0.700	0.153	2.646
Hugin	Water	4766.5 - 5032.4	3613.5 - 3797.0	183.5	0.165	0.864	0.748	575.911

FORMATION PRESSURE TEST SUMMARY
SLEIPNER WEST
WELL 15/9-21 S

TEST	Depth, m			Hydrostatic Pressure, Bars		Formation Pressure		COMMENTS	FM/ZONE
#	MD	TVD RT	TVD MSL	Initial	Final	Bars	sg EMW RT		
1	4752,0	3651,1	3603,1	599,5	597,0	436,2		Supercharged	Heather
2	4772,0	3665,5	3617,5	603,2	601,8	419,9	1,18	Good Test	Hugin
3	4774,1	3667,0	3619,0	586,3	587,4	420,0	1,18	Good Test	Hugin
4	4790,0	3678,4	3630,4	604,3	602,0	421,1	1,18	Good Test	Hugin
5	4795,0	3682,0	3634,0	608,3	603,1	421,5	1,18	Good Test	Hugin
6	4752,0	3651,1	3603,1	523,0	525,4	434,8		Supercharged	Hugin
7	4786,9	3676,2	3628,2	607,0	605,0	421,0	1,18	Good Test	Hugin
8	4838,5	3713,0	3665,0	611,4	608,0	418,7	1,16	Good Test	Hugin
9	4850,0	3721,1	3673,1	613,7	611,6	419,6	1,16	Good Test	Hugin
10	4866,7	3696,9	3684,9	614,1	612,1	420,8	1,16	Good Test	Hugin
11	4884,0	3745,0	3697,0	620,2	617,3	422,0	1,16	Good Test	Hugin
12	4896,9	3753,9	3705,9	616,6	616,2	422,9	1,16	Good Test	Hugin
13	4908,0	3761,6	3713,6	620,0	617,7	424,1	1,16	Good Test	Hugin
14	4917,0	3768,8	3719,8	622,5	614,0	415,5		Tight	Hugin
15	4935,0	3780,0	3732,0	618,6	617,3	425,7	1,16	Good Test	Hugin
16	4941,0	3784,1	3736,1	630,9	627,7	426,7	1,16	Good Test	Hugin
17	4971,0	3804,2	3756,2	632,3	629,6	429,2	1,16	Good Test	Hugin
18	4988,1	3815,6	3767,6	630,6	627,9	435,1	1,18	Good Test	Hugin
19	4997,0	3821,5	3773,5	634,3	630,9	435,7	1,18	Good Test	Hugin
20	5020,1	3836,8	3788,8	634,2	631,3	244,2		Tight	Hugin
21	5019,0	3836,1	3788,1	603,4	603,9	455,9	1,23	Good Test	Hugin
22	5027,0	3841,5	3793,5	639,5	637,0	565,4		Supercharged	Hugin
23	5027,9	3842,1	3794,1	639,5	636,5	478,0		Supercharged	Hugin
24	5039,0	3849,4	3801,4	634,9	632,7	523,3		Supercharged	Sleipner
25	5041,0	3850,8	3802,8	641,3	639,8			Seal Failure	Sleipner
26	5041,5	3851,1	3803,1	639,6	636,0	630,1		Supercharged	Sleipner
27	5074,0	3872,6	3824,6	642,3				Power Failure	Sleipner
28	5075,0	3873,3	3825,3	643,4	638,4	502,6		Tight	Sleipner

ATTACHMENT 1

FINAL DIRECTIONAL SURVEY
15/9-21 S

STATOIL
Sleipner B
SLOT B-16
Sleipner Area 15/9
Norsk Sektor

S U R V E Y   L I S T I N G

Well name : 15/9-21 S

Your ref : 15/9-21 S Definitive (5126m)
Our ref : svy2320

Date printed : 24-Jul-98
Date created : 18-May-98
Last revised : 3-Jun-98

Field is centred on 436149.570,6470271.090,3.00000,N

Structure is centred on 425099.229,6476101.205,3.00000,N

STATOIL
Sleipner B 15/9,15/9-21 S
Sleipner Area 15/9,Norsk Sektor

SURVEY LISTING Page 1
Your ref : 15/9-21 S Definitive (5126m)
Last revised : 3-Jun-98

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES	
0.00	0.00	0.00	0.00	1.96n	3.54e	425102.77	6476103.17	N58 25 04.55	E1 43 04.60
129.77	0.00	0.00	129.77	1.96n	3.54e	425102.77	6476103.17	N58 25 04.55	E1 43 04.60
150.00	0.38	346.33	150.00	2.03n	3.53e	425102.75	6476103.23	N58 25 04.55	E1 43 04.60
180.00	0.32	340.35	180.00	2.20n	3.47e	425102.70	6476103.41	N58 25 04.56	E1 43 04.59
210.00	0.27	4.70	210.00	2.35n	3.45e	425102.68	6476103.56	N58 25 04.56	E1 43 04.59
240.00	0.39	297.83	240.00	2.47n	3.37e	425102.59	6476103.68	N58 25 04.57	E1 43 04.59
270.00	0.58	220.75	270.00	2.40n	3.18e	425102.41	6476103.61	N58 25 04.56	E1 43 04.58
300.00	0.57	199.96	300.00	2.15n	3.03e	425102.26	6476103.35	N58 25 04.56	E1 43 04.57
330.00	0.62	194.88	329.99	1.85n	2.93e	425102.16	6476103.06	N58 25 04.55	E1 43 04.56
360.00	0.49	93.78	359.99	1.69n	3.02e	425102.25	6476102.89	N58 25 04.54	E1 43 04.57
390.00	3.38	80.33	389.97	1.83n	4.02e	425103.25	6476103.03	N58 25 04.55	E1 43 04.63
420.00	5.25	79.18	419.89	2.23n	6.24e	425105.47	6476103.44	N58 25 04.56	E1 43 04.76
450.00	6.46	79.42	449.73	2.80n	9.25e	425108.47	6476104.01	N58 25 04.58	E1 43 04.95
480.00	7.58	81.77	479.50	3.39n	12.87e	425112.09	6476104.60	N58 25 04.60	E1 43 05.17
510.00	8.06	85.54	509.23	3.84n	16.92e	425116.14	6476105.04	N58 25 04.62	E1 43 05.42
540.00	8.35	77.29	538.92	4.48n	21.14e	425120.36	6476105.69	N58 25 04.64	E1 43 05.68
570.00	8.19	77.21	568.61	5.44n	25.35e	425124.57	6476106.64	N58 25 04.68	E1 43 05.94
600.00	8.18	77.34	598.30	6.38n	29.52e	425128.74	6476107.58	N58 25 04.71	E1 43 06.19
630.00	8.29	76.40	627.99	7.35n	33.70e	425132.92	6476108.56	N58 25 04.74	E1 43 06.45
660.00	8.37	76.41	657.68	8.37n	37.93e	425137.14	6476109.58	N58 25 04.78	E1 43 06.71
690.00	8.96	77.36	687.33	9.40n	42.33e	425141.54	6476110.60	N58 25 04.81	E1 43 06.98
720.00	9.24	79.62	716.96	10.34n	46.98e	425146.19	6476111.55	N58 25 04.85	E1 43 07.26
750.00	9.49	83.36	746.56	11.06n	51.80e	425151.01	6476112.27	N58 25 04.87	E1 43 07.56
780.00	11.38	87.75	776.06	11.47n	57.22e	425156.43	6476112.67	N58 25 04.89	E1 43 07.89
810.00	13.33	88.86	805.36	11.65n	63.63e	425162.84	6476112.85	N58 25 04.90	E1 43 08.29
840.00	15.41	88.22	834.42	11.84n	71.08e	425170.28	6476113.05	N58 25 04.91	E1 43 08.75
850.00	16.13	88.25	844.05	11.93n	73.79e	425173.00	6476113.13	N58 25 04.92	E1 43 08.91
860.00	16.78	88.39	853.64	12.01n	76.62e	425175.83	6476113.21	N58 25 04.92	E1 43 09.09
870.00	17.82	88.64	863.18	12.09n	79.60e	425178.80	6476113.29	N58 25 04.92	E1 43 09.27
880.00	18.24	88.49	872.69	12.17n	82.69e	425181.89	6476113.37	N58 25 04.93	E1 43 09.46
890.00	18.47	89.24	882.18	12.23n	85.84e	425185.04	6476113.43	N58 25 04.93	E1 43 09.66
900.00	19.23	90.07	891.65	12.25n	89.07e	425188.27	6476113.45	N58 25 04.94	E1 43 09.85
910.00	19.46	90.21	901.08	12.24n	92.38e	425191.58	6476113.44	N58 25 04.94	E1 43 10.06
920.00	19.93	90.56	910.50	12.22n	95.75e	425194.95	6476113.42	N58 25 04.94	E1 43 10.27
930.00	20.63	90.46	919.88	12.18n	99.22e	425198.41	6476113.39	N58 25 04.94	E1 43 10.48
940.00	21.10	90.66	929.22	12.15n	102.78e	425201.97	6476113.35	N58 25 04.94	E1 43 10.70
950.00	21.90	90.73	938.53	12.11n	106.44e	425205.64	6476113.31	N58 25 04.94	E1 43 10.92
960.00	22.78	90.67	947.78	12.06n	110.24e	425209.44	6476113.26	N58 25 04.94	E1 43 11.16
970.00	23.21	90.58	956.98	12.02n	114.15e	425213.34	6476113.22	N58 25 04.94	E1 43 11.40
980.00	23.51	90.87	966.16	11.97n	118.12e	425217.31	6476113.17	N58 25 04.94	E1 43 11.64
990.00	23.85	91.30	975.32	11.89n	122.13e	425221.32	6476113.09	N58 25 04.94	E1 43 11.89
1000.00	24.40	91.43	984.45	11.79n	126.22e	425225.40	6476112.99	N58 25 04.94	E1 43 12.14
1010.00	25.48	91.42	993.51	11.69n	130.43e	425229.62	6476112.89	N58 25 04.94	E1 43 12.40
1020.00	26.25	91.49	1002.51	11.58n	134.79e	425233.98	6476112.78	N58 25 04.94	E1 43 12.67
1030.00	27.00	91.23	1011.45	11.47n	139.27e	425238.46	6476112.67	N58 25 04.94	E1 43 12.95
1040.00	27.82	91.29	1020.33	11.37n	143.88e	425243.06	6476112.57	N58 25 04.94	E1 43 13.23
1050.00	28.23	91.13	1029.16	11.27n	148.57e	425247.75	6476112.47	N58 25 04.94	E1 43 13.52
1060.00	28.46	91.10	1037.96	11.18n	153.32e	425252.50	6476112.38	N58 25 04.94	E1 43 13.81
1070.00	28.45	90.96	1046.75	11.09n	158.08e	425257.26	6476112.29	N58 25 04.94	E1 43 14.11
1080.00	28.58	90.92	1055.54	11.01n	162.86e	425262.03	6476112.22	N58 25 04.94	E1 43 14.40
1090.00	28.85	92.15	1064.31	10.88n	167.66e	425266.83	6476112.09	N58 25 04.94	E1 43 14.70
1100.00	29.23	93.36	1073.05	10.65n	172.51e	425271.68	6476111.85	N58 25 04.94	E1 43 14.99
1110.00	29.39	93.67	1081.77	10.35n	177.39e	425276.57	6476111.55	N58 25 04.93	E1 43 15.30
1120.00	29.29	94.02	1090.49	10.02n	182.28e	425281.45	6476111.22	N58 25 04.92	E1 43 15.60
1130.00	29.19	93.98	1099.21	9.68n	187.16e	425286.32	6476110.88	N58 25 04.91	E1 43 15.90
1140.00	29.04	94.03	1107.95	9.34n	192.01e	425291.18	6476110.54	N58 25 04.91	E1 43 16.20

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES
1150.00	29.05	94.01	1116.69	9.00n	196.85e	425296.02	6476110.20	N58 25 04.90 E1 43 16.50
1160.00	29.27	93.87	1125.42	8.67n	201.71e	425300.88	6476109.87	N58 25 04.89 E1 43 16.80
1170.00	29.36	93.86	1134.14	8.34n	206.60e	425305.76	6476109.54	N58 25 04.88 E1 43 17.10
1180.00	29.42	93.78	1142.86	8.01n	211.50e	425310.65	6476109.21	N58 25 04.87 E1 43 17.40
1190.00	29.54	93.75	1151.56	7.69n	216.41e	425315.56	6476108.89	N58 25 04.87 E1 43 17.70
1200.00	29.67	93.62	1160.26	7.37n	221.34e	425320.49	6476108.57	N58 25 04.86 E1 43 18.01
1210.00	29.62	93.54	1168.95	7.06n	226.27e	425325.43	6476108.26	N58 25 04.85 E1 43 18.31
1220.00	29.57	93.78	1177.64	6.75n	231.20e	425330.35	6476107.95	N58 25 04.85 E1 43 18.61
1230.00	29.65	93.60	1186.34	6.43n	236.13e	425335.28	6476107.63	N58 25 04.84 E1 43 18.92
1240.00	29.80	93.54	1195.02	6.12n	241.08e	425340.23	6476107.32	N58 25 04.83 E1 43 19.22
1250.00	29.82	93.30	1203.70	5.82n	246.04e	425345.19	6476107.03	N58 25 04.82 E1 43 19.53
1260.00	29.76	93.17	1212.38	5.54n	251.00e	425350.15	6476106.74	N58 25 04.82 E1 43 19.83
1270.00	29.95	93.14	1221.05	5.27n	255.97e	425355.12	6476106.47	N58 25 04.81 E1 43 20.14
1280.00	29.93	93.05	1229.71	5.00n	260.96e	425360.10	6476106.20	N58 25 04.81 E1 43 20.45
1290.00	29.98	93.06	1238.38	4.73n	265.94e	425365.08	6476105.94	N58 25 04.80 E1 43 20.76
1300.00	30.15	92.88	1247.03	4.47n	270.95e	425370.09	6476105.68	N58 25 04.80 E1 43 21.06
1310.00	30.22	92.76	1255.68	4.23n	275.97e	425375.11	6476105.43	N58 25 04.79 E1 43 21.37
1320.00	30.29	92.75	1264.32	3.98n	281.00e	425380.14	6476105.19	N58 25 04.79 E1 43 21.68
1330.00	30.42	92.79	1272.94	3.74n	286.05e	425385.18	6476104.94	N58 25 04.78 E1 43 22.00
1340.00	30.50	92.82	1281.56	3.49n	291.11e	425390.25	6476104.69	N58 25 04.78 E1 43 22.31
1350.00	30.45	92.46	1290.18	3.26n	296.18e	425395.31	6476104.46	N58 25 04.77 E1 43 22.62
1360.00	30.32	92.61	1298.81	3.03n	301.23e	425400.36	6476104.24	N58 25 04.77 E1 43 22.93
1370.00	30.35	92.73	1307.44	2.80n	306.28e	425405.40	6476104.00	N58 25 04.76 E1 43 23.24
1380.00	30.47	92.73	1316.06	2.56n	311.33e	425410.46	6476103.76	N58 25 04.76 E1 43 23.55
1390.00	30.66	92.79	1324.67	2.31n	316.41e	425415.54	6476103.52	N58 25 04.75 E1 43 23.87
1400.00	30.76	92.56	1333.27	2.07n	321.51e	425420.64	6476103.28	N58 25 04.75 E1 43 24.18
1410.00	30.99	92.45	1341.86	1.85n	326.64e	425425.76	6476103.05	N58 25 04.75 E1 43 24.50
1420.00	31.08	92.32	1350.42	1.63n	331.79e	425430.91	6476102.84	N58 25 04.74 E1 43 24.81
1430.00	30.93	92.30	1359.00	1.43n	336.94e	425436.06	6476102.63	N58 25 04.74 E1 43 25.13
1440.00	31.06	92.25	1367.57	1.22n	342.08e	425441.20	6476102.43	N58 25 04.73 E1 43 25.45
1450.00	31.18	92.18	1376.13	1.02n	347.25e	425446.36	6476102.23	N58 25 04.73 E1 43 25.77
1460.00	31.24	92.16	1384.68	0.83n	352.43e	425451.54	6476102.03	N58 25 04.73 E1 43 26.09
1470.00	31.30	92.11	1393.23	0.63n	357.61e	425456.72	6476101.84	N58 25 04.73 E1 43 26.41
1480.00	31.44	91.84	1401.77	0.45n	362.82e	425461.93	6476101.66	N58 25 04.72 E1 43 26.73
1490.00	31.37	91.97	1410.30	0.28n	368.02e	425467.13	6476101.49	N58 25 04.72 E1 43 27.05
1500.00	31.44	91.72	1418.84	0.11n	373.23e	425472.34	6476101.32	N58 25 04.72 E1 43 27.37
1510.00	31.43	91.57	1427.37	0.04s	378.45e	425477.55	6476101.17	N58 25 04.72 E1 43 27.69
1520.00	31.53	91.36	1435.90	0.17s	383.67e	425482.77	6476101.04	N58 25 04.72 E1 43 28.01
1530.00	31.67	91.66	1444.41	0.31s	388.90e	425488.00	6476100.90	N58 25 04.71 E1 43 28.33
1540.00	31.59	92.14	1452.93	0.48s	394.15e	425493.24	6476100.72	N58 25 04.71 E1 43 28.66
1550.00	31.58	92.96	1461.45	0.71s	399.38e	425498.47	6476100.49	N58 25 04.71 E1 43 28.98
1560.00	31.67	93.63	1469.96	1.02s	404.61e	425503.71	6476100.19	N58 25 04.70 E1 43 29.30
1570.00	31.64	94.24	1478.47	1.38s	409.85e	425508.94	6476099.83	N58 25 04.69 E1 43 29.63
1580.00	31.73	94.42	1486.98	1.77s	415.09e	425514.18	6476099.43	N58 25 04.68 E1 43 29.95
1590.00	31.82	94.48	1495.49	2.18s	420.34e	425519.43	6476099.02	N58 25 04.67 E1 43 30.27
1600.00	31.92	94.29	1503.98	2.59s	425.60e	425524.69	6476098.62	N58 25 04.66 E1 43 30.60
1610.00	31.98	94.32	1512.46	2.98s	430.88e	425529.96	6476098.22	N58 25 04.65 E1 43 30.92
1620.00	32.11	94.48	1520.94	3.39s	436.17e	425535.25	6476097.82	N58 25 04.64 E1 43 31.25
1630.00	32.30	94.34	1529.40	3.80s	441.48e	425540.56	6476097.41	N58 25 04.63 E1 43 31.58
1640.00	32.39	94.33	1537.85	4.20s	446.82e	425545.90	6476097.00	N58 25 04.62 E1 43 31.91
1650.00	32.57	94.37	1546.29	4.61s	452.17e	425551.25	6476096.60	N58 25 04.61 E1 43 32.24
1660.00	32.67	94.34	1554.71	5.02s	457.55e	425556.62	6476096.19	N58 25 04.60 E1 43 32.57
1670.00	32.79	94.56	1563.12	5.44s	462.94e	425562.01	6476095.77	N58 25 04.59 E1 43 32.90
1680.00	32.93	94.65	1571.52	5.88s	468.34e	425567.42	6476095.33	N58 25 04.58 E1 43 33.23
1690.00	33.09	94.59	1579.91	6.31s	473.77e	425572.85	6476094.89	N58 25 04.57 E1 43 33.57
1700.00	33.50	94.57	1588.26	6.75s	479.25e	425578.32	6476094.45	N58 25 04.56 E1 43 33.91

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Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES	
1710.00	33.76	94.64	1596.59	7.20s	484.77e	425583.84	6476094.01	N58 25 04.55	E1 43 34.25
1720.00	33.98	94.59	1604.89	7.65s	490.32e	425589.39	6476093.56	N58 25 04.54	E1 43 34.59
1730.00	34.16	94.42	1613.18	8.09s	495.91e	425594.97	6476093.12	N58 25 04.53	E1 43 34.93
1740.00	34.33	94.50	1621.44	8.52s	501.52e	425600.58	6476092.68	N58 25 04.52	E1 43 35.28
1750.00	34.19	94.78	1629.71	8.98s	507.13e	425606.19	6476092.23	N58 25 04.51	E1 43 35.63
1760.00	33.56	95.02	1638.01	9.45s	512.68e	425611.74	6476091.75	N58 25 04.49	E1 43 35.97
1770.00	33.09	95.36	1646.37	9.95s	518.15e	425617.21	6476091.26	N58 25 04.48	E1 43 36.31
1780.00	32.96	95.58	1654.75	10.47s	523.58e	425622.63	6476090.74	N58 25 04.47	E1 43 36.64
1790.00	33.09	95.80	1663.14	11.01s	529.00e	425628.05	6476090.20	N58 25 04.45	E1 43 36.97
1800.00	33.17	95.81	1671.51	11.56s	534.44e	425633.49	6476089.64	N58 25 04.44	E1 43 37.31
1810.00	33.44	95.77	1679.87	12.12s	539.90e	425638.95	6476089.09	N58 25 04.42	E1 43 37.65
1820.00	33.42	95.83	1688.21	12.68s	545.38e	425644.43	6476088.53	N58 25 04.41	E1 43 37.99
1830.00	33.61	95.89	1696.55	13.24s	550.87e	425649.92	6476087.97	N58 25 04.40	E1 43 38.32
1840.00	33.53	95.72	1704.88	13.80s	556.38e	425655.42	6476087.41	N58 25 04.38	E1 43 38.66
1850.00	33.46	95.75	1713.22	14.35s	561.87e	425660.91	6476086.86	N58 25 04.37	E1 43 39.00
1860.00	33.42	95.96	1721.57	14.91s	567.35e	425666.39	6476086.30	N58 25 04.35	E1 43 39.34
1870.00	33.65	95.86	1729.90	15.48s	572.84e	425671.88	6476085.73	N58 25 04.34	E1 43 39.68
1880.00	33.74	95.86	1738.22	16.05s	578.36e	425677.40	6476085.16	N58 25 04.32	E1 43 40.02
1890.00	33.82	96.01	1746.53	16.62s	583.89e	425682.93	6476084.59	N58 25 04.31	E1 43 40.36
1900.00	34.07	95.90	1754.83	17.20s	589.45e	425688.48	6476084.01	N58 25 04.29	E1 43 40.70
1910.00	34.16	95.86	1763.11	17.78s	595.03e	425694.06	6476083.44	N58 25 04.28	E1 43 41.05
1920.00	34.18	95.86	1771.38	18.35s	600.61e	425699.64	6476082.86	N58 25 04.26	E1 43 41.39
1930.00	34.37	95.67	1779.65	18.91s	606.22e	425705.24	6476082.30	N58 25 04.25	E1 43 41.74
1940.00	34.44	95.66	1787.90	19.47s	611.84e	425710.87	6476081.74	N58 25 04.23	E1 43 42.09
1950.00	34.64	95.73	1796.13	20.04s	617.48e	425716.51	6476081.18	N58 25 04.22	E1 43 42.43
1960.00	34.95	95.39	1804.35	20.59s	623.16e	425722.18	6476080.62	N58 25 04.20	E1 43 42.78
1970.00	34.89	95.48	1812.55	21.13s	628.86e	425727.88	6476080.08	N58 25 04.19	E1 43 43.14
1980.00	35.08	95.63	1820.74	21.69s	634.57e	425733.58	6476079.53	N58 25 04.17	E1 43 43.49
1990.00	35.39	95.53	1828.91	22.25s	640.31e	425739.32	6476078.97	N58 25 04.16	E1 43 43.84
2000.00	35.26	95.58	1837.06	22.81s	646.06e	425745.08	6476078.41	N58 25 04.14	E1 43 44.20
2010.00	35.11	95.25	1845.24	23.35s	651.80e	425750.81	6476077.86	N58 25 04.13	E1 43 44.55
2020.00	34.69	95.20	1853.44	23.87s	657.50e	425756.51	6476077.34	N58 25 04.12	E1 43 44.90
2030.00	34.33	94.89	1861.68	24.37s	663.14e	425762.15	6476076.84	N58 25 04.10	E1 43 45.25
2040.00	33.57	95.24	1869.97	24.86s	668.70e	425767.71	6476076.35	N58 25 04.09	E1 43 45.59
2050.00	32.52	95.66	1878.36	25.38s	674.13e	425773.14	6476075.83	N58 25 04.08	E1 43 45.93
2060.00	31.93	96.18	1886.82	25.93s	679.44e	425778.44	6476075.28	N58 25 04.06	E1 43 46.26
2070.00	31.95	96.50	1895.30	26.51s	684.69e	425783.70	6476074.70	N58 25 04.05	E1 43 46.58
2080.00	32.04	96.62	1903.78	27.12s	689.96e	425788.96	6476074.10	N58 25 04.03	E1 43 46.91
2090.00	32.23	96.71	1912.25	27.74s	695.24e	425794.24	6476073.48	N58 25 04.02	E1 43 47.23
2100.00	32.49	96.40	1920.70	28.35s	700.56e	425799.55	6476072.87	N58 25 04.00	E1 43 47.56
2110.00	32.64	96.67	1929.13	28.96s	705.91e	425804.90	6476072.25	N58 25 03.98	E1 43 47.89
2120.00	32.39	96.71	1937.56	29.59s	711.24e	425810.24	6476071.63	N58 25 03.97	E1 43 48.22
2130.00	31.76	96.71	1946.03	30.21s	716.52e	425815.51	6476071.01	N58 25 03.95	E1 43 48.55
2140.00	31.60	96.59	1954.54	30.81s	721.73e	425820.72	6476070.40	N58 25 03.93	E1 43 48.87
2150.00	31.79	96.76	1963.05	31.43s	726.95e	425825.94	6476069.79	N58 25 03.92	E1 43 49.19
2160.00	32.05	96.65	1971.54	32.04s	732.20e	425831.19	6476069.17	N58 25 03.90	E1 43 49.51
2170.00	32.30	96.82	1980.00	32.67s	737.49e	425836.48	6476068.55	N58 25 03.88	E1 43 49.84
2180.00	32.56	96.62	1988.44	33.29s	742.82e	425841.80	6476067.92	N58 25 03.86	E1 43 50.17
2190.00	32.68	96.65	1996.87	33.92s	748.17e	425847.15	6476067.30	N58 25 03.85	E1 43 50.50
2200.00	32.98	96.46	2005.27	34.54s	753.56e	425852.54	6476066.68	N58 25 03.83	E1 43 50.83
2210.00	33.14	96.65	2013.65	35.16s	758.98e	425857.96	6476066.06	N58 25 03.81	E1 43 51.17
2220.00	33.33	96.57	2022.01	35.79s	764.42e	425863.40	6476065.43	N58 25 03.80	E1 43 51.50
2230.00	33.14	96.62	2030.38	36.42s	769.87e	425868.84	6476064.80	N58 25 03.78	E1 43 51.84
2240.00	32.86	96.80	2038.77	37.06s	775.28e	425874.25	6476064.16	N58 25 03.76	E1 43 52.17
2250.00	32.54	96.63	2047.18	37.69s	780.64e	425879.61	6476063.53	N58 25 03.75	E1 43 52.50
2260.00	32.79	96.26	2055.60	38.29s	786.00e	425884.97	6476062.92	N58 25 03.73	E1 43 52.83

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Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES	
2270.00	33.50	96.35	2063.97	38.89s	791.44e	425890.41	6476062.32	N58 25 03.71	E1 43 53.17
2280.00	33.98	96.63	2072.29	39.52s	796.96e	425895.92	6476061.70	N58 25 03.70	E1 43 53.51
2290.00	34.24	96.64	2080.57	40.17s	802.53e	425901.49	6476061.05	N58 25 03.68	E1 43 53.85
2300.00	34.57	96.35	2088.82	40.81s	808.14e	425907.10	6476060.41	N58 25 03.66	E1 43 54.20
2310.00	34.91	95.82	2097.04	41.41s	813.81e	425912.77	6476059.81	N58 25 03.65	E1 43 54.55
2320.00	35.16	95.80	2105.22	41.99s	819.52e	425918.48	6476059.23	N58 25 03.63	E1 43 54.90
2330.00	35.53	95.57	2113.38	42.57s	825.28e	425924.23	6476058.65	N58 25 03.62	E1 43 55.26
2340.00	35.88	95.71	2121.50	43.14s	831.08e	425930.04	6476058.08	N58 25 03.60	E1 43 55.62
2350.00	36.29	96.17	2129.58	43.75s	836.94e	425935.89	6476057.47	N58 25 03.58	E1 43 55.98
2360.00	36.76	95.93	2137.62	44.38s	842.86e	425941.81	6476056.84	N58 25 03.57	E1 43 56.34
2370.00	37.22	95.97	2145.61	45.00s	848.84e	425947.79	6476056.22	N58 25 03.55	E1 43 56.71
2380.00	37.63	95.45	2153.55	45.61s	854.89e	425953.84	6476055.61	N58 25 03.54	E1 43 57.08
2390.00	38.13	95.03	2161.44	46.17s	861.01e	425959.95	6476055.05	N58 25 03.52	E1 43 57.46
2400.00	38.56	94.78	2169.28	46.70s	867.19e	425966.13	6476054.52	N58 25 03.51	E1 43 57.84
2410.00	39.04	94.75	2177.08	47.22s	873.43e	425972.37	6476054.00	N58 25 03.49	E1 43 58.23
2420.00	39.12	94.92	2184.84	47.75s	879.71e	425978.65	6476053.47	N58 25 03.48	E1 43 58.62
2430.00	39.35	94.84	2192.58	48.29s	886.02e	425984.95	6476052.93	N58 25 03.47	E1 43 59.00
2440.00	39.93	95.12	2200.28	48.84s	892.37e	425991.30	6476052.38	N58 25 03.45	E1 43 59.40
2450.00	40.51	95.44	2207.92	49.43s	898.80e	425997.73	6476051.79	N58 25 03.44	E1 43 59.79
2460.00	41.09	95.65	2215.49	50.07s	905.30e	426004.23	6476051.16	N58 25 03.42	E1 44 00.19
2470.00	41.69	95.61	2222.99	50.71s	911.88e	426010.81	6476050.51	N58 25 03.40	E1 44 00.60
2480.00	42.08	95.76	2230.44	51.38s	918.53e	426017.45	6476049.85	N58 25 03.39	E1 44 01.01
2490.00	43.09	95.64	2237.80	52.05s	925.26e	426024.18	6476049.17	N58 25 03.37	E1 44 01.43
2500.00	43.78	95.85	2245.06	52.74s	932.10e	426031.02	6476048.49	N58 25 03.35	E1 44 01.85
2510.00	44.42	95.86	2252.24	53.45s	939.02e	426037.94	6476047.78	N58 25 03.33	E1 44 02.28
2520.00	45.13	95.82	2259.34	54.16s	946.03e	426044.95	6476047.06	N58 25 03.31	E1 44 02.71
2530.00	45.83	95.87	2266.35	54.89s	953.12e	426052.04	6476046.33	N58 25 03.29	E1 44 03.15
2540.00	46.78	96.17	2273.26	55.65s	960.31e	426059.23	6476045.58	N58 25 03.27	E1 44 03.59
2550.00	47.59	96.34	2280.06	56.45s	967.61e	426066.51	6476044.78	N58 25 03.25	E1 44 04.04
2560.00	48.22	96.68	2286.76	57.29s	974.98e	426073.88	6476043.94	N58 25 03.23	E1 44 04.49
2570.00	48.99	96.66	2293.37	58.16s	982.43e	426081.33	6476043.06	N58 25 03.21	E1 44 04.95
2580.00	49.34	96.66	2299.91	59.04s	989.94e	426088.85	6476042.19	N58 25 03.18	E1 44 05.42
2590.00	49.59	96.77	2306.41	59.93s	997.49e	426096.39	6476041.30	N58 25 03.16	E1 44 05.88
2600.00	49.78	96.89	2312.88	60.83s	1005.06e	426103.96	6476040.39	N58 25 03.13	E1 44 06.35
2610.00	50.10	97.01	2319.32	61.76s	1012.66e	426111.55	6476039.47	N58 25 03.11	E1 44 06.82
2620.00	50.42	96.99	2325.71	62.70s	1020.29e	426119.18	6476038.53	N58 25 03.08	E1 44 07.29
2630.00	50.96	97.20	2332.05	63.65s	1027.97e	426126.86	6476037.57	N58 25 03.06	E1 44 07.76
2640.00	51.24	97.27	2338.32	64.63s	1035.69e	426134.58	6476036.59	N58 25 03.03	E1 44 08.24
2650.00	51.45	97.49	2344.57	65.63s	1043.44e	426142.32	6476035.59	N58 25 03.00	E1 44 08.72
2660.00	51.47	97.63	2350.80	66.66s	1051.19e	426150.07	6476034.56	N58 25 02.97	E1 44 09.20
2670.00	51.76	97.58	2357.01	67.70s	1058.96e	426157.84	6476033.53	N58 25 02.95	E1 44 09.68
2680.00	51.94	97.65	2363.19	68.74s	1066.75e	426165.63	6476032.48	N58 25 02.92	E1 44 10.16
2690.00	52.30	97.59	2369.33	69.79s	1074.58e	426173.45	6476031.44	N58 25 02.89	E1 44 10.64
2700.00	52.66	97.70	2375.42	70.85s	1082.44e	426181.31	6476030.38	N58 25 02.86	E1 44 11.13
2710.00	53.16	97.65	2381.45	71.91s	1090.34e	426189.21	6476029.32	N58 25 02.83	E1 44 11.62
2720.00	53.46	97.85	2387.42	72.99s	1098.29e	426197.15	6476028.24	N58 25 02.80	E1 44 12.11
2730.00	53.45	98.03	2393.38	74.10s	1106.25e	426205.11	6476027.13	N58 25 02.77	E1 44 12.60
2740.00	53.32	98.09	2399.34	75.23s	1114.19e	426213.05	6476026.00	N58 25 02.74	E1 44 13.09
2750.00	53.45	98.37	2405.31	76.38s	1122.14e	426220.99	6476024.85	N58 25 02.70	E1 44 13.58
2760.00	53.47	98.51	2411.26	77.56s	1130.08e	426228.94	6476023.68	N58 25 02.67	E1 44 14.07
2770.00	53.54	98.51	2417.21	78.74s	1138.03e	426236.89	6476022.49	N58 25 02.64	E1 44 14.56
2780.00	53.64	98.68	2423.14	79.95s	1145.99e	426244.84	6476021.28	N58 25 02.60	E1 44 15.05
2790.00	53.67	98.68	2429.07	81.16s	1153.95e	426252.80	6476020.07	N58 25 02.57	E1 44 15.54
2800.00	53.84	98.70	2434.98	82.38s	1161.93e	426260.77	6476018.85	N58 25 02.53	E1 44 16.04
2810.00	53.87	98.69	2440.88	83.60s	1169.91e	426268.75	6476017.63	N58 25 02.50	E1 44 16.53
2820.00	53.83	98.74	2446.78	84.83s	1177.89e	426276.73	6476016.41	N58 25 02.46	E1 44 17.02

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES
2830.00	53.82	98.86	2452.68	86.06s	1185.87e	426284.70	6476015.17	N58 25 02.43 E1 44 17.51
2840.00	53.93	98.88	2458.58	87.31s	1193.85e	426292.68	6476013.93	N58 25 02.39 E1 44 18.01
2850.00	53.83	98.80	2464.47	88.55s	1201.83e	426300.66	6476012.69	N58 25 02.36 E1 44 18.50
2860.00	53.69	98.81	2470.39	89.78s	1209.80e	426308.63	6476011.45	N58 25 02.32 E1 44 18.99
2870.00	53.58	98.52	2476.31	91.00s	1217.76e	426316.59	6476010.24	N58 25 02.29 E1 44 19.48
2880.00	53.74	98.47	2482.24	92.19s	1225.73e	426324.55	6476009.05	N58 25 02.26 E1 44 19.98
2890.00	53.87	98.24	2488.15	93.36s	1233.71e	426332.53	6476007.88	N58 25 02.22 E1 44 20.47
2900.00	53.74	98.15	2494.05	94.51s	1241.70e	426340.52	6476006.73	N58 25 02.19 E1 44 20.96
2910.00	53.60	98.10	2499.98	95.65s	1249.68e	426348.49	6476005.59	N58 25 02.16 E1 44 21.46
2920.00	53.51	98.04	2505.92	96.78s	1257.64e	426356.45	6476004.46	N58 25 02.13 E1 44 21.95
2930.00	53.37	97.95	2511.87	97.89s	1265.60e	426364.40	6476003.34	N58 25 02.09 E1 44 22.44
2940.00	53.22	97.86	2517.85	99.00s	1273.54e	426372.34	6476002.24	N58 25 02.06 E1 44 22.93
2950.00	53.11	97.81	2523.84	100.09s	1281.47e	426380.27	6476001.15	N58 25 02.03 E1 44 23.42
2960.00	53.14	97.70	2529.85	101.17s	1289.39e	426388.19	6476000.07	N58 25 02.00 E1 44 23.91
2970.00	53.32	97.69	2535.83	102.24s	1297.33e	426396.13	6475999.00	N58 25 01.97 E1 44 24.40
2980.00	53.38	97.54	2541.80	103.30s	1305.28e	426404.08	6475997.94	N58 25 01.94 E1 44 24.89
2990.00	53.50	97.62	2547.76	104.36s	1313.24e	426412.04	6475996.88	N58 25 01.91 E1 44 25.38
3000.00	53.69	97.38	2553.69	105.41s	1321.22e	426420.01	6475995.83	N58 25 01.89 E1 44 25.87
3010.00	53.87	97.25	2559.60	106.44s	1329.23e	426428.01	6475994.80	N58 25 01.86 E1 44 26.37
3020.00	53.90	97.21	2565.50	107.46s	1337.24e	426436.03	6475993.78	N58 25 01.83 E1 44 26.86
3030.00	53.96	97.17	2571.38	108.47s	1345.26e	426444.04	6475992.77	N58 25 01.80 E1 44 27.36
3040.00	54.07	97.23	2577.26	109.48s	1353.29e	426452.07	6475991.76	N58 25 01.77 E1 44 27.85
3050.00	54.13	97.10	2583.12	110.49s	1361.32e	426460.10	6475990.75	N58 25 01.75 E1 44 28.35
3060.00	54.15	97.19	2588.98	111.50s	1369.37e	426468.14	6475989.74	N58 25 01.72 E1 44 28.84
3070.00	54.32	97.29	2594.83	112.52s	1377.42e	426476.19	6475988.72	N58 25 01.69 E1 44 29.34
3080.00	54.40	97.21	2600.65	113.55s	1385.48e	426484.25	6475987.69	N58 25 01.66 E1 44 29.84
3090.00	54.47	97.18	2606.47	114.57s	1393.55e	426492.32	6475986.68	N58 25 01.63 E1 44 30.34
3100.00	54.65	97.24	2612.27	115.59s	1401.63e	426500.40	6475985.65	N58 25 01.61 E1 44 30.84
3110.00	54.69	97.37	2618.05	116.63s	1409.72e	426508.48	6475984.62	N58 25 01.58 E1 44 31.34
3120.00	54.72	97.34	2623.83	117.67s	1417.82e	426516.58	6475983.57	N58 25 01.55 E1 44 31.84
3130.00	54.62	97.37	2629.61	118.72s	1425.91e	426524.67	6475982.53	N58 25 01.52 E1 44 32.34
3140.00	54.59	97.62	2635.40	119.78s	1433.99e	426532.74	6475981.46	N58 25 01.49 E1 44 32.83
3150.00	54.53	97.62	2641.20	120.86s	1442.07e	426540.82	6475980.38	N58 25 01.46 E1 44 33.33
3160.00	54.60	97.66	2647.00	121.94s	1450.14e	426548.89	6475979.30	N58 25 01.43 E1 44 33.83
3170.00	54.44	97.69	2652.80	123.03s	1458.21e	426556.96	6475978.21	N58 25 01.40 E1 44 34.33
3180.00	54.23	97.83	2658.63	124.13s	1466.26e	426565.00	6475977.12	N58 25 01.37 E1 44 34.83
3190.00	54.19	97.90	2664.48	125.24s	1474.30e	426573.04	6475976.01	N58 25 01.34 E1 44 35.32
3200.00	54.19	98.00	2670.33	126.36s	1482.33e	426581.07	6475974.89	N58 25 01.31 E1 44 35.82
3210.00	54.03	97.88	2676.19	127.48s	1490.35e	426589.09	6475973.77	N58 25 01.27 E1 44 36.31
3220.00	54.00	97.93	2682.07	128.59s	1498.37e	426597.10	6475972.66	N58 25 01.24 E1 44 36.81
3230.00	53.97	98.03	2687.95	129.71s	1506.38e	426605.11	6475971.53	N58 25 01.21 E1 44 37.30
3240.00	53.87	97.95	2693.84	130.84s	1514.38e	426613.11	6475970.41	N58 25 01.18 E1 44 37.80
3250.00	53.66	97.97	2699.75	131.95s	1522.37e	426621.09	6475969.29	N58 25 01.15 E1 44 38.29
3260.00	53.37	97.96	2705.70	133.07s	1530.33e	426629.05	6475968.18	N58 25 01.12 E1 44 38.78
3270.00	53.28	97.93	2711.67	134.18s	1538.28e	426636.99	6475967.07	N58 25 01.09 E1 44 39.27
3280.00	53.20	97.80	2717.65	135.27s	1546.21e	426644.93	6475965.98	N58 25 01.06 E1 44 39.76
3290.00	52.89	97.93	2723.67	136.37s	1554.13e	426652.84	6475964.88	N58 25 01.03 E1 44 40.25
3300.00	52.85	97.90	2729.70	137.47s	1562.02e	426660.74	6475963.79	N58 25 01.00 E1 44 40.74
3310.00	52.76	97.90	2735.75	138.56s	1569.91e	426668.62	6475962.69	N58 25 00.96 E1 44 41.23
3320.00	52.70	97.81	2741.80	139.65s	1577.80e	426676.50	6475961.60	N58 25 00.93 E1 44 41.71
3330.00	52.69	97.73	2747.86	140.72s	1585.68e	426684.38	6475960.53	N58 25 00.90 E1 44 42.20
3340.00	52.44	97.77	2753.94	141.79s	1593.55e	426692.25	6475959.46	N58 25 00.87 E1 44 42.69
3350.00	52.24	97.75	2760.05	142.86s	1601.39e	426700.09	6475958.39	N58 25 00.84 E1 44 43.17
3360.00	52.06	97.70	2766.19	143.92s	1609.21e	426707.91	6475957.33	N58 25 00.82 E1 44 43.65
3370.00	52.15	97.97	2772.33	145.00s	1617.03e	426715.73	6475956.25	N58 25 00.79 E1 44 44.14
3380.00	52.08	98.14	2778.47	146.11s	1624.85e	426723.54	6475955.15	N58 25 00.75 E1 44 44.62

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

STATOIL
Sleipner B 15/9,15/9-21 S
Sleipner Area 15/9,Norsk Sektor

SURVEY LISTING   Page 6
Your ref : 15/9-21 S Definitive (5126m)
Last revised : 3-Jun-98

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES
3390.00	52.02	97.76	2784.62	147.20s	1632.66e	426731.35	6475954.06	N58 25 00.72 E1 44 45.10
3400.00	51.99	97.80	2790.78	148.26s	1640.47e	426739.15	6475952.99	N58 25 00.69 E1 44 45.58
3403.59	51.85	97.85	2792.99	148.65s	1643.26e	426741.95	6475952.61	N58 25 00.68 E1 44 45.76
3428.38	51.49	98.60	2808.37	151.43s	1662.51e	426761.19	6475949.83	N58 25 00.60 E1 44 46.94
3464.75	51.70	96.62	2830.96	155.20s	1690.76e	426789.43	6475946.05	N58 25 00.50 E1 44 48.69
3483.48	51.94	96.23	2842.54	156.85s	1705.39e	426804.05	6475944.41	N58 25 00.46 E1 44 49.59
3512.37	51.98	96.15	2860.34	159.30s	1728.01e	426826.67	6475941.95	N58 25 00.39 E1 44 50.99
3540.49	52.83	96.29	2877.50	161.72s	1750.16e	426848.81	6475939.54	N58 25 00.33 E1 44 52.35
3568.80	53.46	96.24	2894.48	164.19s	1772.68e	426871.32	6475937.07	N58 25 00.26 E1 44 53.74
3597.27	53.67	95.81	2911.38	166.59s	1795.45e	426894.09	6475934.67	N58 25 00.19 E1 44 55.15
3625.95	54.18	96.26	2928.27	169.03s	1818.51e	426917.13	6475932.23	N58 25 00.13 E1 44 56.57
3654.90	54.33	96.61	2945.18	171.66s	1841.85e	426940.47	6475929.60	N58 25 00.06 E1 44 58.01
3683.59	54.39	96.72	2961.90	174.37s	1865.01e	426963.62	6475926.89	N58 24 59.99 E1 44 59.44
3711.57	54.44	96.30	2978.18	176.95s	1887.62e	426986.22	6475924.31	N58 24 59.92 E1 45 00.84
3740.44	54.43	96.49	2994.98	179.57s	1910.96e	427009.56	6475921.70	N58 24 59.85 E1 45 02.28
3768.66	53.65	95.20	3011.55	181.89s	1933.68e	427032.27	6475919.37	N58 24 59.78 E1 45 03.68
3797.39	53.21	95.33	3028.66	184.01s	1956.66e	427055.24	6475917.25	N58 24 59.73 E1 45 05.10
3826.63	52.66	95.48	3046.29	186.21s	1979.89e	427078.46	6475915.06	N58 24 59.67 E1 45 06.53
3855.80	52.12	96.20	3064.09	188.56s	2002.87e	427101.44	6475912.71	N58 24 59.61 E1 45 07.95
3884.20	52.06	96.32	3081.54	191.00s	2025.15e	427123.71	6475910.27	N58 24 59.54 E1 45 09.32
3912.69	52.36	95.36	3099.00	193.29s	2047.54e	427146.10	6475907.98	N58 24 59.48 E1 45 10.70
3941.07	52.63	95.76	3116.28	195.47s	2069.95e	427168.50	6475905.80	N58 24 59.43 E1 45 12.09
3969.20	52.17	96.19	3133.44	197.79s	2092.12e	427190.65	6475903.48	N58 24 59.36 E1 45 13.45
3997.82	51.55	96.16	3151.11	200.22s	2114.50e	427213.03	6475901.06	N58 24 59.30 E1 45 14.83
4025.80	51.88	96.15	3168.45	202.57s	2136.33e	427234.85	6475898.70	N58 24 59.24 E1 45 16.18
4053.95	51.70	96.19	3185.86	204.95s	2158.32e	427256.84	6475896.33	N58 24 59.17 E1 45 17.54
4082.11	51.05	96.69	3203.44	207.41s	2180.19e	427278.69	6475893.86	N58 24 59.11 E1 45 18.89
4110.52	50.61	97.30	3221.39	210.10s	2202.05e	427300.55	6475891.18	N58 24 59.03 E1 45 20.24
4138.94	49.80	97.43	3239.57	212.90s	2223.70e	427322.19	6475888.38	N58 24 58.96 E1 45 21.57
4167.09	48.82	97.32	3257.93	215.64s	2244.87e	427343.36	6475885.64	N58 24 58.88 E1 45 22.88
4195.53	48.02	97.91	3276.80	218.45s	2265.96e	427364.43	6475882.82	N58 24 58.80 E1 45 24.18
4224.00	48.03	97.86	3295.84	221.36s	2286.92e	427385.39	6475879.92	N58 24 58.72 E1 45 25.48
4252.74	49.42	98.06	3314.80	224.35s	2308.31e	427406.78	6475876.93	N58 24 58.64 E1 45 26.80
4280.33	49.43	97.99	3332.75	227.27s	2329.06e	427427.52	6475874.01	N58 24 58.55 E1 45 28.08
4309.14	49.32	98.09	3351.51	230.33s	2350.72e	427449.17	6475870.95	N58 24 58.47 E1 45 29.42
4338.36	49.28	98.44	3370.56	233.52s	2372.64e	427471.08	6475867.76	N58 24 58.38 E1 45 30.77
4366.49	49.74	98.93	3388.83	236.75s	2393.79e	427492.22	6475864.53	N58 24 58.29 E1 45 32.08
4394.58	49.64	98.54	3407.00	240.00s	2414.96e	427513.39	6475861.28	N58 24 58.19 E1 45 33.38
4422.98	49.16	98.48	3425.48	243.19s	2436.28e	427534.71	6475858.09	N58 24 58.10 E1 45 34.70
4451.28	48.92	98.12	3444.03	246.28s	2457.43e	427555.85	6475855.01	N58 24 58.02 E1 45 36.01
4479.59	48.52	98.11	3462.71	249.28s	2478.49e	427576.90	6475852.01	N58 24 57.93 E1 45 37.31
4508.89	48.06	98.13	3482.20	252.37s	2500.15e	427598.55	6475848.92	N58 24 57.84 E1 45 38.64
4537.67	47.63	97.89	3501.52	255.34s	2521.27e	427619.67	6475845.95	N58 24 57.76 E1 45 39.95
4566.12	47.13	97.55	3520.78	258.16s	2542.02e	427640.41	6475843.13	N58 24 57.68 E1 45 41.23
4594.91	46.46	97.73	3540.49	260.95s	2562.82e	427661.20	6475840.35	N58 24 57.60 E1 45 42.51
4623.66	46.08	97.89	3560.37	263.77s	2583.40e	427681.77	6475837.52	N58 24 57.53 E1 45 43.78
4652.27	45.73	97.86	3580.27	266.58s	2603.75e	427702.12	6475834.71	N58 24 57.45 E1 45 45.04
4680.41	45.10	97.66	3600.03	269.29s	2623.61e	427721.97	6475832.00	N58 24 57.37 E1 45 46.27
4709.23	44.43	97.95	3620.49	272.05s	2643.72e	427742.07	6475829.25	N58 24 57.29 E1 45 47.51
4721.98	44.26	97.81	3629.61	273.27s	2652.55e	427750.90	6475828.03	N58 24 57.26 E1 45 48.05
4738.20	44.02	97.87	3641.25	274.81s	2663.74e	427762.08	6475826.49	N58 24 57.22 E1 45 48.74
4766.57	44.14	97.81	3661.63	277.50s	2683.29e	427781.63	6475823.80	N58 24 57.14 E1 45 49.95
4796.70	44.35	97.83	3683.21	280.36s	2704.11e	427802.45	6475820.94	N58 24 57.06 E1 45 51.24
4823.11	44.63	97.40	3702.05	282.81s	2722.46e	427820.79	6475818.49	N58 24 56.99 E1 45 52.37
4851.07	44.95	97.95	3721.90	285.44s	2741.98e	427840.30	6475815.86	N58 24 56.92 E1 45 53.57
4878.90	45.79	97.90	3741.45	288.18s	2761.60e	427859.91	6475813.13	N58 24 56.84 E1 45 54.78

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Measured Depth	Inc. Degs	Azi. Degs	True Vert. Depth	RECTANGULAR COORDINATES		GRID COORDINATES Easting	Northing	GEOGRAPHIC COORDINATES	
4938.90	47.61	97.97	3782.59	294.20s	2804.84e	427903.14	6475807.10	N58 24 56.67	E1 45 57.45
5027.16	48.49	98.39	3841.59	303.54s	2869.82e	427968.09	6475797.76	N58 24 56.41	E1 46 01.47
5126.00	48.49	98.39	3907.10	314.34s	2943.04e	428041.29	6475786.96	N58 24 56.11	E1 46 05.99

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

Casing positions in string 'A'

Top MD	Top TVD	Rectangular Coords.		Shoe MD	Shoe TVD	Rectangular Coords.		Casing
0.00	0.00	1.96N	3.54E	265.80	265.80	2.43N	3.20E	32" Conductor
0.00	0.00	1.96N	3.54E	501.30	500.61	3.74N	15.72E	18 5/8" Casing
0.00	0.00	1.96N	3.54E	2248.00	2045.50	37.56S	779.57E	13 3/8" Casing
0.00	0.00	1.96N	3.54E	3451.80	2822.93	153.97S	1680.68E	9 5/8" casing

Targets associated with this wellpath

Target name	Position	T.V.D.	Local rectangular coords.		Date revised
21S Delta Nord 18.12	427821.00,6475950.00	3642.00	151.25S	2722.67E	4-Mar-98

All data is in metres unless otherwise stated
Coordinates are from Structure centre,HDG 331.13 deg G.N and TVDs are from rkb.
Vertical section is from wellhead on azimuth 93.69 degrees.
Grid coordinates are in metres on grid: "UTM Zone 31 on ED50 Datum"
Calculation uses the minimum curvature method.

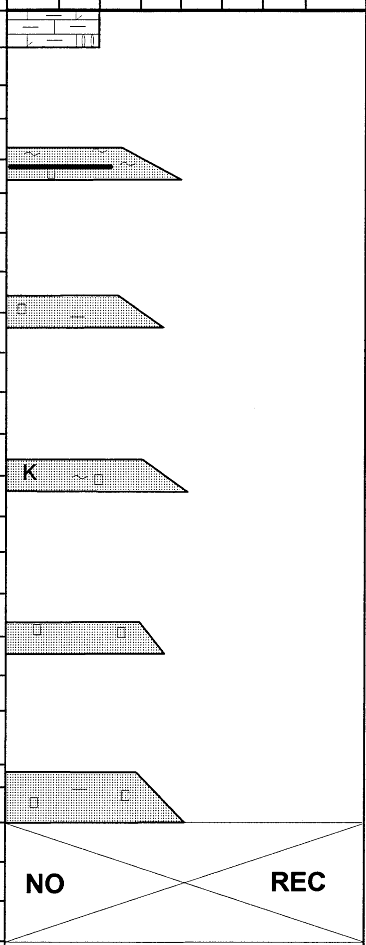
ATTACHMENT 2

CORE DESCRIPTIONS
15/9-21 S

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner West
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 1	**Interval:** 4747.0 - 4753.0 m	**Cored:** 6.0 m **Rec:** 5.25 (87.5%)	
Core size: 4"	**Geologists:** P.Sergeant/B.K.Rørvik		**Date:** 04.05.98

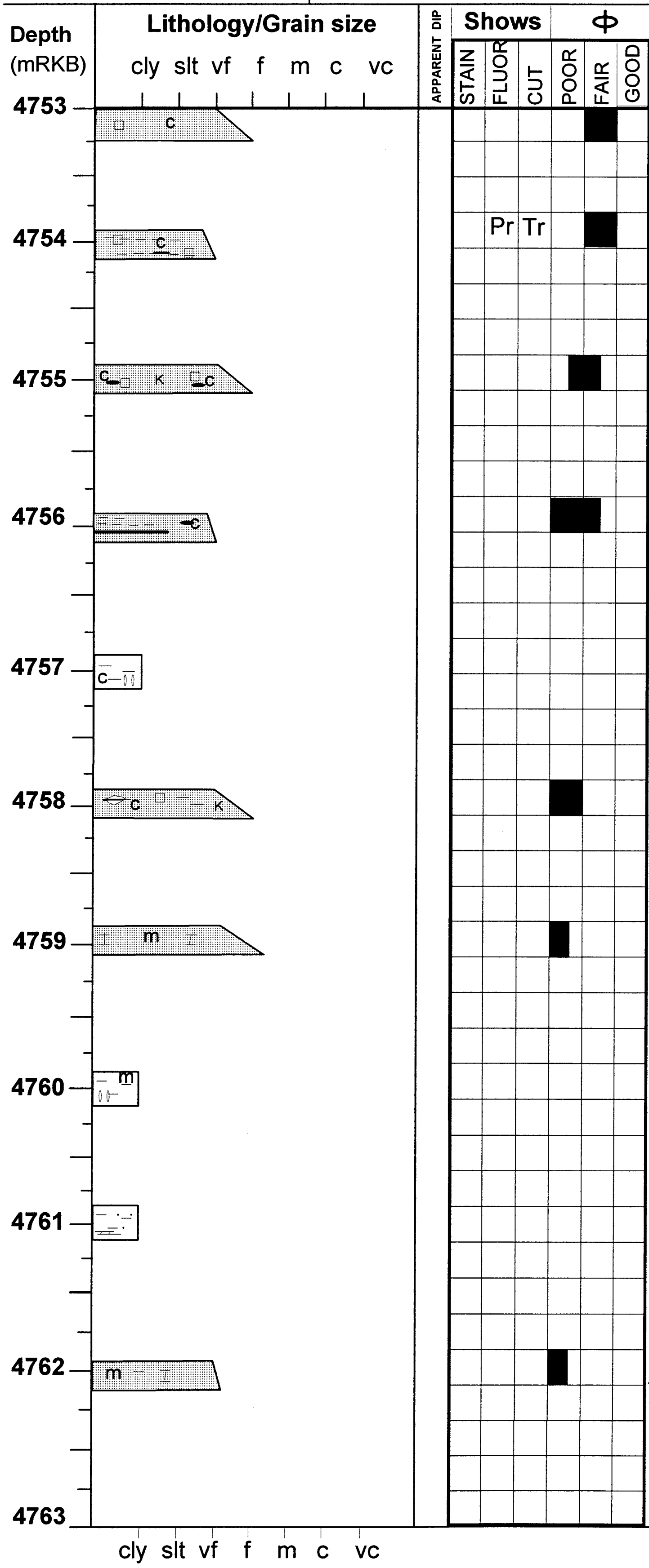


Depth (mRKB)	Apparent dip	Shows: Stain	Shows: Fluor	Shows: Cut	Φ: Poor	Φ: Fair	Φ: Good	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4747								LS: dk gry, v hd, microxln, mod dol, v arg, slily slty, tr mic	
4748			Tr	Tr		■		SST: mott pl brn, pa - med gry, v f - f, wl srt, sbang - rndd, slily slty, mod cmt w/ Sil, Tr Dol, slily arg, slily micropyr, Tr mic, occ microlams, v arg, fr por, w/ 3 mm lam COAL: blk, brit, v pyr, vitr, occ thin wvy lams CLST: blk, hd, v carb, mod mic, non calc	Tr Show, Tr spk dull gold Fluor, Tr dull wh crush cut Fluor, Tr dull wh res Fluor
4749						■		SST: mott pl brn, pa - med gry, v f - occ f, wl srt, sbang - rndd, slily slty, mod cmt w/ Sil, Tr Dol, slily arg, slily micropyr, Tr mic, occ microlams, v arg, fr por	No Shows
4750			Tr	Tr		■		SST: mott / spk pa brn, pa med gry, v f - f, wl srt, sbrndd - rndd, mod wl cmt w/ Sil, Tr dol, slily arg, Tr carb Incl, slily kao, Tr mic, Tr pyr, occ irreg wvy carb & pyr Lams, fr por	Tr Show a/a
4751			Tr	Tr		■		SST: pl brn w/ lt - med gry spk, v f - occ f, wl srt, sbang - rndd, mod cmt w/ Sil, Tr dol, Tr arg, slily - mod pyr, tr mic, fr por	Tr Show a/a
4752			Tr	Tr		■		SST: mott / spk off wh, pl brnsh gry, lt - med gry, v f - f, wl srt, ang - sbrndd, mod cmt w/ Sil, v slily dol, slily arg, slily - mod pyr, tr mic, fr por	Tr Show a/a
4752.25 - 4753								NO REC	
4754									
4755									
4756									
4757									

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner West
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 2	**Interval:** 4753.0 - 4784.0 m	**Cored:** 31.0 m **Rec:** 31.3 (101%)	
Core size: 4"	**Geologists:** P.Sergeant/B.K.Rørvik		**Date:** 06.05.98



Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
SST: lt gry, v f - f, wl srt, ang - sbrndd, mod cmt w/ Sil, Tr dol, slily pyr, slily carb / bit Ctg, Tr mic, fr Por	Shows masked by OBM invasion
SST: lt gry, occ lt - med gry spk, v f, slily slty, wl srt, ang - sbrndd, mod cmt w/ Sil, v slily dol, slily - mod pyr, Tr mic, w/ 2 v arg lams, w/ occ pyr pch & Coal micro lenses, fr Por	Tr shows, pr spk dull brn - dull gold fluor, Tr dull wh crush cut
SST: mott lt - med brn - grysh brn, v f - f, slily slty, wl srt, ang - sbrndd, mod cmt w/ Sil, v slily dol, mod pyr, Tr mic, slily kaol, Tr Coal Incl, occ irreg lenses v carb / coaly, 1 pyr lam w/ Coal micro lenses , pr - fr Por	No shows
SST: mott & lam lt - dk grysh brn, v f, slily slty, wl srt, ang - sbrndd, mod cmt w/ Sil, v slily dol, slily pyr, Tr mic, slily arg w/ occ lams v arg, 1 Coal lam & occ Coal microlenses, pr - occ fr Por	Shows masked by OBM invasion
CLST: brnsh blk, hd, fiss, slily dol, slily - mod mic, carb, slily slty, Tr Pyr pch	
SST: mott lt - dk grysh brn, v f - f, wl srt, ang - sbrndd, mod cmt w/ Sil, Tr dol, pch slily - mod arg, slily pyr, Tr mic, slily carb, w/ 1 irreg CLST lense, occ kao pch, pr Por	No shows
SST: pch lt - dom med - dk grysh brn, v hd, v f - dom f - occ med Gr, wl srt, ang - sbang, v wl cmt w/ Dol & Sil, slily calc, slily mic, Tr Coal Incls, slily - mod arg, occ pch arg / aren DOL, v pr Por	No shows
CLST: brnsh blk, hd, blky, fiss, slily dol, mod micromic, carb, slily slty, Tr Pyr pch	
CLST: brnsh blk, hd, blky, fiss, slily dol, mod micromic, carb, slily slty, loc aren, Tr Pyr pch, w/ bnd DOL, dk brnsh gry, v hd, crpxln, v arg, occ calc ptch, also some trnsl recrys DOL, poss frac sone	
SST: mott lt - med gry, v f - Tr f, v slty, wl srt, ang - sbrndd, wl cmt w/ Sil & mod dol, slily arg, slily mic, v pr Por	No shows

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea	**Field:** Sleipner West
Well no: 15/9-21S	**Formation:** Hugin Formation	
Core no: 2	**Interval:** 4753.0 - 4784.0 m	**Cored:** 31.0 m **Rec:** 31.3 (101%)
Core size: 4"	**Geologists:** P.Sergeant/B.K.Rørvik	**Date:** 06.05.98

Depth (mRKB)	Shows: Stain	Shows: Fluor	Shows: Cut	Φ	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4763					SLTST: dk grysh brn, hd, v arg, mod mic, slily dol, slily carb, slily aren	
4764					CLST: brnsh blk, hd, blky, v slily dol, slily slty, carb, mod mic, Tr pyr pch	
4765		Pr	Tr	Poor	SST: med brn, f -dom med, wl srt, sbang - rndd, wl cmt w/ Sil & Dol, slily arg, w/ occ aren DOL pch, med dk brnsh gry, pr Por	Tr Shows, pr spk dull brn Fluor, tr dull wh crush cut Fluor
4765.5					CLST: brnsh blk, hd, blky, v slily dol, slily slty, carb, mod mic, Tr pyr pch	
4766					CLST: a /a	
4767			Tr		CLST: a /a	
4768				Good	SST: med dk brn, clr - trnsl Qtz Gr, f - - med, wl srt, sbang - rndd, mod cmt w/ Sil, Tr dol, slily - mod carb / bit ctg, slily pyr, gd Por	Shows masked by gel & OBM invasion. Slight HC odour.
4769				Good	SST: med brn, clr - trnsl Qtz Gr, f - med, wl srt, sbang - rndd, mod cmt w/ Sil, Tr dol, Tr - slily carb / bit ctg, Tr pyr, gd Por	Shows masked by gel & OBM invasion. Slight HC odour.
4770		Tr	Tr	Good	SST: pch lt - med brn & occ med gry, clr - trnsl Qtz Gr, f - med, wl srt, sbang - rndd, mod cmt w/ Sil, Tr dol, Tr - occ slily carb / bit ctg, Tr pyr, gd Por	Tr Show, tr dull brn - dull gold spk Fluor, Tr dull wh crush cut Fluor
4771		r	Tr	Good	SST: lt - med brn, clr - trnsl - Tr off wh opq Qtz Gr, f - dom med - crs, mod srt, sbang - rndd, mod cmt w/ Sil, Tr dol, Tr carb ctg, r pyr, r mic, gd Por	Tr Shows, r dull brn spk Fluor, Tr dul wh crush cut Fluor
4772				Good	SST: a /a	Shows masked by gel & OBM invasion.
4773						

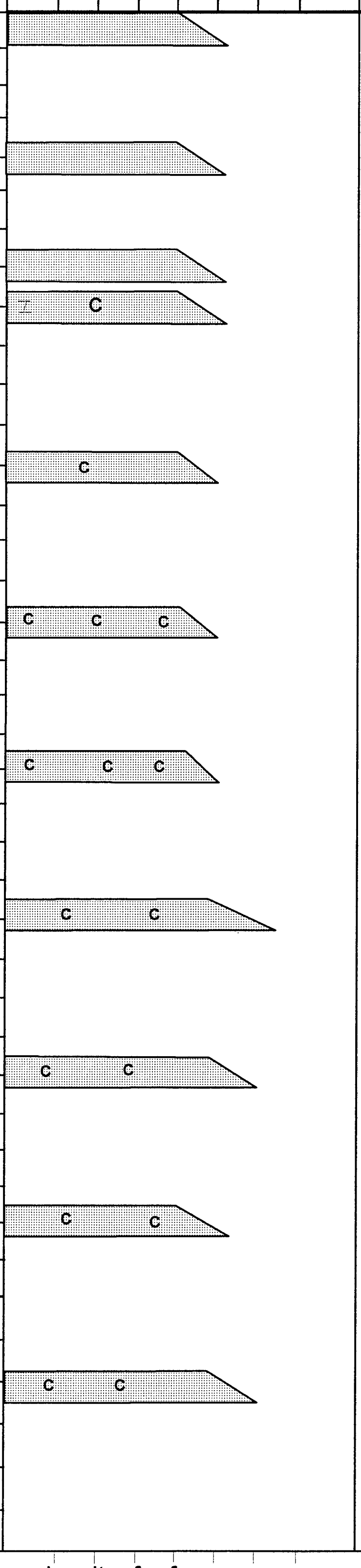
Lithology/Grain size: cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner West
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 2	**Interval:** 4753.0 - 4784.0 m	**Cored:** 31.0 m **Rec:** 31.3 (101%)	
Core size: 4"	**Geologists:** P.Sergeant/B.K.Rørvik	**Date:** 06.05.98	

Lithology/Grain size (cly slt vf f m c vc)



Depth (mRKB)	APPARENT DIP	Shows: STAIN	Shows: FLUOR	Shows: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4773							■	SST: lt - med brn, clr - trnsl - Tr off wh opq Qtz Gr, f - med - Tr crs, mod srt, sbang - rndd, mod cmt w/ Sil, Tr dol, Tr carb ctg, r pyr, Tr mic, gd Por	Shows masked by gel & OBM invasion.
4774							■	SST: a /a	Shows masked a / a
			Tr	Tr			■	SST: a /a, pl - lt brn, r carb Incl	Tr Shows, Tr dull brn - dull gold Fluor, Tr dull wh crush cut Fluor.
4775						■		SST: ptch, lt - med brn, clr - trnsl Qtz Gr, f - occ med, wl srt, ang - sbrndd, mod wl cmt w/ Sil, v slily dol, v slily carb / bit ctg, Tr arg Incl, fr - gd Por	Shows masked by gel & OBM invasion.
4776			Tr	Tr			■	SST: lt brn, clr - trnsl Qtz Gr, f - med, wl srt, ang - sbang, occ sbrndd, mod wl cmt w/ Sil, Tr dol, slily carb Gr Ctg, Tr arg Incl, gd por	Tr show, Tr spk dull brn - dull gold fluor, tr dull wh crush cut fluor
4777		Tr				■		SST: brnsh blk stn, clr - trnsl Qtz Gr, f - med, wl srt, ang - sbrndd, mod cmt w/ Sil, v carb / bit, Tr dol, fr - gd por	Show masked by gel and OBM invasion
4778		Tr		Tr		■		SST: brnsh blk stn, clr - trnsl - Tr off wh opq Qtz Gr, f - dom med, wl srt, ang - sbrndd, mod wl cmt w/ Sil, v carb / bit, fr - gd Por	Tr show, no Fluor, Tr dull wh crush cut Fluor
4779		Tr		Tr			■	SST: dk brn stn, clr - dom trnsl - Tr off wh opq Qtz Gr,Tr f - dom med - crs - occ v crs, pr srt, sbang - rndd, mod cmt w/ Sil, Tr dol, mod carb / bit ctg, Tr pyr, gd Por	Show masked by gel and OBM invasion
4780		Tr		Tr			■	SST: dk brn stn, clr - dom trnsl - Tr off wh opq Qtz Gr,Tr f - dom med - crs, mod srt, sbang - rndd, mod cmt w/ Sil, Tr dol, mod carb / bit ctg, gd Por	Tr show, no Fluor, Tr dull wh crush cut Fluor
4781		Tr		Tr		■		SST: dk brn stn, clr - trnsl - Tr off wh opq Qtz Gr,Tr f - med - Tr crs, mod srt, sbang - rndd, mod wl cmt w/ Sil, Tr dol, mod carb / bit ctg, fr - gd Por	Tr show, no Fluor, Tr dull wh crush cut Fluor
4782		Tr		Tr		■		SST: dk brn stn, clr - trnsl - Tr off wh opq Qtz Gr,Tr f - dom med - crs, mod srt, sbang - sbrndd, mod wl cmt w/ Sil, Tr dol, mod carb / bit ctg, fr - gd Por	Tr show, no Fluor, Tr dull wh crush cut Fluor
4783									

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner West
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 2	**Interval:** 4754.0 - 4784.0 m	**Cored:** 31.0 m **Rec:** 31.3 (101%)	
Core size: 4"	**Geologists:** P.Sergeant/B.K.Rørvik		**Date:** 06.05.98

Depth (mRKB)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4783	c c		Tr					■	SST: dk brn stn, clr - trnsl - Tr off wh opq Qtz Gr,Tr f - dom med - crs, mod srt, sbang - sbrndd, mod wl cmt w/ Sil, Tr dol, mod carb / bit ctg, gd por	Show masked by gel and OBM invasion
4784	c c		Tr		Tr			■	SST: dk brn stn, clr - trnsl - Tr off wh opq Qtz Gr, occ f - dom med - occ crs, mod srt, sbang - sbrndd, mod wl cmt w/ Sil, Tr dol, mod carb / bit ctg, gd por	Tr show, no Fluor, pr bl wh strmg & crush cut Fluor

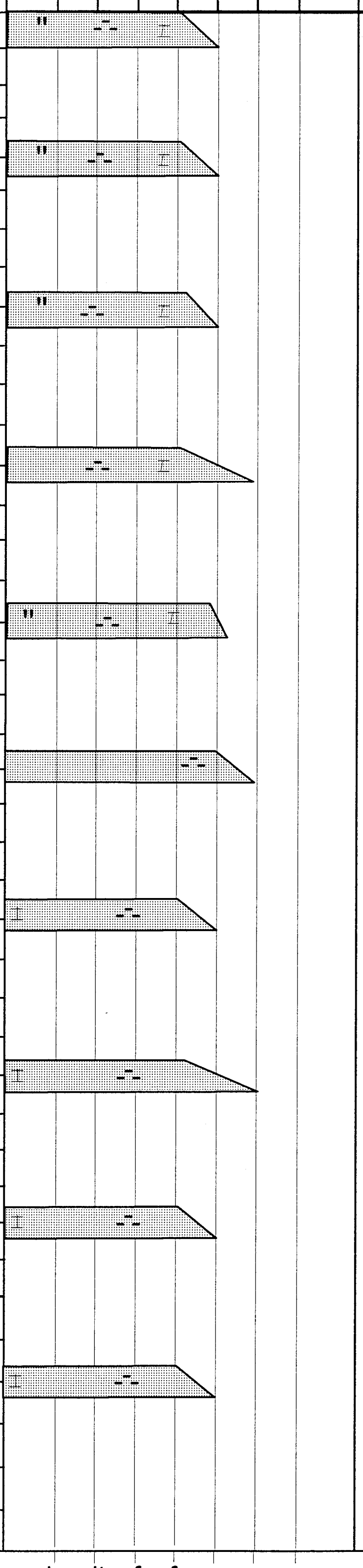
cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea	**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation	
Core no: 3	**Interval:** 4784 - 4816 m	**Cored:** 32 m **Rec:** 31 m (96.9%)
Core size: 4"	**Geologists:** M.Aslagsen / H.Crews	**Date:** 08.05.98

Lithology/Grain size: cly slt vf f m c vc



Depth (mRKB)	Shows (STAIN / FLUOR / CUT)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc Please see comments page 4)
4784	Pr	SST: dk brnsh gry Sst, clr - brnsh Qtz, occ cotd w/brn Spks, med - f, wl srt, sbrndd - occ sbang, Sil cmtd, v slily dol, mod hd, mass, slily slty & arg, fr Por	Sli spty dull yelsh dir Fluor, slow strmng brt wh - yelsh cut Fluor, dull wh - yelsh res Fluor a/a, but bright cut & res Fluor
4785	Tr	SST: slily dol, pr - fr Por, else a/a	
4786	Pr	SST: dk brnsh gry - brnsh gry Sst, med -f, dom med, else a/a	a/a
4787	Pr	SST: brnsh gry Sst, f - crs, dom med, mod wl srt, hd, else a/a	as at 4784m
4788		SST: dk brnsh gry, med, sbrndd, gd vis Por, else a/a	Stn, gd yel - wh dir Fluor, brt fast strmng yel wh cut Fluor
4789	Tr	SST: brnsh gry - dk gry Sst, clr - trnsl brnsh, occ mky - grysh Qtz, med - crs, wl srt, sbrndd - occ sbang, Sil cmtd, slily hd, slily fri, mass, r arg Pch, good Por	Sli even dull - mod yel wh dir Fluor, slow strmng brt wh - yelsh cut Fluor, brt Res Fluor
4790		SST: med - f, slily dol, mod hd, fr - good Por, else a/a	a/a
4791		SST: f - crs, dom med - crs, good Por, else a/a	mod res Fluor, else a/a
4792		SST: f - med, slily arg, fr - good Por, else a/a	a/a
4793		SST: fr Por, else a/a	No dir Fluor, v sli & v slow strmng wh cut Fluor, dull res Fluor
4794			

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 3	**Interval:** 4784 - 4816 m	**Cored:** 32 m **Rec:** 31 m (96.9%)	
Core size: 4"	**Geologists:** M. Aslagsen / H.Crews		**Date:** 08.05.98

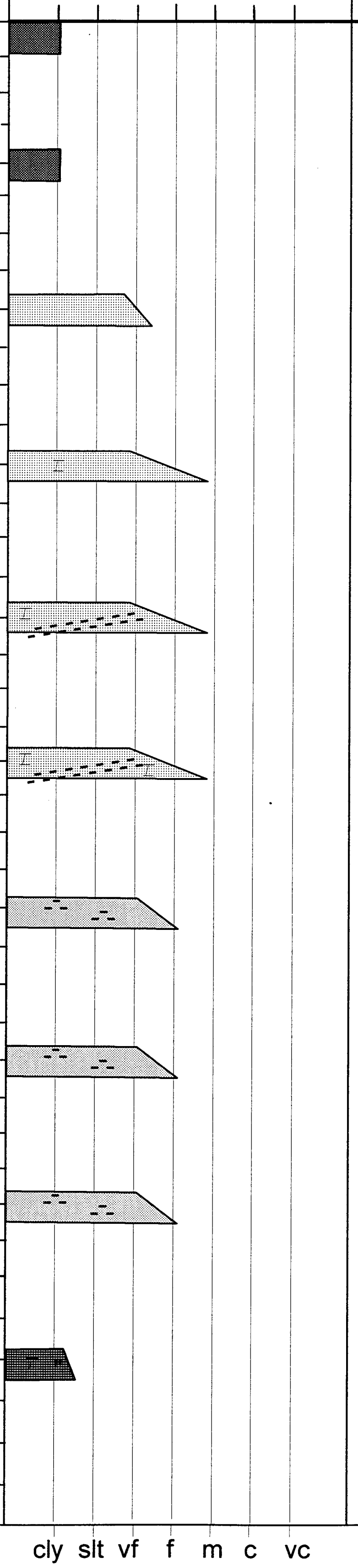
Depth (mRKB)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	FLUOR	CUT	Φ: POOR	FAIR	GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4794				Pr					SST: brnsh gry - dk brnsh gry Sst, clr - brnsh - grysh Qtz, f - occ med, wl srt, sbrndd, Sil cmtd, slily dol, hd, mass, slily slty & arg, fr Por	sli spty yelsh dir Fluor, slow strmng mod pk - wh cut Fluor, pale bl, mod res Fluor
4795									SST: a/a	Mod spty - even yelsh dir Fluor, brt yelsh wh cut Fluor, brt pale bl res Fluor
4796									SST: mod hd, pt slily fri, else a/a	
4797			Tr						SST: med, sbrndd - rndd, wl srt, frm - hd, gd vis Por	Stn, brt yel wh dir Fluor, fr yel wh mod strmng cut Fluor
4798									SST: v f - med, mod wl srt, hd, thn planar arg Lam, pr - fr Por, else a/a	Mod spty - even yelsh dir Fluor, brt yelsh wh cut Fluor, mod pale bl res Fluor
4799				Tr					SST: brnsh gry - dk yelsh brn Sst, trnsl brnsh - grysh Qtz, f - med, wl srt, sbrndd, occ sbang, Sil cmtd, v slily dol, mod hd - hd, mass, slily slty & arg, fr Por	V sli spty yelsh dir Fluor, dull - mod yelsh wh cut Fluor, v dull res Fluor
4800	m			Tr	Tr				SST: brnsh gry - lt brnsh gry Sst, v f - crs, mod srt, mass, slily slty	dull cut Fluor, else a/a
									CLST: dk gry, wkly lam w/Slt, occ micromic Lam, sbplanar Lam, mod hd	
4801				Tr	Tr				SST: v f - f, occ arg Pch, pr Por, else a/a	even - bndd dull yelsh dir Fluor, dull cut Fluor, v v dull res Fluor
4802				Tr	Tr				SST: a/a	a/a
4803					Tr				SST: lt olv gry - med gry Sst, clr - trnsl grysh Qtz, v f - f, Sil cmtd, dol, v tightly cmtd, occ arg Pch & Lam, no vis Por	no dir Fluor, Tr dull cut Fluor, Tr dull res Fluor
4804										

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 3	**Interval:** 4784 - 4816 m	**Cored:** 32 m **Rec:** 31 m (96.9%)	
Core size: 4"	**Geologists:** M. Aslagsen / H. Crews		**Date:** 08.05.98



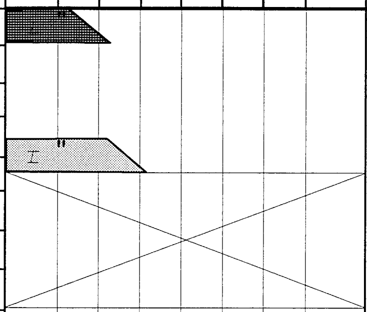
Depth (mRKB)	Shows: STAIN	Shows: FLUOR	Shows: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4804			Tr				CLST: brnsh blk - olv blk, hd, slily brit, slily calc, possibly in fracture zone	No direct Fluor, v slow strmng dull Tr cut Fluor
4805			Tr				CLST: a/a	a/a
4806		Tr		■			SST: dk gry, v f, wl srt, tight, hd, pr vis Por	Pr Fluor, no Cut
4807		Tr	Tr	■			SST: dk yelsh brn Sst, trnsl mky - brnsh Qtz, v f - f, occ med, mod wl srt, sbang - sbrndd, Sil cmtd, v slily calc, slily dol, mod hd - hd, mass, pr Por	Dull brnsh dir Fluor, slow even lilac - bl mod cut Fluor, dull lilac - bl res Fluor
4808		Tr	Tr	■			SST: r thn arg Lam, else a/a	Mod yelsh brn dir Fluor, v slow strmng dull Tr of cut Fluor
4809		Tr	Tr	■			SST: mod dol, else a/a	a/a
4810		Tr	Tr				SST: lt olv gry - med gry Sst, clr - trnsl grysh Qtz, v f - f, Sil cmtd, dol, v tighlty cmtd, occ arg Pch & Lam, no vis Por	Dull brnsh dir Fluor, v slow strmng dull Tr cut Fluor
4811		Tr					SST: a/a	Dull brnsh dir Fluor, no cut Fluor
4812		Tr					SST: a/a	a/a
4813			Tr				Slty CLST: med dk gry - dk brn, hd, slty, Tr v f aren Mat, dol	no dir Fluor, v slow v dull Tr lilac cut Fluor
4814								

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 3	**Interval:** 4784 - 4816 m	**Cored:** 32 m **Rec:** 31 m (96.9%)	
Core size: 4"	**Geologists:** M.Aslagsen / H. Crews		**Date:** 08.05.98

Depth (mRKB)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows (STAIN, FLUOR, CUT)	Φ (POOR, FAIR, GOOD)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4814					Slty CLST: med dk gry - dk brn, hd, slty, grad Sltst, Tr v f aren Mat, dol	no dir Fluor, no cut Fluor
4815					Slty SST: olv brnsh gry, v f, slty, Sil cmtd, v slily dol, hd, bioturb, pr Por	a/a
4816						



Comments on shows:

Oil based mud is used.

The clean baseoil has no fluorescence.

A filtrate sample taken at the time of coring core # 3 shows moderately bright blue - lilac - white fluorescence.

When taking core chips it was observed that a yellow-golden liquid with an oily feel (which was more viscous than either filtrate or baseoil) slowly seeped out of the cut corelengths from 4784 to 4798m MD. This liquid has a bright bluish-white fluorescence.

Gel coring was used, and it was only initially possible to distinguish hydrocarbon odour over the strong smell of the gel.

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea	**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation	
Core no: 4	**Interval:** 4816 - 4843 m	**Cored:** 27 m **Rec:** 27 m (100%)
Core size: 4"	**Geologists:** M.Aslagsen / H.Crews	**Date:** 10.05.98

Depth (mRKB)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	Shows: FLUOR	Shows: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc. Please see comments page 4)
4816				Pr	Pr	■			SST: dk brnsh gry Sst, v f - f, Sil cmtd, pchy lt brnsh gry dol Cmt, hd, slty & arg, pr vis Por	Loc spty lilac dir Fluor, v slow v dull lilac cut Fluor, thn Ring blsh res Fluor
4817				Pr	Pr				SST: dom v f, thn arg/carb Lam, slily dol, no vis Por, else a/a	Loc spty yelsh dir Fluor, else a/a
4818				Pr	Pr				SST: lt brnsh gry - lt olv gry Sst, wavy arg Lam, else a/a	V dull brnsh dir Fluor, v dull lilac res Fluor, else a/a
4819				Tr	Tr				SST: a/a	V dull lilac dir Fluor, v slow strmng lilac - blsh cut Fluor, mod blsh res Ring Fluor
4820				Pr	Pr				SST: a/a	Spty yelsh dir Fluor, v slow v dull lilac cut Fluor, v dull lilac res Fluor
4821				Tr	Pr				arg SLTST: brnsh blk, hd, Sil cmtd, arg Lam, occ v carb Lam	Loc pchy/spty yelsh dir Fluor, v slow strmng lilac - blsh cut Fluor, spty blsh res Fluor
4822									SST: olv gry - brnsh gry Sst, v f - med, dom f, v tightly Sil & Dol cmtd, v hd, no vis Por	Dull brnsh dir Fluor, no cut Fluor, no res Fluor
4823									SST: a/a	a/a
4824									SST: a/a	a/a
4825									SST: a/a	a/a
4826										

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea		**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation		
Core no: 4	**Interval:** 4816 - 4843 m	**Cored:** 27 m **Rec:** 27 m (100%)	
Core size: 4"	**Geologists:** M. Aslagsen / H.Crews		**Date:** 10.05.98

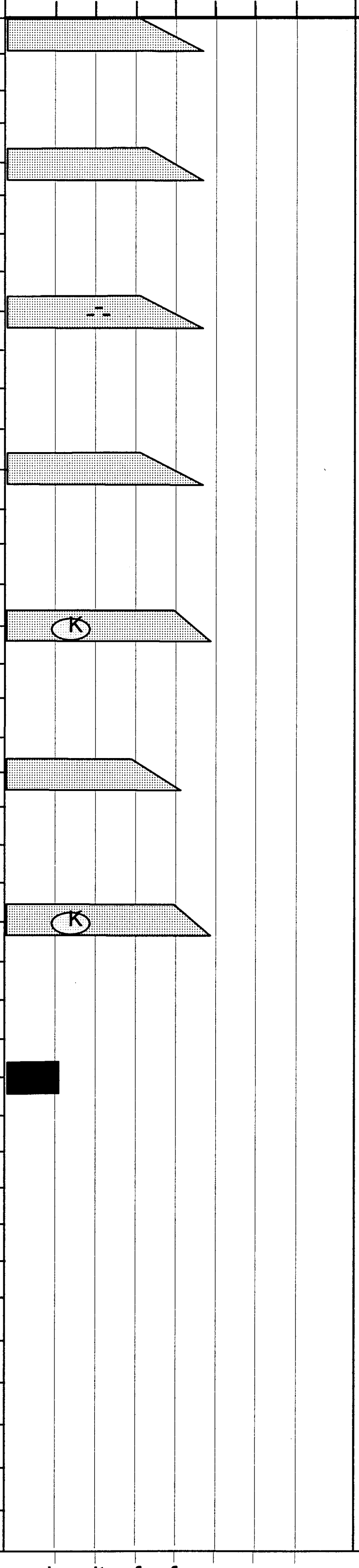
Depth (mRKB)	Lithology/Grain size (cly slt vf f m c vc)	APPARENT DIP	Shows: STAIN	Shows: FLUOR	Shows: CUT	Φ: POOR	Φ: FAIR	Φ: GOOD	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4826	m								SST: lt olv gry Sst, f, v tightly Sil cmtd, dol, v hd, r Mic, no vis Por	V dull brnsh dir Fluor, no cut Fluor, no res Fluor
4827						Pr			SST: v f - dom f, r thn sbplanar arg Lam, slily dol, hd, v poor vis Por, else a/a	a/a
4828						Pr			SST: med olv gry - brnsh gry Sst, else a/a	Loc spty yel - brnsh dir Fluor, v slow cloudy dull lilac cut Fluor, Tr v dull res Fluor
4829						Pr			SST: sml arg Pch, else a/a	a/a
4830						Pr			SST: med brnsh gry - olv gry, else a/a	No dir Fluor, else a/a
4831						Pr			SST: v f - med, dom f, else a/a	Loc dull, pt spty yel-brnsh dir Fluor, else a/a
4832	Q								SST: occ mky Qtz Pbl, v hd, v tight, else a/a	V dull brnsh dir Fluor, else a/a
4833	K					Pr			SST: f - med, sml wh kao Pch, v slily dol, v poor vis Por, else a/a	Loc dull brnsh dir Fluor, else a/a
4834	K					Pr			SST: pchy, wavy arg Lam, else a/a	R pinprick yelsh dir Fluor, else a/a
4835					Tr	Pr			SST: dom f, slily arg, else a/a	Loc spty yelsh dir Fluor, slow strmng mod brt blsh cut Fluor, mod blsh res Ring Fluor
4836										

cly slt vf f m c vc

STATOIL

CONVENTIONAL CORE DESCRIPTION

Country: Norway	**Area:** North Sea	**Field:** Sleipner Vest
Well no: 15/9-21S	**Formation:** Hugin Formation	
Core no: 4	**Interval:** 4816 - 4843 m	**Cored:** 27 m **Rec:** 27 m (100%)
Core size: 4"	**Geologists:** M. Aslagsen / H. Crews	**Date:** 10.05.98



Depth (mRKB)	Lithological Description (Rock name, mod. lith., colour, grain size, sorting, roundness, matrix, cementation, hardness, sed. struct., accessories, fossils, porosity, contamination)	Remarks (Shows, etc)
4836	SST: brnsh blk Sst, v f - f, Tr med, Sil cmtd, v slily dol, slily - mod hd, pt arg, v poor vis Por	No direct Fluor, v v slow lilac - blsh cut Fluor, v sli thn blsh res Ring Fluor
4837	SST: dom f, else a/a	a/a
4838	SST: arg Clasts, else a/a	Spty yelsh - brnsh dir Fluor, else a/a
4839	SST: dk yelsh brn Sst, else as at 4837m MD.	a/a
4840	SST: brnsh gry - med dk gry Sst, f - med, Sil cmtd, v slily dol, mod hd, com sft wh kao Pore Infill, v poor vis Por	no dir Fluor, else a/a
4841	SST: dk yelsh brn Sst, v f - f, mod hd - hd, else a/a	a/a
4842	SST: as at 4840m MD	Spty yelsh dir Fluor, else a/a
4843	COAL: blk, brit, frm, slily arg	No dir Fluor, else a/a
4844		
4845		
4846		

Columns (empty): APPARENT DIP | Shows: STAIN, FLUOR, CUT | Φ: POOR, FAIR, GOOD

[redacted]

SLEIPNER VEST

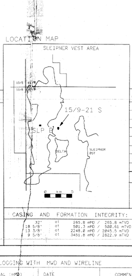
STATOIL

WELL: 15/9-21 S

COMPLETION LOG

Scale 1 : 500

LOCATION MAP



GENERAL:

License:	PL 046
Field:	SLEIPNER VEST
Slot No:	11
Platform Centre UTM Coordinates :	6 476 101.205 mN 425 099.229 mE
Slot Offset :	3.02 m N 0.12 m E
Well type:	HUGIN OIL APPRAISAL
RT- MSL:	48 m
Water Depth:	108 m
Total Depth:	5126 mMD
Deepest Formation:	SLEIPNER
Date Drilling Start:	23.03.98
Date at TD:	15.05.98
Logging Finished:	19.05.98
Well Completed:	Plugged and Abandoned, 23.05.98

CORES:

No.	INTERVAL (mMD)	CUT(m)	RECOVERED (%)
1	4747 - 4753	6	87.5
2	4753 - 4784	31	101.5
3	4784 - 4816	32	96.9
4	4816 - 4843	27	100

PERFORATED TEST INTERVALS:

None

CASING AND FORMATION INTEGRITY:

32"	at	265.8 mMD / 265.8 mTVD	No test performed
18 5/8"	at	501.3 mMD / 500.61 mTVD	LOT: 1.65 SG EMW
13 3/8"	at	2248.0 mMD / 2045.5 mTVD	FIT: 1.75 SG EMW
9 5/8"	at	3451.8 mMD / 2822.9 mTVD	FIT: 1.75 SG EMW

LOGGING WITH MWD AND WIRELINE

LOG TYPE	No.	INTERVAL (mMD)	DATE	COMMENTS
CDR/MWD 17 1/2" SECTION	1 - 2	506 - 2236	26/03/98-31/03/98	ANADRILL - MWD
CDR/MWD 12 1/4" SECTION	3 - 5	2236 - 3439	05/04/98-16/04/98	ANADRILL - MWD
CDR/MWD 8 1/2" SECTION	6 - 13	3439 - 5118	20/04/98-15/05/98	ANADRILL - MWD
TTRM/DGR/MAC/HDIL	1A	4272 - 5125	15/05/98-16/05/98	WESTERN ATLAS - WIRELINE
CHT/GR/FMT/TTRM/DSL/CN/ZDL/HEXDIP	1A	4272 - 5120	17/05/98-19/05/98	WESTERN ATLAS - PCL (CN failed-no neutron log)

LITHOLOGICAL SYMBOLS

CONGLOMERATE, SHALE, MARL, TUFF, COAL/LIGNITE, SHELL FRAGMENTS, PYRITE, KAOLINITE

SAND/SANDSTONE, CLAY/CLAYSTONE, CHALK, SALT (GENERAL), WOOD FRAGMENTS, FORAMS, GLAUCONITE, CHERT

SILTSTONE, LIMESTONE, DOLOMITE, ANHYDRITE, FOSSILS (GENERAL), BURROWS, MICA, SIDERITE

SIDEWALL CORES: NO REC, REC, 3.5 REC IN CM

CORES

PERFORATIONS

RFT/FMT: SAMPLE

CASING SHOE/LINER

DEVIATION DATA INCLINATION / AZIMUTH

Chron Strat	Litho Strat	Well Log	Lithological Descriptions
System, Series, Stage, Depth	Group, Formation, Depositional Environment	GR(API) 0–150; RT(ohm-m) 0.20–20; RHOB(g/cc) 1.95–2.95	

Chron Strat	Litho Strat	Well Log	Lithological Descriptions

(2) NO-15/9-21S [redacted]

BAKER HUGHES INTEQ

STATOIL
15/9-21 S
MUDLOG

STATOIL

Company:	STATOIL
Well:	15/9-21 S
Field:	SLEIPNER VEST
Region:	NORWAY
Coordinates:	6478104.22 mN 425099.11 mE
API Index:	
Spud Date:	22-03-98
RKB - SEA LEVEL:	48m
RKB - SEABED:	156m
Contractor:	SMEDVIG
Rig:	WEST EPSILON
Type:	JACK UP
Total Measured Depth:	5126m
Total Vertical Depth:	3906.6m
Completion Status:	P & A

Hole Size

24"	to	506m (505.2m TVD)
17 1/2"	to	2253m (2049.6m TVD)
12 1/4"	to	3457m (2826.7m TVD)
8 1/2"	to	5126m (3906.6m TVD)

Casing Size

18 5/8"	to	501m (500.2m TVD)
13 5/8"	to	2247m (2044.6m TVD)
9 5/8"	to	3451.5m (2823.3m TVD)

Mud Types

PAC/Seawater	to	506m (505.2m TVD)
Aquadrill	to	3457m (2826.7m TVD)
Oil based Mud	to	5126m (3906.6m TVD)

INTEQ Plot Suite

Formation Eval. Log X
Gas Ratio Plot
Engineering Sum Plot

ABBREVIATIONS

LOG INTERVAL

Depth:	272m	to	5126m
Date:	22-03-98	to	16-05-98
Scale:	1 : 500		

LITHOLOGY SYMBOLS

SYMBOLS

INTEQ CREW

E Vagervik, P Skjernborg, B Singh
M Nystad, E Skarsholt, A E Borlo
J A Beck.

LITHOLOGY QUALIFIERS

Dolomitic Calcareous Mica Pyrite Kaolinitic
Glauconitic Carbon Shell Debris Chert Conglomerate

FORMATION EVALUATION LOG
STATOIL 15/9-21S
SCALE 1:500