Company:	**A/S Norske Conoco**	**Country:**	**NORWAY**
Well Name:	**6507/7-11S**	**Geo Area:**	**OFFSHORE**
Contractor:	**Mærsk Contractors**	**Field:**	**Exploration well**
Rig:	**Mærsk Jutlander**	**Region:**	**Haltenbanken**

Conclusions & Recommendations

The spud mud worked very well in the 36" and 26" sections and can definitely be recommended for future wells. The anticipated boulder beds were not in countered so there was little trouble cleaning the hole or keeping it open.

During the 17 1/2" section the mud could not be mixed until after the stack and riser had been run and the pump liners changed so there was no time to shear it before needing to displace the hole to continue drilling. Then the lack of storage space on the rig made it impossible to carry enough mud materials and brine to drill for 3 or 4 days until the next supple boat arrived. It is felt that in remote locations with extended periods between supple boat schedules that the standby boat capable of storing brine and containers be used through the 17 1/2" section. This would have prevented the need to hire an extra boat to bring brine out to the rig when the rig run out and the supply boat could not be turned around in time.

It appeared that the size 24 nozzles that were used in the first bit could not shear the polymers because they blinded the coarse shaker screens. This was apparent when the size 18s` used in the second bit sheared the mud very well. Therefor jet size of around 18 or 20 should be recommended in the future to insure proper shearing of the polymers.

The Mærsk Jutlander does not have an assistant derrick man on the crews. This means the derrick man must prepare the mud pumps and mix the mud alone because the rest of the crew is employed running the stack and riser. The result is that at the start of the 17 1/2" hole there is no time to mix the polymer mud and shear it. It would improve the operation if an assistant derrick man could be used until the 17 1/2" hole was completed.

While drilling the 12 1/4" section additions of EZ Mud DP caused problems controlling the rheology and appeared to effect the quality of the cuttings so it had to be phased out. Since it is more sensitive to cement contamination than the other polymers it seems advisable to phase it out after completing the 17 1/2" section.

The addition of chemicals directly to the active system must be closely observed to keep control of the mud properties. Most of the chemicals should be premixed before adding to the active system. This becomes more critical as the mud weight is increased because the higher solids content makes it more difficult to control the rheology and the filtrates.

When reducing the mud weight to drill the 8.5" section it should be remembered that the unweighted KCl premix usually weighs from 1.13 to 1.15 SG so that it takes a lot of dilution and centrifuging to reduce the mud weight. In this case the weight had to be reduced from 1.70 SG to 1.20 SG. In addition to this 850 bbls of 1.20 SG mud had to be built to displace the cement in the 9 5/8" casing. This resulted in using much more KCl brine than had been programmed. In future wells more materials should be programmed to account for these necessities.

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Interval Discussion

Interval # 01 36 in. Hole Section

36" SECTION.
Objective :
Drill a 36" hole from the seabed at 297 meters to 360 meters with seawater and high vis seawater/pre hydrated gel sweeps of 40 to 60 bbls.

Summary :
The 36" hole was drilled with a 17 1/2" bit and a 36" hole opener with returns to the seabed as a riser was not used. Seawater was used to drill and high vis seawater/spud mud was used to help clean the hole between connections. The hole was completed in 5.5 hours. Then the hole was circulated clean, a 120 bbl high vis pill pumped and then the hole was displaced with 251 bbl of 1.20 SG mud. The bit was pulled to the sea bed and the hole was observed for 1 hour. The bit was run back to bottom. 1.5 meters of fill were in countered on bottom.
The hole was circulated clean and displaced with another 251 bbl of 1.20 SG mud that had been built while observing the well. The bit was then pulled and the 30" conductor pipe run and cemented without trouble.

Density :
The density was left at that of the seawater until the hole was finished. 400 bbl of 1.20 SG mud was made for kill mud and then used to displace the hole.

Rheology and hole cleaning :
The high vis mud used to sweep the hole was build to get a viscosity over 100 sec/qt. No other properties were monitored. There was no hole trouble so there was not need for additional treatment.
Mud properties :
The only mud properties that were needed was the high viscosity of the spud mud and the 1.20 SG weight of the displacement fluid that kept the hole open for the 30" casing.

Solids control :
There were no returns to the surface so no solids control equipment were needed.

Variances from mud program :
No variances from the mud program were in countered.

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Interval Discussion

Interval # 02 26 in. Hole Section

26" SECTION.
Objective :
Drill a 26" hole from 360 meters to 740 meters with seawater and high vis pills and set 20" casing.

Summary :
While preparing to start drilling the 26" hole 400 bbl of 1.50 SG mud was made up along with 2 pits of high vis spud mud and one pit of pre hydrated gel.
The hole was drilled using seawater with returns to the seabed as no riser had been installed. There was some rough and slow drilling down to about 460 meters due to possible boulders in the formation. After getting out of the rough drilling there was no trouble drilling but the weight on the bit had to be controlled to prevent building to much angle. Approximately 90 bbl of high vis mud was used to drill each stand. 20 bbl were pumped after drilling every single and 60 bbl was pumped before every connection at 30 meters. This procedure worked well as there was no problem cleaning the hole. After reaching TD at 754 meters the hole was circulated clean, swept with two 50 bbl, high vis pills and then displaced with 1200 bbl of 1.20 SG mud. The bit was pumped without drag so the 20" casing was run.

Density :
The weight of the high vis spud mud was 1.03 SG. This along with seawater was used to drill the entire section. 400 bbl of 1.50 SG kill mud was built before drilling out and was diluted back to 1.20 SG and left in the hole before pulling out to run the 20" casing.

Rheology and hole cleaning :
The viscosity of the spud mud was kept above 100 sec/qt so that none of the other rheology measurements were needed to insure good hole cleaning. There was no problem with hole cleaning.

Mud properties :
The pH was maintain at 10 to enable the bentonite to reach the optimum yield. Otherwise it was not necessary to maintain any of the other mud properties to insure good performance from the spud mud.

Solids control :
There were no returns to surface so no solids control equipment was needed.

Variances from mud program :
No variances from the mud program were observed or recorded.

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Interval Discussion

Interval # 03 17 1/2 in. Hole Section

17 1/2" Section.
Objective :
Drill a 17 1/2" hole to approximately 2000 meters, if no gas is encountered between 1800 and 2000 meters, with a KCl/polymer/GEM mud system. Then run and set 13 3/8" casing.

Summary :
The KCl/polymer/GEM mud was mixed in the pits after the 20" casing was cemented because the pits had to be used for the cement mix water. The mud was mixed using KCl/GEM brine. BARAZAN D Plus and Pac L were added and then the mud was weighted up to 1.25 SG. The shoe was drilled and the rat hole cleaned out. 3 meters of new hole were drilled and then the mud was conditioned to perform the leak-off test. A leak off test equal to 1.38 SG was obtained. As the hole was drilled EZ MUD DP and DEXTRID LTE were added to the active to bring the polymer concentration up to the recommended concentrations. However when the EZ MUD DP came back to the shakers it blinded the screens causing mud to be lost over the shakers At the same time new premix, containing the required concentrations was added to maintain the pit volume and control the mud weight. The addition of EZ MUD DP had to be suspended temporarily to conserve mud. 40 and 60 mesh screens were used on all 4 shakers but they could not handle the 900 to 1000 gal/minute flow rate needed to drill and operate the MWD tools. This problem persisted and got worse until a trip was made to change the bit at 1380 meters. The jets in the bit were gone and it was decided that this prevented the polymers from being sheared and allowed them to blind the shaker screens. The new bit was dressed with 3 x 18 and one 14. The difference in the performance of the shakers was enormous.
The shakers not only could handle the required volume but also allowed smaller screens to be used on the shakers. The hole was then drilled to TD at 1995 meters without the loss of mud that occurred during the first bit run and the mud properties were much better. During the first bit run large amounts of mud were lost over the shakers but the mud weight still increased to 1.31 SG. The centrifuges were run and helped bring the mud weight back to 1.25 SG. The large mud loss resulted in using all the KCl brine on board plus most of the KCl salt too. This made it necessary to send out an extra boat with brine to continue drilling until the normal supple boat arrived with supplies. This resulted in an extra expense but could not be avoided because the rig could not store enough materials to drill the large 17 1/2" hole for 3 or 4 days between supply boat arrivals.
The drill string had to be pumped out of the hole to the casing shoe during the first trip but was run back to bottom without trouble. Before the trip the cuttings were very fine and the solids built up in the mud. Where as after the trip the shakers were able to handle the full pump volume and the cuttings were larger and firmer. The mud was maintain with less dilution and less cost.
The hole was drilled to 1995 meters without hole trouble. After circulating the hole clean the drill string was pulled. But after 4 stands the over pull reached 50,000 lbs. The bit was run back to

Interval Discussion

Interval # 03 17 1/2 in. Hole Section

bottom without drag. Then the string was pumped out of the hole without trouble. The hole was circulated clean at the shoe. A large amount of cuttings were unloaded during bottoms up. the bit was then pulled out and the casing run. The casing had to be washed the last 38 meters to set it at 1987 meters. There was no trouble cementing and no mud loss while running or cementing the casing.

Density :
The section was drilled with a mud weight of 1.25 SG from top to bottom. Unfortunately the mud weight could not be controlled at 1.25 SG at all times. It gradually increased to 1.31 SG even though large amounts of unweighted premix were added to keep it down. The centrifuges were used to bring the weight down and after the new bit with smaller jets was run the weight remained steady with only a small increase observed.

Rheology and hole cleaning :
The rheology of the mud was low at the start of the section and was difficult to get up until the bit jets were reduced from 24`s to 18`s. After that the rheology was maintained within the recommended range without trouble. The hole appeared to be clean but there was a large amount of cuttings unloaded when the hole was circulated clean at the 20" casing shoe after pumping out of the hole.

Mud properties :
There was some problem getting the pH down at the beginning of the interval so some citric acid and bicarbonate was used. The alkalinity was quite low throughout the section. However, there was some kind of fumes present in the shaker room that caused irritation to the eyes. This apparently was caused by the high pH since when the pH was reduced below 9 the problem disappeared.
Most of the other mud properties were maintained without trouble except the low gravity solids were higher than recommended. This was mainly because of the coarse screens that had to be run on the shakers to reduce the mud loss. These coarse screens allowed more solids to build up in the mud.

Solids control :
The solids control equipment consisted of 4 Swaco shakers and 2 Swaco high speed centrifuges. All of the shakers were used but they could not handle the pump rate needed to operate the MWD tools.
The centrifuges were run when the mud weight could not be controlled with the shakers. Although one centrifuge broke down the other was able to help reduce the mud weight from 1.31 to 1.25 SG.

Variances from mud program :
There were some mud properties that were outside the target levels for part of the section but none were out for the entire interval.
The mud weight increased to 1.31 SG until the centrifuges were run. Then it dropped back to 1.25 SG. The PV, YP and the 3 rpm reading were to low at the beginning of the section until the polymer concentration could be brought up to the recommended range. The ph was to high for the first day from cement contamination but when it

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had been treated with citric acid and sodium bicarbonate it dropped back. The potassium concentration was below requirements when the make up volume was displaced but it was brought up with concentrated premix.

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Interval Discussion

Interval # 04 12.25 in. Hole Section

12 1/4" Section.
Objective :
Drill the 12 1/4" hole to +-3364 meters with the same mud system used to drill the 17 1/2".

Summary :
Started drilling the 12.25" hole with the same mud that was used to drill the 17.5" section. The mud was weighted up to 1.37 SG while drilling out the cement and shoe. After drilling 3 meters of new hole a Leak Off Test was preformed equal to 1.92 SG.
After the LOT was completed drilling continued and the mud weight was increased to 1.40 SG. The mud system was treated with sodium bicarbonate and citric acid to treat out the increased calcium and pH from the cement contamination. Unfortunately there was not enough of these chemicals on the rig to complete the treatment. Dilution with premix was needed to bring the pH down below 9. The mud was treated with the polymers, Pac L and DEXTRID LTE, to control the mud properties.
At 2448 meters increased torque and drag made it necessary to increase the mud weight to 1.50 SG to stabilize the hole. Although the increased mud weight eliminated the tight hole through this zone the caliper log showed that from 2350 to 2450 meters the hole had washed out up to 26". No shale cavings observed on the shakers while raising the mud weight but when the heavy mud reached the shakers it brought a large amount of cuttings out of the hole. Continued to drill while raising the mud weight to 1.55 SG. However, more tight hole below 2658 meters made it necessary to increase the mud weight to 1.57 SG. A trip was made to change the bit at 2741 meters. The string was pumped out to 2366 meters and then pulled out without trouble. When running back to bottom tight hole was encountered at 2375 meters. The string was washed and reamed to 2424 meters where the hole packed off. The hole was circulated clean while working the pipe. Finished reaming to bottom and drilled to 2743 meters. The hole packed off and the string became tight. The string was freed by applying torque. The mud weight was increased to 1.60 SG while drilling to 2747 meters. Started to pull out, but the overpull reached 80,000 lbs. Circulated and raised the mud weight to 1.65 SG. Pulled out and changed the bit and motor. Run back in and reamed from 2370 to 2747 meters and continued drilling. Maintained the mud properties with premix containing the recommended concentrations of mud chemicals. This procedure work very well. The motor kept stalling out at 3051 meters. Pumped high vis pill and circulated the hole clean. Started trip to change the bit. Had 50,000 lbs overpull at 2931 meters. Pumped out to 2345 meters with 5-10,000 lbs drag. Finished pulling out. One cone was found to be missing. Made two trips with a reverse circulating junk basket but recovered only shale. Had to ream through tight spots both times to get to bottom. Raised mud weight to 1.70 SG while fishing for junk. After the second run with the junk basket which failed to recover the junk, a flat bottom mill was run. Tight hole was encountered between 2400 and 2450 meters as with the two previous runs. The mill was used to drill from

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Interval # 04 12.25 in. Hole Section

3055 to 3058 meters to break up the junk before being pulled. Had 50,000 lbs overpull at 2693 meters while pulling out. Pumped out to 2449 meters and then pulled out of the hole.
Made up new bit and run back to bottom. The hole was drilled to 3105 meters and the YP was increased from 12-15 to 20-25 Pa to help clean the hole. A loss of pump pressure made it necessary to pull out. A washout was found in the drill pipe. After laying out the damaged joints the bit was run back to bottom. No tight hole was encountered.
The hole was drilled to 3260 meters. During this interval the filtrate increased. While adding DEXTRID LTE to the active system to reduce the filtrate the rheology increased too. KCl brine and drill water were added to reduce the rheology and then premix was added to reduce the filtrate. BARANEX was then added also to help reduce the filtrate, but it did not have any obvious effect. After this
PAC L was added to the active system with the premix to help reduce the filtrate and help maintain the YP between 20 and 25 Pa. During this
period the 10 minute gel increase from 11 Pa to over 40 Pa. The increase occurred after the YP had been increased with BARAZAN D Plus.
During the trip for a new bit at 3260 meters no tight hole was encountered. After the trip premix was added to the mud system to reduce the API and the HPHT filtrates. BARANEX was added too, to help reduce the HPHT filtrate. This was the only way that the polymers could be added to the mud without the rheology increasing to much. In fact it was possible to add PAC L directly to the active while adding premix too. This made it possible to reduce the filtrate and maintain the YP without adding more BARAZAN D Plus. However it was not possible to get the HPHT filtrate as low as desired.
After circulating out samples at 3286 meters the torque increased so much that the bit stalled out when put on bottom. A trip was made to check the bit and stabilizers. The bit was in new condition and the stabilizers were not out of gauge but partly balled up. Made up a new bit and ran back to bottom. There was not tight hole and no torque trouble with the new assembly. The hole was drilled to the casing point at 3365 meters without any trouble. The hole was circulated clean and a trip was made to run the "E" logs. There was no drag while pulling out of the hole.
There was some trouble getting the logging tool below 3300 meters. While logging out the hole was very sticky up to 3050 meters. There was a very thick filter cake build up between 3280 and 3295 meters. This caused problems running the logging tools so the remainder of the logs were obtained with MWD tools. The MWD tools were run while the hole was being conditioned for running casing. BARACARB 50 was added to the mud system during this period to help prevent the build up of the filter cake. The maximum recorded bottom hole temperature was 110 degrees C.
After the logging was completed and the BARACARB 50 added to the mud a 10 stand wiper trip was made. There was 50,000 lbs overpull at 3293 meters. A 50 bbl pill was mix with active mud, containing 14 kg/m3 BARACARB 50 and 5.7 kg/m3 PAC L. This was spotted on bottom to help bridging the sands and preventing the thick wall cake to form before pulling out to run the 9 5/8" casing.

Interval Discussion

The 9 5/8" casing was then run and set without any hole trouble although there were several delays while running the casing. The casing was cement ok and displaced with 1.20 SG KCl mud. Unfortunately the seal assembly did not set so some delay occurred while the fault was trouble-shooted and the assembly rerun.

Density :
The mud weight of 1.40 SG was used to begin drilling the 12 1/4" section. However it had to be increased to 1.50 SG at 2448 meters when the hole became tight. After that it was steadily increased to 1.70 SG at 3050 meters. The weight was kept at 1.70 SG for the remainder of the section.

Rheology and hole cleaning :
The PV was kept below 45 during the entire interval and below 40 for most of the period. The YP was programmed to be maintained between 7 and 12. However when tight hole was encountered between 2400 and 2450 meters the YP was increased to 20-25 to hold this area open. There was no drag after that. The 3 rpm reading was programmed at 8-13 but when the YP was increased so did the 3 rpm reading. The 10 minute gel reading increased at the same time.

Mud properties :
There was some problem keeping the pH down at the beginning of the section due to contamination from drilling out the cement. The calcium increased at that time also. There was some break down of the polymers due to the high pH but did not cause any trouble maintaining the other properties.
The MBT content of the mud was higher than recommended because the mud had been used to drill the 17 1/2" hole and had accumulated a lot of clay solids. Since there was a large amount clay in this section also it was very difficult to keep the MBT down. This could only be done by constant dilution with premix.
The filtrates were below recommendations until 3180 meters where the API filtrate increased from 2.5 to 3.1 ml. There was a viscosity increase at this point too and although the mud was treated to reduce these properties, the filtrates increased until the API was 3.6 and the HPHT was 14 ml. Heavy dilution with premix brought the filtrates and viscosity down.

Solids control :
The four Swaco ALS shakers were used to control the solids during this section. After the mud had been sheared, 175 mesh screens were used and they were able to keep the drill solids down.

Variances from mud program :
At the beginning of the section the pH was too high from cement contamination and the low gravity solids were too high because the mud had been used in the previous interval. Also the YP and 3 rpm readings were below the recommendations because the polymer content was too low.
As the drilling progressed the YP increased when the mud weight was increased. The MBT also remained above the recommendations until the depth got below 3100 meters. Then the dilution was able to bring it down. The YP point was increased to 20-25 Pa to help hold the hole

Interval Discussion

open so it remained above the target levels for most of the section. The 3 rpm reading rose above the target levels at that point too. Both the API and HPHT filtrates rose above the target valves in the lower part of the interval below 3180 meters. Increased addition of premix was needed to bring them back down.

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Interval Discussion

Interval # 05 8.5 " in. Hole Section

8 1/2" Section.
Objective :
Drill a 8 1/2" hole from 3365 meter to 3800 meters with the mud salvaged form the previous section after reducing the mud weight to 1.20 SG.

Summary :
After the 9 5/8" casing had been landed the cement was displaced with 1.20 SG to help obtain a good cement bond. While preparing to drill the 8.5" hole the 1.70 SG mud from the previous interval was centrifuged to reduce the weight as much as possible. New 1.15 SG premix was built to help get the mud weight down to 1.20 SG before drilling out. Had to dump and centrifuge 1585 bbls and build 1185 bbls of premix to reduce the mud weight to 1.20 SG. Added citric acid and sodium bicarbonate to the mud system before, during and after drilling the cement to control the pH and calcium content of the mud. The calcium could be controlled but it was impossible to prevent the pH from increasing to 12.6. Had to treat the mud for two days to get the pH down to 9. Drilled 3 meters of new hole and run a leak off test equal to 1.96 SG.
Drilled to 3460 meters before reaching the coring point. Added BARAZAN D Plus and PAC L to the active system while drilling to increase the rheology and reduce the filtrates. Tripped to pick up the core barrel without any drag. 27 meters of core were cut in less than one hour with 100% recovery. When pulling out there was one tight spot just off bottom that had 50K lbs overpull. Otherwise the hole was ok. A PDC bit was run in without drag. The core hole was reamed while logging with the MWD tools.
The hole was drilled to TD at 3749 meters. Sodium bicarbonate was added until the pH dropped to 9 and PAC L was added to the active system to bring the HPHT filtrate down below 9 ml. It was necessary to run the centrifuges and adding unweighted premix continuously to keep the mud weight down to 1.20 SG. The shakers were dressed with 175 mesh screens but they were unable to prevent the weight from increasing. Two of the shakers were dressed with 210 mesh screens to help control the mud weight. At TD the hole was circulated clean. The trip out was trouble free without any drag so no wiper trip was made. The electric logs were run without any hole problems too.
The plug and abandonment was run as per programme and involved cutting 9 5/8" and 13 3/8" casing at 1736 and 550 m respectively. Prior to cutting the 9 5/8" casing the mud weight was increased to 1.70 SG and then lowered to 1.27 SG for the 13 3/8". When displacing the riser to seawater the returns went back to the pits and a total of 1641 bbls of GEM mud has been salvaged from this well to be used on the next well for A/S Norske Shell.

Density :
The mud from the previous section was centrifuged to reduce the mud weight from 1.70 SG but a large amount of unweighted premix was needed to bring the weight down to 1.20 SG. This weight was maintained throughout the interval although the mud had to be treated with unweighted premix and the centrifuges run constantly to hold

Interval Discussion

Interval # 05 8.5 " in. Hole Section

the mud weight down.

Rheology and hole cleaning :
After diluting the mud to reduce the mud weight it was necessary to treat the mud with BARAZAN D PLUS to bring the YP and 3 rpm reading up to the recommended levels. This caused the PV to rise above the recommended range. When the 3 rpm reading reached the minimum level the YP tended to exceed its maximum range.

Mud properties :
The pH rose to 12.6 while drilling the cement and although citric acid and sodium bicarbonate was added it did not drop back to the recommended range of 8-9 for 3 days. 4 kg/m3 of citric acid and 3.7 kg/m3 of sodium bicarbonate were added before the pH would return to the desired level. The HPHT filtrate was run at 110 degrees C because Schlumberger had recorded that bottom hole temperature while logging the previous section. It took a few days of treatment with PAC L to get the filtrate below 9 ml. All the other mud properties remained within the target ranges.

Solids control :
The solids control equipment consisted of 4 Swaco ALS shakers dressed with 175 mesh screens and two Swaco high speed centrifuges all of which were employed to keep the mud weight down to 1.20 SG.

Variances from mud program :
As discussed under previous headings some of the mud properties varied from the targets occasionally but the only one that remained out of the target was the pH. The weight was above the target at the beginning of the section but was reduced with dilution and centrifuging. It was necessary to continue these practices constantly to keep the weight down. After diluting the mud to bring the weight down it was then necessary to add BARAZAN D Plus to bring the PV, YP and 3 rpm reading up to the target levels. PAC L was added to reduce the API and HPHT filtrates to the target range. The other properties remained within the targets.

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ig: Mærsk Jutlander

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Mud Property Recap:Water-Based Mud

DATE	DEPTH	F/L TEMP	DENSITY	FUN VIS	RHEOLOGY @ 120°F			pH	FILTRATION				FILTRATE ANALYSIS					SAND	RETORT ANALYSIS				MBT	RHEOMETER DIAL READINGS		
					PV	YP	GELS		API	HTHP	Cake	Temp	Pm	Pf	Mf	Cl	Total Hardness		Corr Solids	LGS	Oil	Water		600/300	200/100	6/3
	meters	Deg F	Sp. Gr.	sec/qt	cP	lbs/100 ft2			ml/30 mi	ml/30 min	32nd in	Deg F	ml	ml	ml	mg/L	mg/L	% by vol	% by vol	% by vol	% by vol	% by vol	ma/ml mud			
25-06-97	330	32	1.200	100	1.0		/	10.00			2/0	250												/	/	/
26-06-97	360	32	1.030	100	1.0		/	10.00			2/0	250												/	/	/
27-06-97	680	32	1.030	100	1.0		/	10.00			2/0	250												/	/	/
28-06-97	754	32	1.200		1.0		/	10.00			2/0	250												/	/	/
29-06-97	754	32	1.250	28	14.0	12.0	4.0/ 4.0	8.50	6.0		1/0	250				72,000		0	-0.34	-0.34		98.00		40 / 26	20 / 14	4 / 4
30-06-97	757	63	1.250	39	7.0	9.0	4.0/ 4.0	10.00	5.4		1/0	250	0.50	0.05	0.60	43,000	400.0	TR	7.62	2.23		90.00	0.50	23 / 16	13 / 10	4 / 3
01-07-97	1135	64	1.309	42	12.0	14.6	4.2/ 4.2	8.50	5.5	12.00	1/2	212	0.20		0.35	55,000	540.0	tr	9.00	1.94		88.00	2.00	37 / 25	20 / 15	3 / 2
02-07-97	1383	68	1.250	42	14.0	18.8	8.4/ 10.4	9.00	4.8	14.00	2/1	212	0.22	0.05	0.45	68,000	480.0	TR	8.25	5.03		88.00	1.80	46 / 32	27 / 20	9 / 7
03-07-97	1799	84	1.270	55	13.0	25.1	10.4/ 16.7	8.80	5.0	14.00	2/1	212	0.30	0.05	0.40	53,000	520.0	tr	10.15	6.54		87.00	2.60	50 / 37	30 / 24	11 / 10
04-07-97	1995	99	1.279	62	14.0	27.2	14.6/ 25.1	8.80	5.4	14.00	1/1	212	0.30		0.40	62,000	560.0	tr	10.68	7.49		88.00	4.00	55 / 41	34 / 26	13 / 12
05-07-97	1995	79	1.270	55	14.0	27.2	10.4/ 23.0	8.80	5.1	13.80	2/1	212	0.25		0.35	61,000	580.0		10.73	8.17		86.00	4.00	56 / 42	35 / 27	13 / 11
06-07-97	1995	64	1.279	58	14.0	27.2	14.6/ 23.0	8.80	5.1	14.00	2/1	212	0.30		0.30	60,000	580.0		10.79	7.63		86.00	4.00	55 / 41	33 / 25	2 / 11
07-07-97	2205	90	1.400	52	15.0	23.0	8.4/ 14.6	9.40	4.0	11.20	1/2	212	0.70	0.10	0.40	59,000	800.0	tr	12.92	4.19		84.00	3.80	52 / 37	29 / 20	9 / 8
08-07-97	2520	90	1.520	65	28.0	29.2	6.3/ 14.6	9.20	2.6	9.50	1/2	212	0.50	0.05	0.40	62,000	880.0	tr	16.91	4.67		80.00	4.00	64 / 56	45 / 31	9 / 8
09-07-97	2729	102	1.550	65	36.0	18.8	10.4/ 16.7	9.40	2.6	9.60	1/2	212	0.40	0.10	0.35	63,000	840.0	.25	17.38	3.76		79.50	4.00	60 / 54	43 / 29	9 / 8
10-07-97	2741	32	1.550	70	27.0	27.2	8.4/ 16.7	9.20	2.4	9.60	1/2	212	0.30	0.05	0.03	61,000	840.0	.25	18.00	4.86		79.00	4.00	62 / 55	43 / 29	9 / 8
11-07-97	2747	97	1.650	68	28.0	27.2	8.4/ 14.6	8.40	2.5	9.60	1/2	212	0.25	0.02	0.40	58,000	760.0	.25	21.26	4.86		76.00	4.40	64 / 56	44 / 30	9 / 8
12-07-97	2799	97	1.650	75	36.0	31.3	10.4/ 20.9	9.20	2.5	9.60	1/2	212	0.45	0.10	0.30	61,000	600.0	.25	21.11	4.73		76.00	4.60	103/ 67	53 / 35	11 / 9
13-07-97	2915	117	1.650	72	37.0	35.5	12.5/ 23.0	8.90	2.3	9.40	1/2	212	0.20	0.05	0.30	62,000	400.0	.25	21.06	4.69		76.00	4.00	109/ 72	57 / 38	10 / 9
14-07-97	3005	117	1.650	43	38.0	37.6	10.4/ 23.0	9.00	2.3	9.40	1/2	212	0.30	0.05	0.30	61,500	400.0	.25	21.09	4.71		76.00	4.00	115/ 77	61 / 41	11 / 9
15-07-97	3049	32	1.650	75	37.0	41.8	10.4/ 23.0	8.70	2.3	9.40	1/2	212	0.25		0.20	61,500	440.0	.25	21.09	4.71		76.00	4.00	117/ 80	65 / 44	12 / 11
16-07-97	3049	32	1.650	75	38.0	33.4	10.4/ 20.9	8.80	2.2	7.00	1/2	212		0.05	0.30	59,000	400.0	0.30	21.21	4.82		76.00	3.50	110/ 72	58 / 40	10 / 5
17-07-97	3055	95	1.700	80	35.0	29.2	10.4/ 20.9	8.50	2.5	3.50	1/2	212	0.40	0.05	0.50	57,000	560.0	0.5	22.35	3.78		75.00	4.00	98 / 63	47 / 30	9 / 5

ompany: A/S Norske Conoco
Vell Name: 6507/7-11S
ontractor: Mærsk Contractors
ig: Mærsk Jutlander

Country: NORWAY
Geo Area: OFFSHORE
Field: Exploration well
Region: Haltenbanken

Mud Property Recap:Water-Based Mud

DATE	DEPTH	F/L TEMP	DENSITY	FUN VIS	RHEOLOGY @ 120°F				pH	FILTRATION				FILTRATE ANALYSIS					SAND	RETORT ANALYSIS				MBT	RHEOMETER DIAL READINGS		
					PV	YP	GELS			API	HTHP	Cake	Temp	Pm	Pf	Mf	Cl	Total Hardness		Corr Solids	LGS	Oil	Water				
	meters	Deg F	Sp. Gr.	sec/qt	cP	lbs/100 ft2				ml/30 mi	ml/30 min	32nd in	Deg F	ml	ml	ml	mg/L	mg/L	% by vol	% by vol	% by vol	% by vol	% by vol	ma/ml mud	600/300	200/100	6/3
18-07-97	3061	88	1.700	80	36.0	29.2	8.4/ 23.0		8.50	2.2	5.40	1/ 2	212	0.30		0.35	60,000	600.0	0.25	22.72	4.67		74.50	4.00	100 / 64	50 / 33	11 / 9
19-07-97	3110	115	1.700	88	35.0	52.2	18.8/ 37.6		8.10	2.5	3.40	1/ 2	212	0.30	0.05	0.30	61,000	440.0	0.2	22.67	4.63		74.50	3.50	130 / 95	75 / 50	16 / 11
20-07-97	3192	129	1.700	105	40.0	54.3	29.2/ 37.6		8.00	3.1	7.00	1/ 2	212	0.40	0.05	0.50	60,000	480.0	0.2	22.72	4.67		74.50	3.50	133 / 92	75 / 55	19 / 16
21-07-97	3254	122	1.700	120	40.0	52.2	41.8/ 62.7		8.00	2.5	6.00	1/ 2	212	0.40		0.45	61,000	580.0	0.2	22.67	4.63		74.50	3.20	130 / 90	70 / 55	27 / 17
22-07-97	3260	73	1.700	66	35.0	41.8	20.9/ 73.1		8.40	3.0	12.00	1/ 2	250	0.30		0.50	61,000	600.0	0.2	22.67	4.63		74.50	3.00	110 / 75	60 / 45	22 / 20
23-07-97	3292	138	1.710	85	34.0	41.8	18.8/ 45.9		8.40	3.2	10.40	1/ 2	250	0.60	0.01	0.70	60,000	480.0	tr	23.24	5.09		74.00	3.60	108 / 74	61 / 44	22 / 21
24-07-97	3348	122	1.690	89	38.0	39.7	14.6/ 50.1		8.20	2.5	6.40	1/ 2	212	0.30		0.70	61,000	480.0	tr	22.67	5.23		74.50	3.60	115 / 78	60 / 43	18 / 14
25-07-97	3365	122	1.700	82	39.0	41.8	14.6/ 56.4		8.20	3.0	8.00	1/ 2	212	0.40		0.55	58,000	480.0	tr	22.82	4.75		74.50	3.00	116 / 77	63 / 44	17 / 14
26-07-97	3365	68	1.700	120	36.0	33.4	10.4/ 45.9		8.60	2.4	8.40	1/ 2	230	0.40		0.65	60,000	500.0	tr	22.72	4.67		74.50	3.50	103 / 67	53 / 46	13 / 11
27-07-97	3365	32	1.700	75	33.0	29.2	8.4/ 16.7		8.40	2.5	8.80	1/ 2	230	0.40		0.70	60,000	520.0	tr	22.20	3.66		75.00	3.50	96 / 63	52 / 36	9 / 8
28-07-97	3365	32	1.700	75	33.0	29.2	8.4/ 16.7		8.40	2.5	8.80	1/ 2	230	0.40		0.70	60,000	520.0	tr	23.24	5.69		74.00	3.50	96 / 63	53 / 36	10 / 8
29-07-97	3365	32	1.700	79	32.0	31.3	10.4/ 18.8		8.40	2.5	9.00	1/ 2	230	0.40		0.70	60,000	500.0	tr	22.72	4.67		74.50	3.50	95 / 63	53 / 36	10 / 8
30-07-97	3365	32	1.220	48	16.0	14.6	4.2/ 6.3		9.20	2.6	7.80	1/ 1	230	0.30	0.05	0.60	68,000	260.0		5.13	0.77		91.00	1.50	39 / 23	19 / 11	3 / 2
31-07-97	3444	97	1.200	53	17.0	18.8	6.3/ 6.3		11.60	2.6	9.70	1/ 1	230	0.10	0.05	0.10	62,000	720.0	tr	4.97	1.32		91.50	1.00	52 / 35	27 / 22	5 / 4
01-08-97	3488	32	1.200	57	22.0	23.0	6.3/ 8.4		11.00	2.4	8.00	1/ 1	230	0.10	0.10	0.20	64,000	560.0	tr	4.85	1.19		91.50	1.00	67 / 45	35 / 24	7 / 6
02-08-97	3617	99	1.200	69	23.0	25.1	6.3/ 8.4		9.70	2.4	6.00	1/ 1	248	0.10		0.10	65,000	360.0	tr	5.31	2.16		91.00	1.50	70 / 47	37 / 25	8 / 6
03-08-97	3749	32	1.200	75	22.0	20.9	6.3/ 8.4		9.30	2.4	7.80	1/ 1	248	0.70	0.02	1.00	64,000	520.0	tr	4.85	1.19		91.50	1.50	65 / 43	35 / 23	7 / 6
04-08-97	3749	32	1.210	85	22.0	20.9	6.3/ 8.4		9.10	2.4	7.80	1/ 2	248	0.70	0.02	1.00	64,000	520.0	tr	5.37	1.61		91.00	1.50	65 / 43	35 / 23	7 / 6
05-08-97	3749	32	1.210	85	22.0	20.9	6.3/ 8.4		9.10	2.4	7.80	1/ 1	248	0.70	0.02	1.00	64,000	520.0		5.37	1.61		91.00	1.50	65 / 43	35 / 23	7 / 6
06-08-97	3749	32	1.210	85	22.0	20.9	6.3/ 8.4		9.10	2.4	7.80	2/ 2	248	0.70		1.00	64,000	520.0		5.37	1.61		91.00	1.50	65 / 43	35 / 23	7 / 6
07-08-97	3204	32	1.700	88	37.0	37.6	10.4/ 16.7		8.80	2.0	7.00	2/ 2	248	0.50		0.60	64,000	480.0		22.00	3.48		75.00	1.50	112 / 75	58 / 41	11 / 9
08-08-97	3204	32	1.700	87	37.0	37.6	10.4/ 16.7		8.80	2.0	7.00	2/ 2	248	0.50		0.60	64,000	480.0		22.00	3.49		75.00	1.50	112 / 75	58 / 41	11 / 9
09-08-97	1598	32	1.270	60	16.0	25.1	8.4/ 10.4		8.30	2.4		1/ 0	248				44,000	280.0		8.59	2.92		89.00		58 / 42	37 / 22	9 / 7

Company: A/S Norske Conoco
Well Name: 6507/7-11S
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Mud Property Recap:Water-Based Mud

DATE	DEPTH	F/L TEMP	DENSITY	FUN VIS	RHEOLOGY @ 120°F			pH	FILTRATION				FILTRATE ANALYSIS					SAND	RETORT ANALYSIS				MBT	RHEOMETER DIAL READINGS		
					PV	YP	GELS		API	HTHP	Cake	Temp	Pm	Pf	Mf	Cl	Total Hardness		Corr Solids	LGS	Oil	Water		600/300	200/100	6/3
	meters	Deg F	Sp. Gr.	sec/qt	cP	lbs/100 ft2			ml/30 mi	ml/30 min	32nd in	Deg F	ml	ml	ml	mg/L	mg/L	% by vol	% by vol	% by vol	% by vol	% by vol	me/ml mud			
10-08-97		32	1.270	28	1.0		/				2/0	248												/	/	/

GEOCHEMICAL INTERPRETATION REPORT

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TITLE

Geochemical Report for Well NOCS 6507/7-11S

AUTHOR(S)

Sunil Bharati

GEOLAB PROJECT NO.	DATE
62392	20th February, 1998
PROJECT MANAGER	QA RESPONSIBLE
Sunil Bharati, Sr. Scientist	Peter B. Hall, Sr. Scientist
REPORT NO./FILE	PAGE 1 of 1

Chapter 1

INTRODUCTION

1.1 General Comments

The well 6507/7-11S, located southwest of Heidrun (latitude 65° 18' 35" N, longitude 7° 7' 42" E), was spudded on 25th June, 1997. Norske Conoco, as the operator of PL 095, Block 6507/7, terminated drilling at the total depth of 3726 m in Early Jurassic sediments. The water depth was 274 m and KB was 23 m. The present study was conducted by Geolab Nor on behalf of Norske Conoco to characterise the potential reservoir section and the potential source rocks. However, limited amounts of analytical data could be generated due to severe and adverse effects of the KCl-glycol polymer mud on the rock samples.

All the cuttings samples were washed using a jet of warm water. A lot of foaming occurred, but the dried samples seemed normal in appearance. As a test for mini-extraction, 3 randomly selected claystone samples (differing in type) were rinsed in dichloromethane for 10-15 minutes and were analysed for TOC and by Rock Eval, for comparison with data from unrinsed samples. The data were inconclusive and it was then decided in consultation with the client that no more mini-extraction was to be conducted, as it proved to be ineffective.

Six mud samples from different depths and a sample suite of 50 rock samples in the depth range 2010-3745 m (Hordaland Gp. and below) were received for analyses.

1.2 Analytical Program

Despite an exhaustive analytical programme for the core and cuttings samples being planned for this well, the actual analyses performed were significantly reduced. This was due to the findings based on preliminary analyses of various mud samples from the well. The final analytical program is shown below.

Analysis type	*No of samples*	*Figures*	*Tables*
Special washing	51	-	-
Headspace and Occluded gas	20	1a-e	1a-c
Lithology description	51	1, 2	2
TOC	31	2a	2,3
Rock-Eval pyrolysis	31	2b-e	3
Thermal extraction GC (GHM, S_1)	20	3a-c, 6	-
Pyrolysis GC (GHM, S_2)	20	4a-d, 7	4
Vitrinite reflectance	22	5	5
Extraction of organic matter	6*	-	-
MPLC/HPLC separation	6*	-	6a-e
Saturated hydrocarbon GC	6*	8a-b	7
Aromatic hydrocarbon GC	6*	9a-b	8a-b
GC - MS of saturated and aromatic HC	6*	10a-d	9a-k

* only on mud samples

Table 1a: C1 to C7 hydrocarbons in HEADSPACE gas
(µl gas/kg rock)

Project: NOCS 6507/7-11S
Well: NOCS 6507/7-11S
Depth unit of measure: m * Indicated values in ml gas/kg rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 / nC4
2800.00	141	27	50	25	18	64	261	120	46.1	1.40
2850.00	1240	129	161	73	59	131	1662	422	25.4	1.25
2900.00	1069	130	113	50	43	87	1405	336	23.9	1.17
2950.00	770	88	64	26	16	35	964	194	20.1	1.58
3000.00	803	115	90	36	22	62	1067	264	24.7	1.64
3050.00	320	62	49	19	14	20	463	144	31.0	1.39
3100.00	928	309	347	118	103	155	1804	876	48.6	1.15
3150.00	480	249	384	123	137	240	1372	892	65.0	0.89
3200.00	3683	787	594	183	188	278	5435	1752	32.2	0.97
3250.00	594	243	283	73	120	225	1312	718	54.7	0.61
3300.00	1893	1119	1090	176	361	607	4638	2745	59.2	0.49
3350.00	13229	4985	4277	605	1656	1917	24752	11523	46.6	0.37
3401.00	7859	2453	1541	187	396	304	12436	4576	36.8	0.47
3450.00	4410	2127	1638	227	500	497	8902	4493	50.5	0.45
3500.00	74736	6229	3971	535	2004	4884	87475	12739	14.6	0.27
3550.00	18872	2978	1207	119	369	605	23546	4674	19.9	0.32
3600.00	7815	2009	1677	267	810	2562	12577	4763	37.9	0.33
3650.00	1680	368	470	99	232	382	2849	1168	41.0	0.43
3700.00	1767	753	927	139	266	328	3853	2085	54.1	0.52
3749.00	12644	3190	2479	338	494	514	19146	6502	34.0	0.68

Table 1b: C1 to C7 hydrocarbons in CUTTINGS gas
(µl gas/kg rock)

Project: NOCS 6507/7-11S
Well: NOCS 6507/7-11S
Depth unit of measure: m * Indicated values in ml gas/kg rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 / nC4
2800.00	23	3	8	5	6	45	44	21	48.7	0.90
2850.00	19	3	15	12	14	58	63	44	69.4	0.82
2900.00	26	4	8	6	8	48	52	26	49.8	0.75
2950.00	14	4	9	7	6	40	40	26	64.8	1.09
3000.00	21	4	8	6	6	30	45	24	52.3	1.05
3050.00	89	20	29	17	21	79	177	87	49.4	0.81
3100.00	39	7	15	11	17	109	89	50	55.9	0.66
3150.00	26	4	16	13	23	164	83	57	68.7	0.58
3200.00	33	5	16	15	25	149	95	62	65.4	0.58
3250.00	43	10	27	15	39	271	134	91	67.8	0.39
3300.00	42	10	40	20	61	338	173	131	75.6	0.33
3350.00	81	163	681	253	847	1972	2025	1944	96.0	0.30
3401.00	32	22	143	25	138	204	360	327	91.0	0.18
3450.00	32	3	7	1	5	14	48	16	33.7	0.23
3500.00	-	-	-	-	-	-	-	-	-	-
3550.00	157	143	104	13	59	137	475	318	66.9	0.22
3600.00	93	62	81	12	60	183	308	215	69.9	0.20
3650.00	125	28	71	22	84	287	330	204	62.0	0.26
3700.00	96	43	149	34	116	251	438	343	78.2	0.30
3749.00	519	803	948	87	252	234	2610	2091	80.1	0.35

Table 1c: C1 to C7 hydrocarbons in HEADSPACE and CUTTINGS gas
(µl gas/kg rock)

Project: NOCS 6507/7-11S
Well: NOCS 6507/7-11S
Depth unit of measure: m * Indicated values in ml gas/kg rock

Depth	C1	C2	C3	iC4	nC4	C5+	sum C1-C4	sum C2-C4	%wet ness	iC4 / nC4
2800.00	163	30	58	30	24	108	305	142	46.5	1.28
2850.00	1260	132	176	85	73	189	1725	466	27.0	1.16
2900.00	1095	134	121	56	51	135	1457	362	24.9	1.11
2950.00	784	91	73	33	23	75	1004	220	21.9	1.45
3000.00	824	119	98	42	28	93	1112	288	25.9	1.52
3050.00	409	82	78	36	35	99	640	231	36.1	1.04
3100.00	967	315	362	129	120	264	1893	926	48.9	1.08
3150.00	505	253	400	136	161	404	1454	949	65.2	0.85
3200.00	3716	792	610	198	214	426	5530	1814	32.8	0.93
3250.00	637	252	310	88	159	496	1446	809	56.0	0.56
3300.00	1935	1128	1130	196	421	945	4811	2876	59.8	0.47
3350.00	13310	5148	4957	859	2503	3888	26777	13467	50.3	0.34
3401.00	7892	2475	1683	211	534	508	12795	4904	38.3	0.40
3450.00	4442	2130	1645	229	506	511	8950	4509	50.4	0.45
3500.00	74736	6229	3971	535	2004	4884	87475	12739	14.6	0.27
3550.00	19029	3121	1312	132	428	742	24021	4992	20.8	0.31
3600.00	7907	2071	1758	279	870	2745	12885	4978	38.6	0.32
3650.00	1805	396	541	121	316	670	3178	1373	43.2	0.38
3700.00	1863	796	1076	174	382	579	4291	2428	56.6	0.45
3749.00	13163	3994	3428	425	746	748	21756	8593	39.5	0.57

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth		Type		Grp	Frm	Age	Trb	Sample
Int	Cvd	TOC%	%	Lithology description				
2010.00								0027
			90	Sh/Clst: lt gy gn to lt gn gy				0027-1L
			10	Kaolin : w				0027-2L
2140.00								0028
			80	Sh/Clst: m gy to m lt gy				0028-1L
			15	Sh/Clst: lt gy to dsk w				0028-2L
			5	Sh/Clst: m drk gy				0028-3L
2180.00								0029
			100	Sh/Clst: m drk gy to m drk bl gy				0029-1L
			tr	Sh/Clst: lt gy				0029-2L
2260.00								0030
			100	Sh/Clst: m gy				0030-1L
2350.00								0031
			90	Sh/Clst: m lt gy to m lt gn gy				0031-1L
			5	Sh/Clst: v col				0031-2L
			5	Sh/Clst: lt gn				0031-3L
2490.00								0032
			70	Sh/Clst: m gy				0032-1L
			30	Sltst : m lt gy				0032-2L
2600.00								0033
			85	Sh/Clst: m gy				0033-1L
			15	Sltst : lt gy to m lt gy				0033-2L

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age	Trb	Sample	Lithology description
2700.00								0034	
			100					0034-1L	Sh/Clst: m gy to m drk gy
			tr					0034-2L	Kaolin : w
2800.00								0001	
2800.00								0035	
			100					0035-1L	Sh/Clst: m drk gy
			tr					0035-2L	Cont : dd
2900.00								0036	
		1.22	50					0036-1L	Sh/Clst: m gy
			50					0036-2L	S/Sst : w, f, l
2910.00								0037	
			85					0037-1L	S/Sst : w, f, l
			15					0037-2L	Sh/Clst: m gy
2920.00								0038	
		1.41	80					0038-2L	Sh/Clst: m gy
			20					0038-1L	S/Sst : w, f, l
2940.00								0039	
		1.06	90					0039-1L	Sh/Clst: m drk gy
			5					0039-2L	S/Sst : w, f, l
			5					0039-3L	Cont : dd
3080.00								0040	
			100					0040-1L	Sh/Clst: m drk gy to drk gy
			tr					0040-2L	Kaolin : w

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
3150.00							0041
		100	Sh/Clst: m gy				0041-1L
3260.00							0042
		100	Sh/Clst: m gy				0042-1L
		tr	Sh/Clst: lt gy, slt				0042-2L
3270.00							0043
		95	Sh/Clst: m gy				0043-1L
		5	S/Sst : w, f, l				0043-2L
3280.00							0044
		80	S/Sst : w, f, l				0044-1L
		20	Sh/Clst: m gy				0044-2L
3290.00							0045
		95	S/Sst : w, f, l				0045-1L
		5	Sh/Clst: m gy				0045-2L
3300.00							0011
3300.00							0046
		80	S/Sst : w, f, l				0046-1L
		15	Sh/Clst: m gy				0046-2L
		5	Sh/Clst: v col				0046-3L
3310.00							0047
	1.23	70	Sh/Clst: m gy				0047-2L
		25	S/Sst : w, f, l				0047-1L
		5	Ca : w				0047-3L

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Lithology description	Grp	Frm	Age	Trb	Sample
3320.00									0048
		0.20	50	Sh/Clst: red					0048-1L
			30	S/Sst : w, f, l					0048-2L
			20	Sh/Clst: m gy					0048-3L
3330.00									0049
		9.52	90	Sh/Clst: drk gy to blk					0049-1L
			5	Sh/Clst: m gy, red					0049-2L
			5	Ca : w					0049-3L
3340.00									0050
		7.68	90	Sh/Clst: drk gy to blk					0050-1L
			5	Sh/Clst: m gy, red					0050-2L
			5	Ca : w					0050-3L
3350.00									0051
		4.39	95	Sh/Clst: m drk gy					0051-1L
			5	Sh/Clst: m gy, red					0051-2L
			tr	Ca : w					0051-3L
3360.00									0052
		1.67	95	Sh/Clst: m drk gy					0052-1L
			5	Sh/Clst: m gy, red					0052-2L
			tr	S/Sst : w					0052-3L
3371.00									0053
			90	Cont : w, cem					0053-1L
			10	Sh/Clst: m gy					0053-2L
3380.00									0073
		1.12	70	Sh/Clst: m gy					0073-2L
			30	Cont : w, cem					0073-1L

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp Frm Age / Lithology description	Trb	Sample
3389.00						0074
		2.35	80	Sh/Clst: m drk gy		0074-2L
			20	Cont : w, cem		0074-1L
3401.00						0075
		2.22	90	Sh/Clst: drk gy		0075-1L
			5	Sh/Clst: m gy		0075-2L
			5	Cont : w, cem		0075-3L
3410.00						0054
		2.46	95	Sh/Clst: drk gy		0054-1L
			5	Sh/Clst: lt ol gy		0054-2L
3419.00						0055
		2.14	90	Sh/Clst: drk gy to m drk gy, slt		0055-1L
			10	Sh/Clst: lt ol gy		0055-2L
3431.00						0076
		0.83	75	Sh/Clst: lt gy, slt		0076-2L
			20	Sh/Clst: drk gy to m drk gy		0076-1L
			5	Sh/Clst: lt ol gy		0076-3L
3443.00						0056
		1.19	95	Sh/Clst: m drk gy		0056-1L
			5	Sh/Clst: lt ol gy		0056-2L
3449.00						0057
		0.94	95	Sh/Clst: m drk gy		0057-1L
			5	Sh/Clst: lt ol gy		0057-2L
3460.00						0058
			85	S/Sst : w, f, l		0058-1L
		1.20	15	Sh/Clst: m drk gy		0058-2L

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth Int	Depth Cvd	Type TOC%	%	Grp	Frm	Age	Trb	Lithology description	Sample
3461.00		ccp							0077
			100					S/Sst : w	0077-1L
3465.00		ccp							0078
			100					S/Sst : w	0078-1L
3474.50		ccp							0079
			100					S/Sst : w	0079-1L
3491.00									0059
		1.42	85					Sh/Clst: m drk gy to drk gy	0059-2L
			10					S/Sst : w, f, l	0059-1L
			5					Kaolin : w	0059-3L
3533.00									0060
			90					S/Sst : w, f, l	0060-1L
			10					Sh/Clst: m drk gy to drk gy	0060-2L
			tr					Kaolin : blk	0060-3L
3548.00									0061
			85					S/Sst : w, f, l	0061-1L
			10					Sh/Clst: m drk gy to drk gy	0061-2L
			5					Cont : v col	0061-4L
			tr					Kaolin : blk	0061-3L
3569.00									0062
			75					Sh/Clst: lt gy to w, f, slt	0062-1L
			20					S/Sst : w, f, l	0062-3L
			5					Sh/Clst: m gy	0062-2L
		0.55						bulk	0062-0B

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Type		Grp	Frm	Age	Trb	Sample
Int Cvd	TOC%	%	Lithology description				
3575.00							0063
	0.65	100	Sh/Clst: lt gy, f, slt				0063-1L
		tr	Sh/Clst: m gy				0063-2L
		tr	Coal : blk				0063-3L
3600.00							0064
	0.61	100	Sh/Clst: lt gy, f				0064-1L
3615.00							0065
		60	Sh/Clst: lt gy, f				0065-1L
		30	Kaolin : w				0065-2L
		10	Sh/Clst: m gy to lt gy				0065-3L
3620.00							0066
		65	Sh/Clst: lt gy to pl y gy				0066-1L
		30	Kaolin : w				0066-2L
		5	Sh/Clst: m gy to lt gy				0066-3L
3625.00							0067
	0.13	75	Sltst : lt gy to w, s, l				0067-1L
		15	Sh/Clst: m gy to lt gy				0067-3L
		10	Kaolin : w				0067-2L
3635.00							0068
		85	Sh/Clst: lt gy to w, slt				0068-1L
		10	Sh/Clst: m gy to lt gy				0068-2L
		5	Kaolin : w				0068-3L
3680.00							0069
		90	S/Sst : w, f, l				0069-1L
		10	Sh/Clst: m gy to lt gy				0069-2L

Table 2 : Lithology description for well NOCS 6507/7-11S

Depth unit of measure: m

Depth Int	Cvd	Type TOC%	%	Grp Frm Age Lithology description	Trb	Sample
3685.00						0070
			85	S/Sst : w, l		0070-1L
			15	Sh/Clst: m gy to lt gy		0070-2L
3710.00						0071
			40	Sltst : lt gy		0071-1L
			40	S/Sst : w, f, l		0071-2L
			20	Sh/Clst: m lt gy		0071-3L
3745.00						0072
			100	Sltst : lt gy to w		0072-1L
			tr	Sh/Clst: m lt gy		0072-2L

Table 3: Rock-Eval table for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
749.00	mud		bulk	22.24	0.40	4.29	0.09	0.07	571	6129	22.6	0.98	373	0024-0B
800.00	mud		bulk	40.05	1.30	4.58	0.28	0.48	271	954	41.3	0.97	370	0021-0B
2000.00	mud	BRYG	bulk	21.24	3.61	4.13	0.87	0.58	622	712	24.9	0.85	370	0022-0B
2900.00	cut	KVIT	Sh/Clst: m gy	1.26	4.27	2.13	2.00	1.22	350	175	5.5	0.23	364	0036-1L
2920.00	cut	LANG	Sh/Clst: m gy	1.59	5.20	2.70	1.93	1.41	369	191	6.8	0.23	369	0038-2L
2940.00	cut	LANG	Sh/Clst: m drk gy	1.32	3.72	2.96	1.26	1.06	351	279	5.0	0.26	363	0039-1L
3310.00	cut	LASD	Sh/Clst: m gy	1.41	3.95	2.50	1.58	1.23	321	203	5.4	0.26	359	0047-2L
3320.00	cut	LYR	Sh/Clst: red	0.88	1.80	2.87	0.63	0.20	900	1435	2.7	0.33	354	0048-1L
3330.00	cut	SPEK	Sh/Clst: drk gy to blk	10.91	39.80	2.51	15.86	9.52	418	26	50.7	0.22	425	0049-1L
3340.00	cut	SPEK	Sh/Clst: drk gy to blk	9.32	24.73	1.77	13.97	7.68	322	23	34.0	0.27	417	0050-1L
3350.00	cut	MELK	Sh/Clst: m drk gy	3.32	13.88	1.48	9.38	4.39	316	34	17.2	0.19	429	0051-1L
3360.00	cut	MELK	Sh/Clst: m drk gy	1.52	4.92	1.71	2.88	1.67	295	102	6.4	0.24	435	0052-1L
3380.00	cut	MELK	Sh/Clst: m gy	0.43	2.92	1.96	1.49	1.12	261	175	3.4	0.13	439	0073-2L
3389.00	cut	MELK	Sh/Clst: m drk gy	1.42	5.15	2.34	2.20	2.35	219	100	6.6	0.22	438	0074-2L
3401.00	cut	MELK	Sh/Clst: drk gy	1.76	4.46	3.31	1.35	2.22	201	149	6.2	0.28	437	0075-1L
3410.00	cut	MELK	Sh/Clst: drk gy	1.73	4.47	2.93	1.53	2.46	182	119	6.2	0.28	381	0054-1L

Table 3: Rock-Eval table for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
3419.00	cut	MELK	Sh/Clst: drk gy to m drk gy	1.84	3.97	2.90	1.37	2.14	186	136	5.8	0.32	371	0055-1L
3431.00	cut	MELK	Sh/Clst: lt gy	0.70	1.58	2.24	0.71	0.83	190	270	2.3	0.31	366	0076-2L
3443.00	cut	MELK	Sh/Clst: m drk gy	1.10	3.17	2.35	1.35	1.19	266	197	4.3	0.26	364	0056-1L
3449.00	cut	MELK	Sh/Clst: m drk gy	1.47	2.93	2.43	1.21	0.94	312	259	4.4	0.33	359	0057-1L
3453.00	mud	MELK	bulk	61.29	5.13	11.44	0.45	0.51	1006	2243	66.4	0.92	401	0025-0B
3460.00	cut	GARN	Sh/Clst: m drk gy	1.27	3.14	2.95	1.06	1.20	262	246	4.4	0.29	373	0058-2L
3491.00	cut	NOT	Sh/Clst: m drk gy to drk gy	0.95	4.33	1.80	2.41	1.42	305	127	5.3	0.18	442	0059-2L
3500.00	mud	ILE	bulk	15.91	4.69	4.04	1.16	1.26	372	321	20.6	0.77	437	0023-0B
3569.00	cut	ROR	bulk	0.32	0.89	1.90	0.47	0.55	162	345	1.2	0.26	419	0062-0B
3575.00	cut	ROR	Sh/Clst: lt gy	0.25	0.84	2.00	0.42	0.65	129	308	1.1	0.23	436	0063-1L
3600.00	cut	ROR	Sh/Clst: lt gy	0.38	1.30	2.34	0.56	0.61	213	384	1.7	0.23	435	0064-1L
3625.00	cut	TILJ	Sltst : lt gy to w	0.65	0.64	1.63	0.39	0.13	492	1254	1.3	0.50	361	0067-1L
3685.00	com	TILJ	bulk	0.68	3.82	1.50	2.55	1.63	234	92	4.5	0.15	442	0080-0B
3710.00	com	TILJ	bulk	0.65	3.50	1.26	2.78	1.97	178	64	4.2	0.16	438	0081-0B
3749.00	mud	TILJ	bulk	62.95	4.62	11.89	0.39	0.52	888	2287	67.6	0.93	399	0026-0B

Table 3a: Rock-Eval table for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Form	Lithology	S1	S2	S3	S2/S3	TOC	HI	OI	PP	PI	Tmax	Sample
749.00	mud		bulk	22.24	0.40	4.29	0.09	0.07	571	6129	22.6	0.98	373	0024-0B
800.00	mud		bulk	40.05	1.30	4.58	0.28	0.48	271	954	41.3	0.97	370	0021-0B
2000.00	mud		bulk	21.24	3.61	4.13	0.87	0.58	622	712	24.9	0.85	370	0022-0B
3453.00	mud		bulk	61.29	5.13	11.44	0.45	0.51	1006	2243	66.4	0.92	401	0025-0B
3500.00	mud		bulk	15.91	4.69	4.04	1.16	1.26	372	321	20.6	0.77	437	0023-0B
3749.00	mud		bulk	62.95	4.62	11.89	0.39	0.52	888	2287	67.6	0.93	399	0026-0B

Table 4 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
2910.00	cut	S/Sst : w	2.95	44.20	27.63	25.22	-	0037-1L
2920.00	cut	S/Sst : w	2.93	36.40	49.30	11.38	-	0038-1L
3280.00	cut	S/Sst : w	10.21	52.24	33.72	3.82	-	0044-1L
3290.00	cut	S/Sst : w	17.44	48.40	30.47	3.69	-	0045-1L
3300.00	cut	S/Sst : w	8.94	52.63	35.23	3.20	-	0046-1L
3330.00	cut	Sh/Clst: drk gy to blk	5.07	21.80	36.92	36.22	39.80	0049-1L
3340.00	cut	Sh/Clst: drk gy to blk	4.79	23.69	40.11	31.40	24.73	0050-1L
3350.00	cut	Sh/Clst: m drk gy	4.50	25.79	39.48	30.24	13.88	0051-1L
3401.00	cut	Sh/Clst: drk gy	6.73	34.27	44.32	14.67	4.46	0075-1L
3419.00	cut	Sh/Clst: drk gy to m drk gy	6.43	37.43	44.22	12.01	3.97	0055-1L
3431.00	cut	Sh/Clst: lt gy	7.31	50.32	38.80	3.57	1.58	0076-2L
3460.00	cut	S/Sst : w	5.27	44.61	44.92	5.21	-	0058-1L
3461.00	ccp	S/Sst : w	6.20	55.67	35.17	2.96	-	0077-1L
3465.00	ccp	S/Sst : w	6.22	48.11	40.56	5.11	-	0078-1L
3474.50	ccp	S/Sst : w	4.40	47.60	43.79	4.20	-	0079-1L
3491.00	cut	Sh/Clst: m drk gy to drk gy	7.44	5.61	73.75	13.19	4.33	0059-2L

Table 4 : Pyrolysis GC Data (S2 peak) as Percentage of Total Area for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	C1	C2-C5	C6-C14	C15+	S2 from Rock-Eval	Sample
3710.00	com	bulk	41.47	6.65	36.43	15.45	3.50	0081-0B

Table 5 : Thermal Maturity Data for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
2010.00	cut	Sh/Clst: lt gy gn to lt gn gy	0.38	4	0.01	3	-	-	0027-1L
2140.00	cut	Sh/Clst: m gy to m lt gy	0.33	3	0.05	3+4	-	-	0028-1L
2180.00	cut	Sh/Clst: m drk gy to m drk bl gy	0.34	4	0.07	3+4	-	-	0029-1L
2260.00	cut	Sh/Clst: m gy	0.49	2	0.04	3-4	-	-	0030-1L
2350.00	cut	Sh/Clst: m lt gy to m lt gn gy	0.39	14	0.05	3+4	-	-	0031-1L
2490.00	cut	Sh/Clst: m gy	0.42	20	0.05	3+4	-	-	0032-1L
2600.00	cut	Sh/Clst: m gy	0.41	15	0.05	4	-	-	0033-1L
2700.00	cut	Sh/Clst: m gy to m drk gy	0.43	20	0.07	4	-	-	0034-1L
2800.00	cut	Sh/Clst: m drk gy	0.45	15	0.07	3-4	-	-	0035-1L
2940.00	cut	Sh/Clst: m drk gy	0.45	12	0.05	4	-	363	0039-1L
3080.00	cut	Sh/Clst: m drk gy to drk gy	0.46	20	0.06	4-5	-	-	0040-1L
3150.00	cut	Sh/Clst: m gy	0.46	20	0.06	4	-	-	0041-1L
3260.00	cut	Sh/Clst: m gy	0.49	20	0.07	4	-	-	0042-1L
3310.00	cut	Sh/Clst: m gy	0.48	20	0.06	4-5	-	359	0047-2L
3330.00	cut	Sh/Clst: drk gy to blk	0.51	20	0.07	4	-	425	0049-1L

Table 5 : Thermal Maturity Data for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Vitrinite Reflectance (%)	Number of Readings	Standard Deviation (%)	Spore Fluorescence Colour	SCI	Tmax (°C)	Sample
3389.00	cut	Sh/Clst: m drk gy	0.60	20	0.06	5	-	438	0074-2L
3449.00	cut	Sh/Clst: m drk gy	0.67	7	0.06	5-6	-	359	0057-1L
3491.00	cut	Sh/Clst: m drk gy to drk gy	0.63	20	0.06	5+6	-	442	0059-2L
3569.00	cut	Sh/Clst: lt gy to w	0.66	20	0.08	5	-	-	0062-1L
3620.00	cut	Sh/Clst: lt gy to pl y gy	0.63	20	0.06	5+6	-	-	0066-1L
3710.00	com	bulk	0.62	20	0.06	6	-	438	0081-0B
3745.00	cut	Sltst : lt gy to w	0.63	20	0.07	6	-	-	0072-1L

Table 6a: MPLC Bulk Composition: Weight of EOM and Fraction for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Rock Extracted (g)	EOM (mg)	Sat (mg)	Aro (mg)	Asph (mg)	NSO (mg)	HC (mg)	Non-HC (mg)	TOC(e) (%)	Sample
749.00	mud	bulk	-	1138.1	3.5	296.9	73.4	764.3	300.4	837.7	-	0024-0B
800.00	mud	bulk	-	638.0	2.7	1.3	13.7	620.3	4.0	634.0	-	0021-0B
2000.00	mud	bulk	-	537.8	2.7	4.1	6.6	524.4	6.8	531.0	-	0022-0B
3453.00	mud	bulk	-	825.6	7.3	170.7	41.0	606.6	178.0	647.6	-	0025-0B
3500.00	mud	bulk	-	260.1	2.2	5.5	6.0	246.4	7.8	252.3	-	0023-0B
3749.00	mud	bulk	-	1445.5	13.3	441.3	80.7	910.2	454.6	990.9	-	0026-0B

Table 6b: MPLC Bulk Composition: Material extracted from the rock (%) for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Sat	Aro	Asph	NSO	Total	HC	Non-HC	Recov. MPLC	Recov. Asph	Sample
749.00	mud	bulk	0.31	26.09	6.45	67.15	100.00	26.40	73.60	-	0.06	0024-0B
800.00	mud	bulk	0.42	0.21	2.15	97.22	100.00	0.63	99.37	-	0.02	0021-0B
2000.00	mud	bulk	0.51	0.76	1.22	97.51	100.00	1.27	98.73	-	0.01	0022-0B
3453.00	mud	bulk	0.88	20.68	4.97	73.48	100.00	21.56	78.44	-	0.05	0025-0B
3500.00	mud	bulk	0.85	2.13	2.29	94.73	100.00	2.99	97.01	-	0.02	0023-0B
3749.00	mud	bulk	0.92	30.53	5.58	62.97	100.00	31.45	68.55	-	0.06	0026-0B

Table 6c: MPLC Bulk Composition: Ratios for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Sat / Aro	HC / Non-HC	Asp / NSO	Sample
749.00	mud	bulk	0.01	0.36	0.10	0024-0B
800.00	mud	bulk	2.00	0.01	0.02	0021-0B
2000.00	mud	bulk	0.67	0.01	0.01	0022-0B
3453.00	mud	bulk	0.04	0.27	0.07	0025-0B
3500.00	mud	bulk	0.40	0.03	0.02	0023-0B
3749.00	mud	bulk	0.03	0.46	0.09	0026-0B

Table 7: Saturated Hydrocarbon Ratios (peak area) for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	Pristane / nC17	Pristane / Phytane	Pristane/nC17 / Phytane/nC18	Phytane / nC18	CPI1	nC17 / nC17+nC27	Sample
749.00	mud	bulk	0.55	1.00	1.05	0.53	-	1.00	0024-0B
800.00	mud	bulk	0.45	0.90	0.89	0.50	0.86	0.73	0021-0B
2000.00	mud	bulk	0.67	1.37	1.15	0.58	0.90	0.85	0022-0B
3453.00	mud	bulk	-	-	-	0.78	-	1.00	0025-0B
3500.00	mud	bulk	3.40	5.55	5.55	0.61	1.17	0.66	0023-0B
3749.00	mud	bulk	1.80	4.37	2.88	0.62	-	1.00	0026-0B

Table 8a: Aromatic Hydrocarbon Ratios (peak area) for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	MNR	DMNR	BPhR	2/1MP	MPI1	MPI2	Rc	DBT/P	4/1MDBT	(3+2) /1MDBT	Sample
749.00	mud	bulk	-	-	-	-	-	-	-	-	-	-	0024-0B
800.00	mud	bulk	-	-	-	-	-	-	-	-	-	-	0021-0B
2000.00	mud	bulk	-	-	-	-	-	-	-	-	-	-	0022-0B
3453.00	mud	bulk	-	-	-	-	-	-	-	-	-	-	0025-0B
3500.00	mud	bulk	-	-	-	1.28	0.56	0.67	0.74	-	-	-	0023-0B
3749.00	mud	bulk	-	-	-	-	-	-	-	-	-	-	0026-0B

Table 8b: Aromatic Hydrocarbon Ratios (peak area) for well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Typ	Lithology	F1	F2	Sample
749.00	mud	bulk	-	-	0024-0B
800.00	mud	bulk	-	-	0021-0B
2000.00	mud	bulk	-	-	0022-0B
3453.00	mud	bulk	-	-	0025-0B
3500.00	mud	bulk	0.48	0.28	0023-0B
3749.00	mud	bulk	-	-	0026-0B

Table 9a: Variation in Triterpane Distribution (peak height) SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Rat.10	Rat.11	Rat.12	Rat.13	Rat.14	Sample
749.00	bulk	0.64	0.39	0.11	0.59	0.37	0.27	-	-	-	0.75	0.85	0.38	0.19	63.91	0024-0
800.00	bulk	0.94	0.48	0.16	0.55	0.35	0.06	0.10	0.18	0.09	0.15	0.91	0.37	0.13	59.08	0021-0
2000.00	bulk	1.02	0.50	0.22	0.77	0.43	0.08	0.10	0.13	0.09	0.77	0.88	0.44	0.15	56.05	0022-0
3453.00	bulk	1.33	0.57	0.16	0.64	0.39	0.02	0.03	0.05	0.03	0.07	0.92	0.39	0.09	64.60	0025-0
3500.00	bulk	2.52	0.72	0.20	0.64	0.39	0.05	0.03	0.05	0.03	0.06	0.85	0.39	0.16	58.80	0023-0
3749.00	bulk	1.28	0.56	0.19	0.71	0.42	0.04	0.05	0.08	0.05	0.10	0.88	0.42	0.15	62.37	0026-0

List of Triterpane Distribution Ratios

Ratio 1: 27Tm / 27Ts

Ratio 2: 27Tm / 27Tm+27Ts

Ratio 3: 27Tm / 27Tm+30aß+30ßa

Ratio 4: 29aß / 30aß

Ratio 5: 29aß / 29aß+30aß

Ratio 6: 30d / 30aß

Ratio 7: 28aß / 30aß

Ratio 8: 28aß / 29aß

Ratio 9: 28aß / 28aß+30aß

Ratio 10: 24/3 / 30aß

Ratio 11: 30aß / 30aß+30ßa

Ratio 12: 29aß+29ßa / 29aß+29ßa+30aß+30ßa

Ratio 13: 29ßa+30ßa / 29aß+30aß

Ratio 14: 32aßS / 32aßS+32aßR (%)

Table 9b: Variation in Sterane Distribution (peak height) SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Ratio6	Ratio7	Ratio8	Ratio9	Ratio10	Sample
749.00	bulk	0.38	45.20	68.42	1.50	0.71	0.89	0.82	0.52	0.82	1.98	0024-0
800.00	bulk	0.65	37.26	73.48	1.47	0.79	0.50	0.37	0.58	0.59	2.21	0021-0
2000.00	bulk	0.73	43.01	74.66	1.93	0.77	0.83	0.72	0.60	0.75	2.58	0022-0
3453.00	bulk	0.77	46.12	76.13	1.54	0.78	0.55	0.41	0.61	0.86	2.96	0025-0
3500.00	bulk	0.66	44.90	69.92	0.80	0.72	0.37	0.27	0.54	0.81	2.11	0023-0
3749.00	bulk	0.79	43.61	79.12	1.45	0.81	0.51	0.37	0.65	0.77	3.36	0026-0

List of Sterane Distribution Ratios

Ratio 1: 27dßS / 27dßS+27aaR

Ratio 2: 29aaS / 29aaS+29aaR (%)

Ratio 3: 2*(29ßßR+29ßßS) / (29aaS+29aaR + 2*(29ßßR+29ßßS)) (%)

Ratio 4: 27dßS+27dßR+27daR+27daS / 29dßS+29dßR+29daR+29daS

Ratio 5: 29ßßR+29ßßS / 29ßßR+29ßßS+29aaS

Ratio 6: 21a+22a / 21a+22a+29aaS+29ßßR+29ßßS+29aaR

Ratio 7: 21a+22a / 21a+22a+28daS+28aaS+29daR+29aaS+29ßßR+29ßßS+29aaR

Ratio 8: 29ßßR+29ßßS / 29aaS+29ßßR+29ßßS+29aaR

Ratio 9: 29aaS / 29aaR

Ratio 10: 29ßßR+29ßßS / 29aaR

Table 9c: Variation in Triaromatic Sterane Distribution (peak height) for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Ratio5	Sample
749.00	bulk	-	-	-	-	-	0024-0
800.00	bulk	0.45	0.43	0.20	0.21	0.23	0021-0
2000.00	bulk	0.44	0.43	0.23	0.21	0.33	0022-0
3453.00	bulk	-	-	-	-	-	0025-0
3500.00	bulk	0.57	0.42	0.33	0.33	0.55	0023-0
3749.00	bulk	-	-	-	-	-	0026-0

Ratio1: a1 / a1 + g1
Ratio2: b1 / b1 + g1
Ratio3: a1 + b1 / a1 + b1 + c1 + d1 + e1 + f1 + g1
Ratio4: a1 / a1 + e1 + f1 + g1
Ratio5: a1 / a1 + d1

Table 9d: Variation in Monoaromatic Sterane Distribution (peak height) for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Ratio3	Ratio4	Sample
749.00	bulk	-	-	-	-	0024-0
800.00	bulk	0.16	0.11	0.12	0.12	0021-0
2000.00	bulk	0.33	0.22	0.24	0.20	0022-0
3453.00	bulk	-	-	-	-	0025-0
3500.00	bulk	0.27	0.20	0.16	0.14	0023-0
3749.00	bulk	-	-	-	-	0026-0

Ratio1: A1 / A1 + E1
Ratio2: B1 / B1 + E1
Ratio3: A1 / A1 + E1 + G1
Ratio4: A1+B1 / A1+B1+C1+D1+E1+F1+G1+H1+I1

Table 9e: Aromatisation of Steranes (peak height) for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	Ratio1	Ratio2	Sample
749.00	bulk	-	-	0024-0
800.00	bulk	0.55	0.79	0021-0
2000.00	bulk	0.71	0.63	0022-0
3453.00	bulk	-	-	0025-0
3500.00	bulk	0.43	0.89	0023-0
3749.00	bulk	-	-	0026-0

Ratio1: $\frac{C1+D1+E1+F1+G1+H1+I1}{C1+D1+E1+F1+G1+H1+I1 + c1+d1+e1+f1+g1}$

Ratio2: g1 / g1 + I1

Table 9f: Raw triterpane data (peak height) m/z 191 SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	23/3	24/3	25/3	24/4	26/3	27Ts	27Tm	28aß	25nor30aß	Sample
		29aß	29Ts	30d	29ßa	30O	30aß	30ßa	30G	31aßS	
		31aßR	32aßS	32aßR	33aßS	33aßR	34aßS	34aßR	35aßS	35aßR	
749.00	bulk	546.9	181.6	34.8	38.6	13.6	54.1	34.6	0.0	23.7	0024-0
		141.3	32.1	64.6	30.8	0.0	241.6	43.2	0.0	44.6	
		31.3	22.6	12.8	14.0	11.2	84.4	6.7	8.5	24.5	
800.00	bulk	974.2	718.3	292.6	549.5	254.8	1055.1	993.4	467.9	249.9	0021-0
		2537.3	955.7	284.9	491.9	0.0	4651.1	457.3	261.2	1629.5	
		1171.2	1113.4	771.2	664.8	404.6	404.7	280.3	345.9	223.2	
2000.00	bulk	3585.2	1818.8	630.3	637.1	335.2	730.6	741.7	232.9	461.7	0022-0
		1801.9	622.8	186.3	324.3	0.0	2353.4	315.3	106.6	763.9	
		601.2	431.2	338.1	282.0	159.5	153.6	108.4	123.8	60.3	
3453.00	bulk	448.0	237.8	85.8	212.1	66.1	565.7	754.4	125.2	186.2	0025-0
		2313.0	486.8	79.0	225.5	96.1	3588.2	322.8	48.1	729.5	
		457.0	299.4	164.1	130.2	75.5	65.4	35.2	30.9	23.2	
3500.00	bulk	1806.0	1045.2	493.3	1327.3	471.0	2173.5	5487.1	542.9	1204.6	0023-0
		12023.2	2448.4	888.0	1806.7	0.0	18664.0	3247.7	635.1	7458.8	
		4694.4	3955.1	2771.8	1809.5	1158.3	904.6	571.0	459.5	256.7	
3749.00	bulk	1997.9	1155.3	423.8	1065.4	308.8	2575.0	3300.4	650.8	1215.6	0026-0
		8532.0	2707.1	487.2	1467.1	629.5	12003.8	1685.8	227.7	3368.3	
		2261.8	1473.9	889.3	661.4	332.8	333.9	131.4	113.5	73.3	

Table 9g: Raw sterane data (peak height) m/z 217 SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	21a	22a	27dßS	27dßR	27daR	27daS	28dßS	28dßR	28daR*	Sample
		29dßS*	28daS*	27aaR	29dßR	29daR	28aaS	29daS*	28ßßS		
		28aaR	29aaS	29ßßR	29ßßS	29aaR					
749.00	bulk	340.4	78.6	44.0	22.3	8.2	12.2	17.5	13.4	18.0	0024-0
		23.6	16.1	70.8	13.5	6.3	10.2	14.4	10.0		
		8.9	10.8	14.3	11.6	13.1					
800.00	bulk	3193.1	970.6	3175.0	1968.0	765.2	774.9	1253.2	842.5	1122.4	0021-0
		1726.4	1592.9	1721.3	1351.7	520.2	580.4	943.6	1208.8		
		605.4	642.6	1272.7	1117.0	1082.2					
2000.00	bulk	8065.6	2936.1	2985.4	1614.2	674.4	695.1	981.0	624.9	722.9	0022-0
		1282.1	1084.6	1078.3	907.4	260.1	316.4	637.2	783.2		
		314.8	394.1	712.6	637.4	522.2					
3453.00	bulk	331.8	90.3	447.8	231.8	55.4	60.5	143.1	76.9	82.3	0025-0
		244.2	139.1	137.0	145.6	34.9	41.5	91.6	96.7		
		37.3	60.6	115.5	94.0	70.8					
3500.00	bulk	6755.2	1706.7	5784.0	3740.6	1607.1	1846.8	3104.6	2015.0	2512.5	0023-0
		6424.3	4180.1	2950.7	5003.1	2134.7	1881.5	2624.5	3493.1		
		1706.2	3030.4	4253.7	3591.6	3718.5					
3749.00	bulk	1491.8	396.9	2116.4	1138.8	339.2	365.8	775.9	424.4	487.3	0026-0
		1275.8	808.9	578.8	793.3	205.2	176.9	452.4	515.7		
		154.1	273.2	676.7	510.2	353.3					

* 28daR coel with 27aaS, 29dßS coel with 27ßßR, 28daS coel with 27ßßS, 29daS coel with 28ßßR

Table 9h: Raw triaromatic sterane data (peak height) m/z 231 for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	a1	b1	c1	d1	e1	f1	g1	Sample
749.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0024-0
800.00	bulk	851.7	765.8	634.6	2813.4	1190.8	965.4	1029.5	0021-0
2000.00	bulk	253.8	241.5	219.2	524.4	345.1	271.4	319.7	0022-0
3453.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0025-0
3500.00	bulk	6055.6	3409.9	1641.9	4986.3	5693.0	2224.3	4625.2	0023-0
3749.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0026-0

Table 9i: Raw monoaromatic sterane data (peak height) m/z 253 for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	A1	B1	C1	D1	E1	F1	G1	H1	I1	Sample
749.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0024-0
800.00	bulk	659.1	423.9	811.7	817.0	3467.5	314.8	1464.6	954.7	268.2	0021-0
2000.00	bulk	657.3	374.0	527.2	494.2	1332.8	253.3	803.8	538.3	184.5	0022-0
3453.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0025-0
3500.00	bulk	1439.5	972.8	1729.5	1137.5	3826.9	874.4	3843.0	2706.0	566.2	0023-0
3749.00	bulk	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0026-0

Table 9j: Raw sterane data (peak height) m/z 218 SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	27ßßR	27ßßS	28ßßR	28ßßS	29ßßR	29ßßS	30ßßR	30ßßS	Sample
749.00	bulk	32.2	23.3	22.4	18.2	21.3	23.9	0.0	0.0	0024-0
800.00	bulk	2160.6	2259.7	1475.1	1787.8	1758.8	1680.8	430.7	425.4	0021-0
2000.00	bulk	1639.1	1538.2	936.8	1094.5	1007.3	968.5	225.0	212.2	0022-0
3453.00	bulk	298.1	246.2	150.2	172.8	199.3	192.1	23.5	21.9	0025-0
3500.00	bulk	4243.5	4448.1	3264.8	4340.8	5407.7	4968.5	772.6	812.0	0023-0
3749.00	bulk	1428.7	1091.7	761.4	815.2	1058.4	952.2	78.8	82.7	0026-0

Table 9k: Raw triterpane data (peak height) m/z 177 SIR for Well NOCS 6507/7-11S

Depth unit of measure: m

Depth	Lithology	25nor28aß	25nor30aß	Sample
749.00	bulk	14.0	0.0	0024-0
800.00	bulk	260.0	101.8	0021-0
2000.00	bulk	191.9	184.2	0022-0
3453.00	bulk	183.2	131.8	0025-0
3500.00	bulk	487.3	393.4	0023-0
3749.00	bulk	938.9	942.5	0026-0