



BASF Group



WINTERSHALL NOORDZEE B.V.

D12-A-02 / D12-A-02X

FINAL WELL REPORT

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ENCLOSURES

D12-A-02 / D12-A-02X

A.	<u>FORMATION EVALUATION LOG</u>	(Scale 1:500)
B.	<u>DRILLING ENGINEERING LOG</u>	(Scale 1:1000)
C.	<u>PRESSURE EVALUATION LOG</u>	(Scale 1:5000)
D.	<u>GAS RATIO LOGS</u>	(Scale 1:500)
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	2) FWR & PDF FILES	

INTRODUCTION

The prospect was located in block D12, in the Netherlands sector of the North Sea. The well D12-A-02 was planned as a pilot well with a slight J shaped profile. The planned well target was the Early Westphalian "C" to test this potential reservoir section.

The well was spudded on the 31st May 2003, with the well TD being reached on the 11th July 2003. It was then plugged back and a horizontal sidetrack commenced at 3700m. Final TD was 5109m, reached on the 15th August 2003. A 4½" production liner was then run and cemented.

All the depths mentioned in this report are with reference to the Rotary Table Elevation (RT). For this well the Rotary Table elevation (RT) was 73.10 m above seabed, with the breakdown of depths as follows.

RT - Mean Sea Level	37.50 m.
MSL - Sea Bed	35.60 m.
RT - Sea Bed	73.10 m.

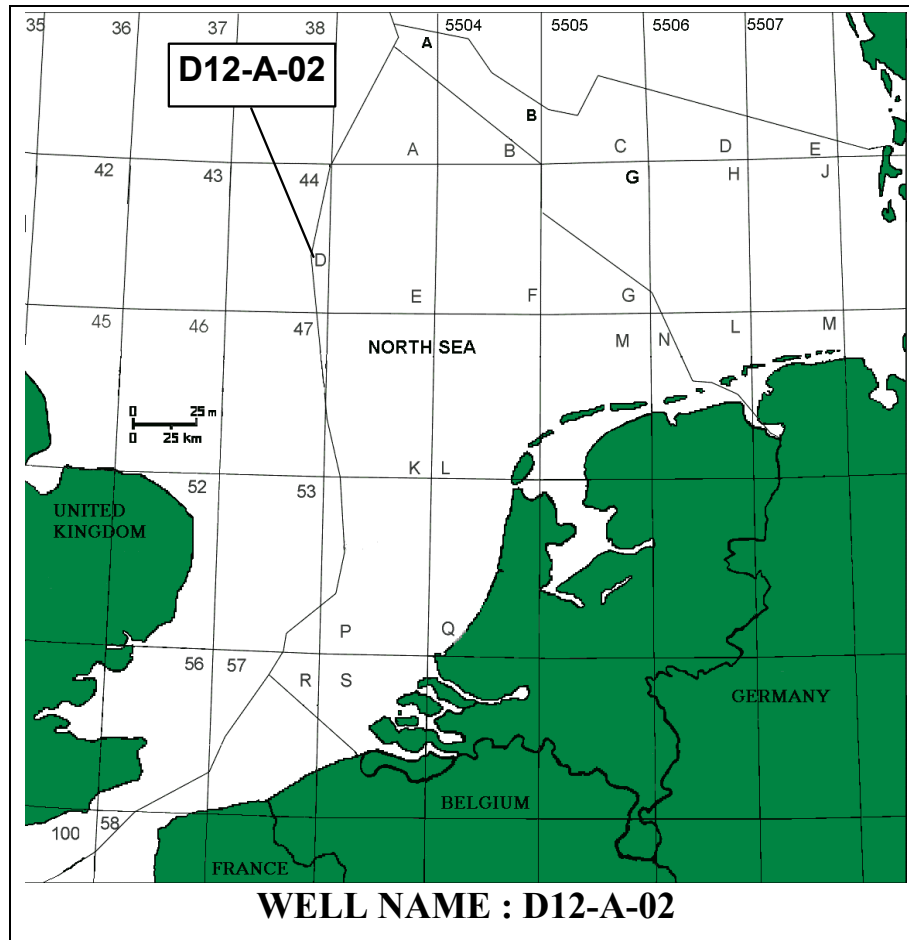
The rig position was	UTM	6 023 925.87 N	Latitude	54° 20' 35.1708" N
		361 272.17 E	Longitude	02° 51' 57.5234" E

CREW LIST

COMPANY : WINTERSHALL
WELL : D12-A-02 / D12-A-02X

DATA ENGINEERS	MUDLOGGING GEOLOGISTS
CHRISTOPHE AGEORGES BERTRAND CHEVALLIER NEIL EDWARDS JEROME HERLIDO DANIEL LOCKYER MORVAN RIOU LAURA CASTRO ALEC ABUNEI	ALEC ABUNEI NEIL CARRINS PAULIUS GRIGAS PHIL HARVISON DAVID HETHERINGTON DANIUS JONAITIS RADOSLAW MARSZALEK MIGUEL DOMINGUEZ KRISTINA GAIDELYTE

LOCATION MAP



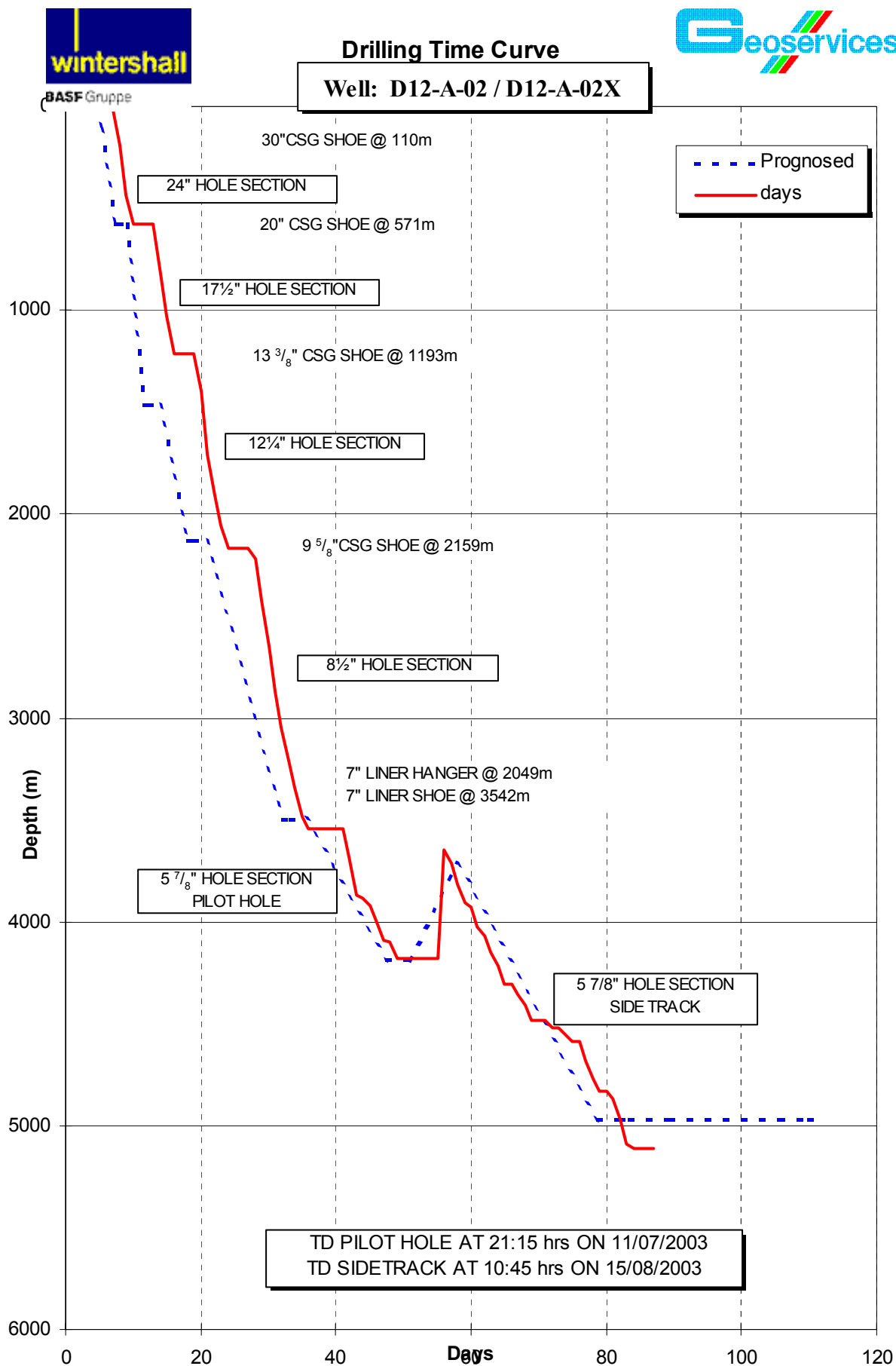
CO-ORDINATES

LAT : 54° 20' 35.1708" N
LONG : 02° 51' 57.5234" E

SPUDED ON : 31st May 2003
TD REACHED : 15th August 2003

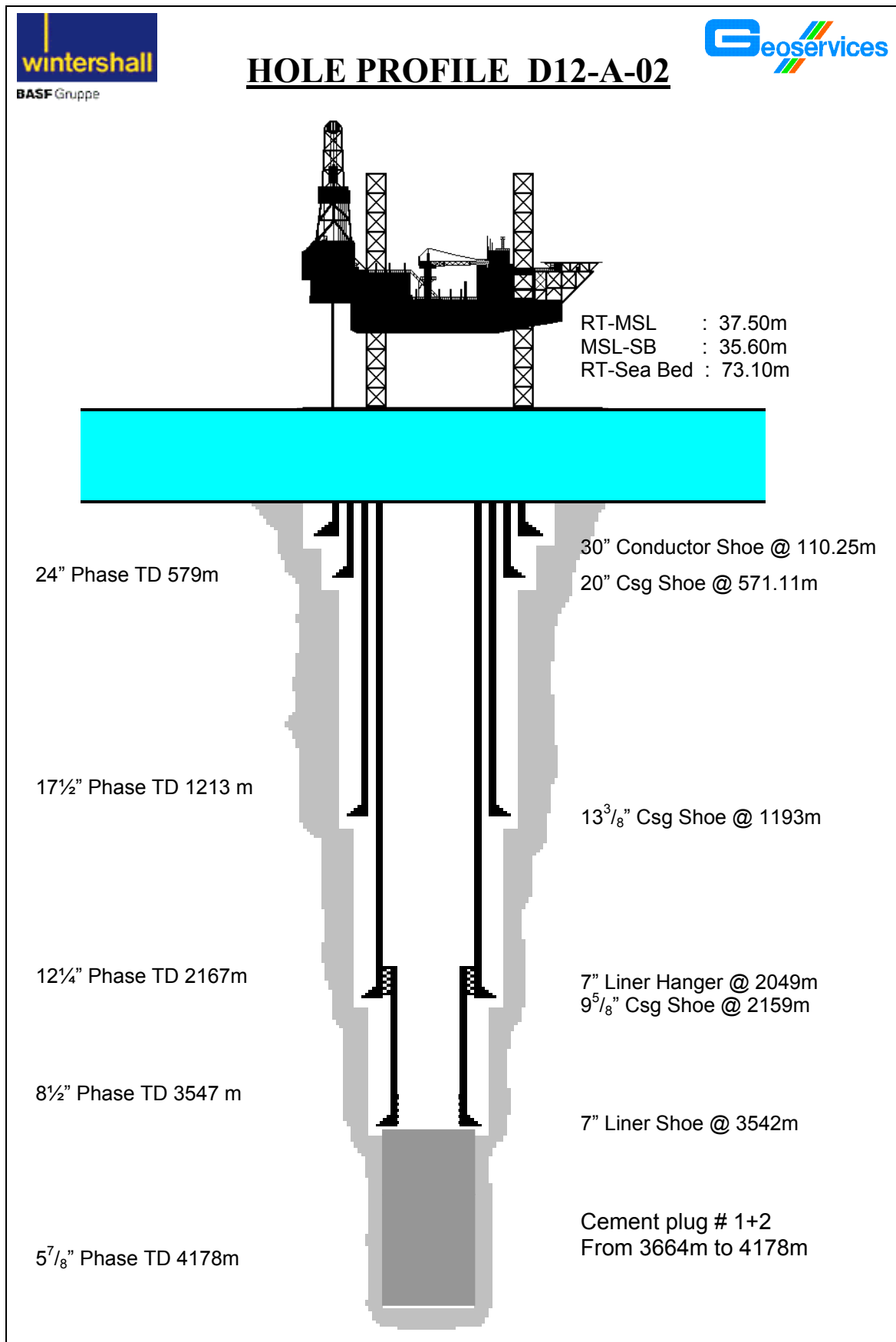
DEPTH INFORMATION

RKB-SEA LEVEL	:	40.00 m.
RKB-SEA BED	:	72.50 m.
TD MD	:	4178.00 m.
TD TVD	:	3739.05 m.
SIDETRACK TD	:	5109.00 m.
SIDETRACK TVD	:	3581.20 m.



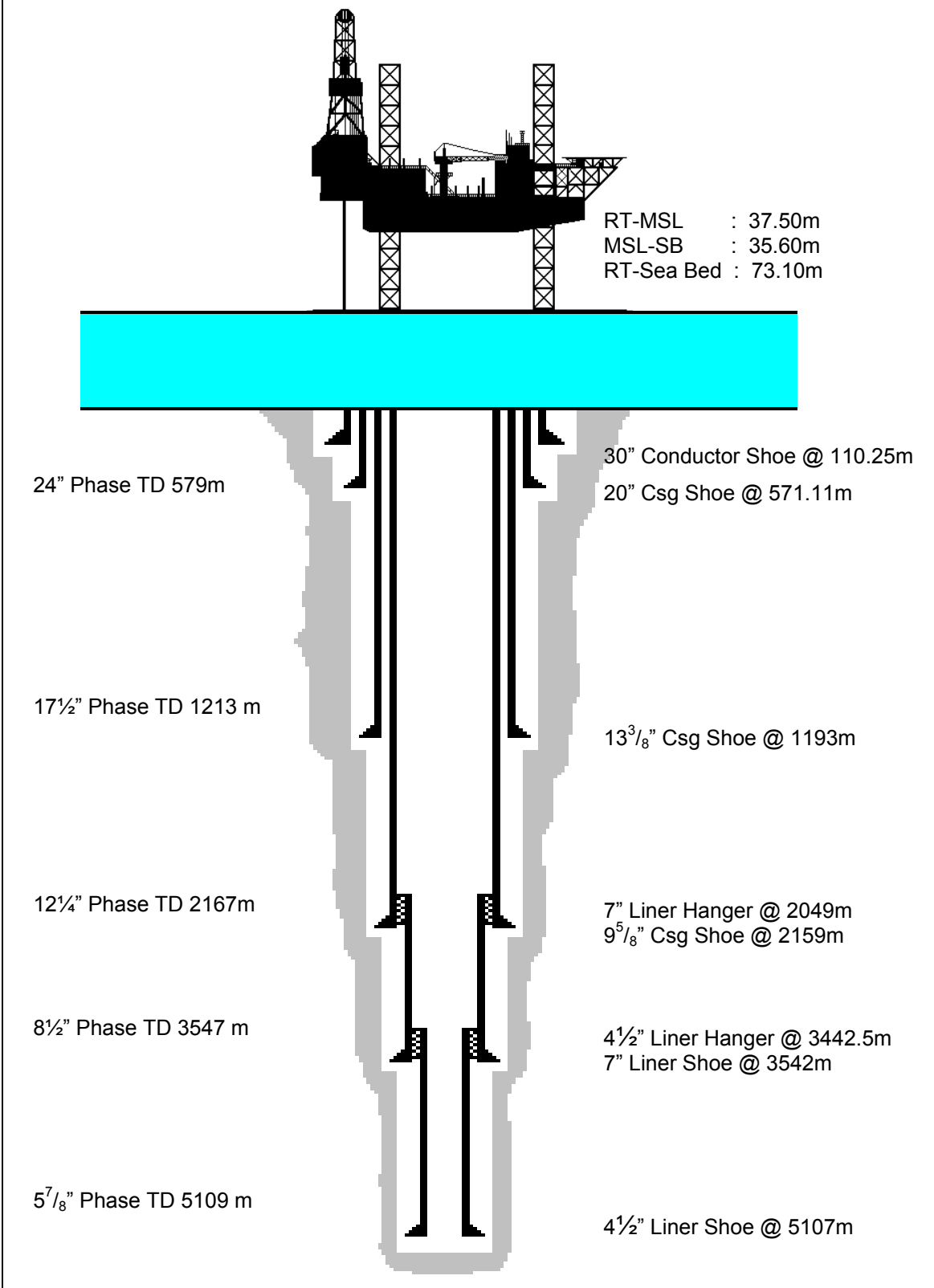


HOLE PROFILE D12-A-02





HOLE PROFILE D12-A-02X



GEOLOGY DISCUSSION (D12-A-02)

INTRODUCTION

This discussion is based on the cuttings, samples descriptions, drilling parameters and gas values seen during the drilling of well D-12-02. Along with each description will be an account of the rate of penetration, gas and any shows seen in the cuttings.

QUATERNARY/TERTIARY

NORTH SEA SUPER GROUP: 72.50m-604.00m MD (72.50m-603.00m TVDSS)

The North Sea Group constitutes materials deposited during the Tertiary and Quaternary and can be divided into two major groups (although difficult to distinguish) in this location – Upper and Middle North Sea Group.

The Upper North Sea Group consists of very fine to coarse Sands, in places medium, with interbedded grey Claystone in the upper and middle part of the section. At the bottom predominated grey to medium grey Claystone interbedded with unconsolidated Sand lenses. Carbonaceous material, Pyrite and Shell fragments are present. The Middle Group is mainly represented by grey Claystone with thin layers of Limestone.

In this well the two groups proved impossible to differentiate while drilling.

SAND: Mainly clear to translucent quartz grains, frosted, light grey, very fine to medium grained, rounded to sub rounded, well to moderately sorted, unconsolidated, with abundant to trace shell fragments, traces of carbonaceous material.

CLAY: Grey to light grey, occasionally grey to olive, soft, amorphous, plastic, waxy, non to slightly calcareous, glauconitic, micaceous, shell fragments, and traces of carbonaceous material.

CLAYSTONE: Light brown, soft to firm, occasionally very soft in parts, amorphous, sub blocky, sticky in part, silty in part, non calcareous grading to calcareous, very calcareous in part.

LIMESTONE: Light grey to grey, olive grey, soft, amorphous, glauconitic, and argillaceous.

Rate of Penetration

The ROP was moderate in this formation. The average ROP was 11.3 m/hr.

Gas and Shows

Total Gas: The background gas found was between 30 to 150 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
110-567	-	-	-	-	-	-	-	-
567-570	30-152	-	-	-	-	-	-	-
570-571	-	-	-	-	-	-	-	-
571-574	30-152	-	-	-	-	-	-	-
574-579	-	-	-	-	-	-	-	-
GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
-	-	-	-	-	-	-	-	-

Shows: None.

LATE CRETACEOUS

Chalk Group: 604.00m -1196m MD (603.00m-1154.8m TVDSS)

The Chalk Group drilled in this well consists of two formations, the Ommelanden Chalk Formation, and the Texel Formation.

Ommelanden Formation: 604m-1196.00m MD (603.00m-1151.07m TVDSS)

This sequence consisting mainly of Chalk with interbedded layers of Chert in both the upper and lower sections of the formation. Claystone beds are also present within the beginning of the upper part of the formation.

CHALK : White, pale white, milky white, hard to firm, sub blocky, micro to crypto crystalline, trace of glauconite, fossils present (bivalves & bryozoans).

CHERT : Colourless to pale brown, light orange to translucent, white in places, very hard, angular, elongated, crypto crystalline, conchoidal fracture.

Rate of Penetration

The ROP was fast in this formation. The average ROP was 37.2 m/hr.

Gas and Shows

Total Gas: No background gas was observed.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
604-1196	----	---	-	-	-	-	-	-
GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
----	---	--	-	-	-	-	-	-

Shows: None.

Texel Formation: 1196.00m-1253m MD (1157.07m-1120.7m TVDSS)

The Plenus Marl member marks the top of the Texel Formation. This formation is represented by black Claystone described below.

CLAYSTONE: Dark grey to black, soft to crumbly, blocky, slightly calcareous, very pyritic.

The Texel Marl member is immediately below the Plenus Marl member. It is represented mainly by Marls described below.

MARL: Light pink to pink, grey in part, whitish pink, soft to firm, amorphous, blocky to sub blocky.

Rate of Penetration

The ROP was fast in this formation. The average ROP was 40 m/hr.

Gas and Shows

Total Gas: No background gas was observed.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
2460-2480	-	-	-	-	-	-	-	-
2480-2541	-	-	-	-	-	-	-	-

Shows: None.

EARLY CRETACEOUS**Rijnland Group: 1256m-1440m MD (1201.2m-1359.1m TVDSS)**

The Rijnland Group consists of two formations, these being the Holland formation, and the Vlieland Formation.

Holland Formation: 1256m-1324m MD (1201.2m-1260.7m TVDSS)

MARL: Red brown, light pink at the top, soft to firm, blocky to sub blocky, sticky, amorphous, grading in place to Limestone.

Rate of Penetration

The ROP was fast in this formation. The average ROP was 36 m/hr.

Gas and Shows

Total Gas: No background gas was observed.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
1256-1324	-	-	-	-	-	-	-	-

Shows: None.

Vlieland Formation: 1324m-1440m MD (1260.7m-1359.1m TVDSS)

CLAYSTONE: Predominately light grey, medium grey, soft to moderately firm, sub blocky to blocky, amorphous, sticky, and slightly calcareous.

Rate of Penetration

The ROP was moderate in formation. The average ROP was 19 m/hr.

Gas and Shows

Total Gas: No background gas was observed.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
1324-1440	-	-	-	-	-	-	-	-

Shows: None.

TRIASSIC

Upper Germanic Trias Group

The first Triassic Formations encountered are an undifferentiated sequence of red Claystones including not only the Röt and Solling Formations but also the Hardegsen and Detfurth Formations.

Undifferentiated formation : Röt Formation : 1440m- 1610m MD (1359.1m-1502m TVDSS).

This formation is mainly represented by Claystone, except for a bed of Sandstone at the top of the formation.

SANDSTONE: Grey, brownish grey, very fine to fine grained, firm, friable, rounded, spherical, well sorted, calcareous cement, grading to Siltstone.

CLAYSTONE: Red brown, mottled light green and grey, dark grey, soft to firm, sub blocky to blocky, amorphous, slightly calcareous to calcareous, becoming dolomitic at the bottom of the formation, silty grading to Siltstone.

Rate of Penetration

The ROP was moderate in this formation. The average ROP was 15 m/hr.

Gas and Shows

Total Gas: No background gas was observed.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
1440-1610	-	-	-	-	-	-	-	-

Shows: None.

Lower Germanic Trias Group**Volpriehausen formation****Volpriehausen Sandstone Member : 1610m –1660m MD (1502.3m-1540m TVD).**

This Sandstone member is mainly composed of Sandstone with a few inter layered beds of Claystone at its top and bottom.

SANDSTONE: Red brown, colourless to pale red, soft to firm, friable, transparent, very fine to fine grained, occasionally medium to coarse grained, sub rounded to rounded, spherical, poorly sorted and poorly cemented.

CLAYSTONE: Predominantly red brown, green grey, grey, firm to moderately hard, sub blocky to blocky, amorphous, silty, and slightly calcareous.

Rate of Penetration

The ROP was fast in this formation. The average ROP was 26 m/hr.

Gas and Shows

Total Gas: The background gas was between 0 to 178 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
1610-1660	178	81	0	0	0	0	0	0

Shows: None.

Lower Buntsandstein Formation : 1660m-2115m MD (1540-1925.6m TVD).

CLAYSTONE: Predominantly red brown at the top, becoming predominantly greenish grey at the bottom, moderately hard, sub blocky to blocky, amorphous, silty, sticky, slightly calcareous, grading to Siltstone.

Rate of Penetration

The ROP was moderate in this formation. The average ROP was 13.2 m/hr.

Gas and Shows

Total Gas: Very low background gas of 30 ppm was seen while drilling this formation.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
1660-2115	30	-	-	-	-	-	-	-

Shows: None.

PERMIAN

Zechstein Group: 2115m-3539m MD (1892.88m-3235.25m TVDSS)

In this location, the group is represented by Z4, Z1 and Z2 formations. The sequence consisted of a massive Halite, with Claystone and Anhydrite at the top, and with beds of Limestone at the base of the section.

Z4 and Z3 Formations: 2115m-3455mMD (1892.88m-3153.46mTVDSS)

HALITE: Transparent, translucent, colourless, occasionally milky, moderately hard to hard, sub angular.

POLYHALITE: Orange, orange pink, moderately hard, blocky.

ANHYDRITE: White, soft to firm, amorphous, occasionally blocky.

CLAYSTONE: Dark grey, firm to moderately hard, blocky, fissile in part, very calcareous.

Rate of Penetration

The ROP was moderate in this formation. The average ROP was 16.3 m/hr.

Gas and Shows

Total Gas: The background gas was between 0 to 400 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
2115-2410	0-186	-	-	-	-	-	-	-
2410-2423	400	100	-	-	-	-	-	-
2423-2646	150	10	-	-	-	-	-	-
2646-2996	0	0	-	-	-	-	-	-
2996-3346	110	15	-	-	-	-	-	-
3346-3456	0	0	-	-	-	-	-	-

Shows: None.

Z1 and Z2 Formations: 3455m-3539m MD (3161m-3228m TVDSS)

LIMESTONE: Light to dark grey, soft, occasionally firm, sub blocky, amorphous, slightly argillaceous.

HALITE: Clear, occasionally milky white, transparent, translucent, firm to moderately hard, brittle, blocky, micro to crypto crystalline.

ANHYDRITE: White, off white, soft, sub blocky, occasionally amorphous, crumbly, microcrystalline.

CLAYSTONE: Dark grey, brown black, dark brown, firm, blocky, sub fissile, calcareous.

Rate of Penetration

The ROP was slow in this formation. The average ROP was 6.5 m/hr.

Gas and Shows

Total Gas: The background gas was between 0 to 23024 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3456-3482	0	0	-	-	-	-	-	-
3482-3507	250	100	-	-	-	-	-	-
3507-3515	23024	9386	416	154	31	46	-	-
3515-3541	1736	390	15	5	-	-	-	-
GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3511.5	48995	21568	985	376	80	128	-	-
3513	46219	17811	865	368	82	143	-	-
4575.5	3762	528	-	-	-	-	-	-

Shows: The upper limestone exhibited a dull yellow to gold fluorescence with a very slow white streaming cut.

Upper Rotliegend Group: 3539m-3875.5 m MD (3235.25m-3493.57m TVDSS)

In this location the group is represented by the Silverpit Claystone. The Silverpit formation is mainly composed of Claystone.

Silverpit Claystone Formation: 3539m-3875.5 MD (3235.25m-3493.57m TVDSS)

CLAYSTONE: 1) Light to medium grey, soft to firm, amorphous, blocky, micro pyritic, calcareous, trace of carbonaceous material.
2) Red brown, grey red, soft, occasionally firm, amorphous, slightly sticky, silty to sandy in part, calcareous.

Rate of Penetration

The ROP was moderate in this formation. The average ROP was 14 m/hr.

Gas and Shows

Total Gas: The average background gas found was between 0 to 11378 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3541-3547	592-2188	0-568	0-32	-	-	-	-	-
3547.5-3860.5	96-324	-	-	-	-	-	-	-
3861-3879	488-6730	0-6190	0-30	-	-	-	-	-
GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3542	Formation	2173	586	31	27	-	-	-
3547	Formation	2608	791	44	23	-	-	-
3867	FG	6730	6190	4	-	-	-	-
3874	FG	6356	3807	30	-	-	-	-

Shows: None.

CARBONIFEROUS

Limburg Group: 3875.5m-4178 m (TD) MD (3493.57m-3700m TVDSS)

This interval drilled was composed of mainly Claystone and Sandstone with Coal stringers.

CLAYSTONE: Red brown, grey to dark grey in part, soft to very soft, firm to moderately hard, occasionally firm to very hard, amorphous, slightly silty in part, calcareous, sticky to very sticky.

SANDSTONE: Red brown to light red brown, off white to whitish pink, moderately firm, crumbly, colourless to pale brown quartz, translucent, frosted, sub angular to moderately spherical, occasionally moderately rounded, poorly sorted, unconsolidated to poorly cemented.

SILTSTONE: Red to red brown, light red brown, occasionally dark brown, moderately firm, crumbly, friable, sub blocky, grading to Sandstone.

Rate of penetration

The ROP was slow in this formation. The average ROP was 7.6 m/hr.

Gas and Shows

Total Gas: The average background gas found in this group was between 177 to 128867 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3879.00-3908.00	177-766	10-375	0-4	0-7	0-4	-	-	-
3908.50-3920.00	438-32211	12-29899	0-282	-	-	-	-	-
3920.50-3932.50	186-620	0-278	-	-	-	-	-	-
3933.00-3943.00	265-142048	528-128867	8-1365	-	-	-	-	-
3943.50-3970.50	196-1581	4-891	0-12	0-5	-	-	-	-
3971.00-3974.50	1863-21000	882-15683	14-182	0-14	-	-	-	-
3975.00-4069.00	279-1731	47-903	0-59	0-26	-	-	-	-
4069.50-4077.00	504-2084	99-1300	0-6	-	-	-	-	-
4077.50-4090.00	987-1683	74-472	0-18	0-21	-	-	-	-
4090.50-4120.00	298-578	18-330	0-10	0-3	-	-	-	-
4120.50-4136.00	201-256	0-56	0-12	0-5	-	-	-	-
4136.50-4141.00	502-2367	204-685	2-41	0-14	0-3	-	-	-
4141.50-4172.00	248-263	248-2632	12-1592	0-36	0-12	-	-	-
4172.50-4178.00	364-602	72-375	0-21	0-8	-	-	-	-

GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3885.50	17915	59	-	-	-	-	-	-
3888.50	2213	685	3	-	-	-	-	-
3908.50	1062	663	7	-	-	-	-	-
3914.50	32211	29899	282	-	-	-	-	-
3916.00	10147	9880	76	-	-	-	-	-
3918.50	12161	5521	89	-	-	-	-	-
3934.00	142048	128867	1365	-	-	-	-	-
3942.00	16589	14534	382	-	-	-	-	-
3948.00	1581	891	10	-	-	-	-	-
3968.00	648	380	1	-	-	-	-	-
3971.00	21000	15683	182	14	-	-	-	-
3997.50	1116	34	-	-	-	-	-	-
4000.50	1769	325	18	10	-	-	-	-
4033.00	704	184	13	-	-	-	-	-
4071.00	2084	1300	6	-	-	-	-	-
4089.00	1752	944	57	21	-	-	-	-
4095.00	1545	664	46	15	-	-	-	-
4100.00	745	330	10	3	-	-	-	-
4103.50	578	218	3	-	-	-	-	-
4108.00	423	141	-	-	-	-	-	-
4114.00	512	175	2	-	-	-	-	-
4117.50	426	18	-	-	-	-	-	-
4137.00	2367	685	41	14	3	-	-	-
4140.50	848	376	18	2	-	-	-	-
4145.00	510	125	13	8	-	-	-	-
4150.00	310	22	6	4	-	-	-	-
4151.50	333	61	1	-	-	-	-	-
4153.50	365	97	4	3	-	-	-	-
4155.00	396	101	-	2	-	-	-	-
4171.50	2632	1592	36	12	-	-	-	-

Shows: None.

GEOLOGY DISCUSSION (D12-A-02X)

INTRODUCTION

This discussion is based on the cuttings, samples descriptions, drilling parameters and gas values seen during the drilling of well D12-A-02X, which is the sidetrack of the pilot well D12-A-02. Along with each description will be an account of the rate of penetration, gas, and any shows seen in the cuttings.

Upper Rotliegend Group: 3700m-3912 m MD (3274.9m-3493.57m TVDSS)

In this location the group is represented by the Silverpit Claystone. The Silverpit formation is mainly composed of Claystone with some layers of Halite and Anhydrite.

Silverpit Claystone Formation: 3700m-3912m MD (3274.92m-3493.57mTVDSS)

CLAYSTONE: Red, brick red, orange brown, soft to firm, sub blocky, slightly to non calcareous, very silty, grading to Siltstone.

HALITE: Colourless, clear, transparent, translucent, sub angular, brittle.

ANHYDRITE: White, soft, amorphous.

Rate of Penetration

The ROP in this formation was slow. The average ROP was 9.61 m/hr.

Gas and Shows

Total Gas: The average background gas found in this group was between 110 to 145 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3700-3740	110-125	-	-	-	-	-	-	-
3740-3890	145	0-40	-	-	-	-	-	-
GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm

Shows: None.

CARBONIFEROUS

Limburg Group: 3912m-5109 m MD (3493.57m-3541.2m TVDSS)

This interval drilled was composed of mainly Claystone and Sandstone.

CLAYSTONE: Red brown, orange brown, light brown, brick red, dark brown, firm to moderately hard, blocky, slightly to non calcareous, very silty, grading to Siltstone.

SANDSTONE: White to off white, light grey in places, firm, fine to medium grained, sub rounded to sub angular, sub spherical, argillaceous cement, non to slightly calcareous, micromicaceous, carbonaceous in part, no visible porosity, no shows.

SILTSTONE: Red brown, orange brown, light red brown, soft to firm, blocky, slightly to non calcareous, argillaceous.

Rate of penetration

The ROP was slow in this formation. The average ROP was 6.2 m/hr.

Gas and Shows

Total Gas: The average background gas in this group was between 0 to 3156 ppm.

BACKGROUND INTERVAL	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3890-3960	100-300	0-100	-	-	-	-	-	-
3960-4205	180-600	100-350	-	-	-	-	-	-
4206-4335	106300	83600	1150	40	-	-	-	-
4336-4585	6400	4100	200	40	-	-	-	-
4586-4668	1600	900	5	-	-	-	-	-
4669-4729	37600	31700	370	5	-	-	-	-
4730-4740	1200-1500	400-800	-	-	-	-	-	-
4750-4770	850-1100	180-250	-	-	-	-	-	-
4771-4830	650-900	115-400	-	-	-	-	-	-
4830-4919	1100-1750	450-1100	-	-	-	-	-	-
4920-4959	1250-1400	670-850	-	-	-	-	-	-
4960 – 5019	570-850	140-470	-	-	-	-	-	-

GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
3982	22343	17962	192	-	-	-	-	-
3997.50	31282	26482	346	8	-	-	-	-
4029	43812	38954	568	5	-	-	-	-
4036	44880	38833	615	15	-	-	-	-
4041.50	107919	80417	1375	35	-	-	-	-
4202	3882	3253	9	-	-	-	-	-
4205	3968	2608	9	-	-	-	-	-
4206	49200	43094	487	3	-	-	-	-
4208	58707	48125	556	7	-	-	-	-
4212	106569	91306	1102	28	-	-	-	-
4217	132903	121667	1286	34	-	-	-	-
4220	146806	130745	1360	41	-	-	-	-
4228	176708	140158	1425	46	-	-	-	-
4249	275759	258455	3631	40	-	-	-	-
4269	280875	268480	3731	53	-	-	-	-
4275	172660	153770	2113	63	-	-	-	-
4279	27678	25228	468	37	-	-	-	-
4304	14134	10703	346	92	-	-	-	-
4317.50	129288	104221	1210	89	-	-	-	-
4422.50	10257	7456	292	100	-	-	-	-
4463	20340	15953	509	144	-	-	-	-
4479.50	+14285	11710	320	88	-	-	-	-
4489	9285	5927	116	8	-	-	-	-
4506.5	11307	4429	228	65	-	-	-	-
4512.5	17694	10339	1342	209	-	-	-	-
4518.5	10937	6481	994	157	-	-	-	-
4534	1868	619	141	2	-	-	-	-
4535.5	2297	699	146	2	-	-	-	-
4542.5	2685	1044	194	11	-	-	-	-
4544.5	2904	839	142	9	-	-	-	-
4549	2332	857	187	12	-	-	-	-
4554	4442	1689	399	55	-	-	-	-
4560	4406	1723	357	41	-	-	-	-
4561.50	5036	1980	411	52	-	-	-	-
4589.5	25380	21088	185	-	-	-	-	-
4604.5	3682	2694	16	-	-	-	-	-
4609	2189	1440	-	-	-	-	-	-
4617	2052	1241	6	-	-	-	-	-
4639.50	2515	1747	2	-	-	-	-	-
4663	10257	8788	76		-	-	-	-
4678	46046	40332	466	3	-	-	-	-
4680	169445	155120	1502	40	-	-	-	-
4686	89629	77217	934	26	-	-	-	-
4992.5	91027	77360	996	25	-	-	-	-
4698	29473	22172	338	8	-	-	-	-

GAS PEAK	TOTAL GAS ppm	C1 ppm	C2 ppm	C3 ppm	iC4 ppm	nC4 ppm	iC5 ppm	nC5 ppm
4702	60196	52577	704	26	-	-	-	-
4711.5	10025	7322	131	-	-	-	-	-
4774.5	2001	1078	79	3	-	-	-	-
4785	10963	9184	215	9	-	-	-	-
4805.50	6190	4995	34	-	-	-	-	-
4810.5	29931	20558	251	-	-	-	-	-
4818.5	6384	5228	58	-	-	-	-	-
4837.50	5620	4061	56	-	-	-	-	-
5025.5	66712	50132	756	11	-	-	-	-
5027.5	70382	59530	798	15	-	-	-	-
5035.5	55406	48220	699	14	-	-	-	-
5037	62374	50278	776	16	-	-	-	-

Shows: None.

CORE DESCRIPTION (D12-A-02)

The well programme planned to cut one 36m core through the Early Westphalian “C” sandstone formation (Top of Carboniferous), at a depth of 3850 m +/- 5m. After gathering data from gamma ray and cuttings sample, it was decided to core from a depth of 3885 mMD. At a depth of 3914.5mMD, a gas peak of 3.2% was noted. From 3914.5mMD onwards to TD at 3919.5mMD, the gas was consistently higher than the previously drilled section.

Core No	From	To	Cut	Recovered	Recovery
1	3885.00m	3919.70m	34.70m	33.3m	96%

From	To	Lithology	Description
3885	3885.95	Sandstone	White, off white, red speckled, hard, fine to coarse grained, moderate to poorly sorted, well cemented with silica, calcareous in part, spotted with red argillaceous material, no to very good visible porosity, no show.
3885.95	3886.9	Sandstone	White, off white, red speckled, hard, fine to coarse grained, moderate to poorly sorted, well cemented with silica, calcareous in part, spotted with red argillaceous material, no to very good visible porosity, no show.
3886.9	3887.85	Claystone	Red brown, orange brown, off white, purple grey, hard, waxy, blocky, very micaceous, silty and sandy in part, non calcareous.
3887.85	3888.8	Claystone	Red brown, orange brown, off white, purple grey, hard, waxy, blocky, very micaceous, silty and sandy in part, non calcareous.
3888.8	3889.75	Sandstone	Off white, red speckled, hard, very fine grained, well sorted, well cemented with silica, sub angular to rounded, scattered red argillaceous nodules, mica, poor visible porosity, no show.
3889.75	3890.65	Claystone	Red brown, orange brown, off white, purple grey, hard, waxy, blocky, very micaceous, silty and sandy in part, non calcareous.
3890.70	3891.6	Siltstone	Red brown, hard, blocky, very micaceous, sandy in parts, locally grading to very fine grained sandstone and silty claystone, non calcareous,
3891.6	3892.55	Siltstone	Red brown, hard, blocky, very micaceous, sandy in parts, locally grading to very fine grained sandstone, non calcareous,
3892.55	3893.5	Claystone	Red brown, orange brown, purple brown, hard, waxy, blocky to sub fissile, very micaceous, silty and sandy in part, non calcareous.
3893.5	3894.45	Claystone	Red brown, orange brown, purple brown, hard, waxy, blocky to sub fissile, very micaceous, non calcareous.
3894.45	3895.4	Sandstone/siltstone	Purple brown, red brown, very hard, very fine grained, silty, very well cemented with silica, micaceous, no visible porosity, locally grades to argillaceous siltstone, no show.
3895.4	3896.35	Sandstone/siltstone	Purple brown, red brown, very hard, very fine grained,

			silty, very well cemented with silica, micaceous, no visible porosity, locally grades to argillaceous siltstone, no show.
3896.35	3897.3	Claystone	Red brown, off white, pale brown, hard, blocky, very micaceous, non calcareous.
3897.3	3898.25	Claystone	Red brown, off white, pale brown, hard, blocky, very micaceous, non calcareous.
3898.25	3899.2	Claystone	Red brown, purple brown, hard, blocky, micaceous, non calcareous.
3899.2	3899.6	Claystone	Red brown, pale grey green, off white, mottled, hard, sub fissile, non calcareous.
3899.6	3900.55	Claystone	Red brown, pale grey green, off white, mottled, hard, sub fissile, non calcareous.
3900.55	3901.5	Claystone	Red brown, pale grey green, off white, mottled, hard, sub fissile, non calcareous.
3901.5	3902.45	Sandstone	Pinky brown, red brown, very fine to coarse grained, sub angular to subrounded, micaceous, well cemented with silica, poor visible porosity, no show.
3902.45	3903.4	Sandstone	Pinky brown, red brown, very fine to coarse grained, subangular to subrounded, micaceous, well cemented with silica, poor visible porosity, no show.
3903.4	3904.35	Claystone	Red brown, purple brown, hard, blocky, micaceous, non calcareous, locally very silty, grading to argillaceous siltstone.
3904.35	3905.3	Siltstone	Red brown, hard, blocky, very micaceous, sandy in parts, locally grading to very fine grained sandstone, slightly to moderately calcareous,
3905.3	3906.25	Sandstone	Red brown, very hard, very fine to fine grained, subangular to subrounded, interlaminated with claystone, hard, red brown, non calcareous.
3906.25	3907.2	Sandstone/Conglom.	Purple brown, red brown, very fine grained, well sorted, medium to coarse grained, occasional granular.
3907.2	3908.15	Claystone	Red brown, purple brown, hard, blocky, micaceous, non calcareous, locally very silty, grading to argillaceous siltstone.
3908.15	3908.8	Claystone	Red brown, purple brown, hard, blocky, micaceous, non calcareous, locally very silty, grading to argillaceous siltstone.
3908.8	3909.75	Sandstone	Red brown, hard, very fine to fine grained, silty and argillaceous very micaceous, in places.
3909.75	3910.7	Sandstone	White, speckled red, hard, fine to medium grained, occasionally coarse, subangular to rounded, traces of red argillaceous material, slightly calcareous, well cemented with silica, poor visible porosity, no show.
3910.7	3911.65	Siltstone	Red brown, purple grey, grey, hard, non calcareous, locally grading to argillaceous sandstone.
3911.65	3912.6	Sandstone	White, speckled red, hard, very fine to medium grained, subangular to rounded, traces of red argillaceous material,

			slightly calcareous, well cemented with silica, mica, argillaceous nodules, poor visible porosity, no show.
3912.6	3913.55	Sandstone	White, occasional red speckles red, very fine to medium occasionally coarse grained, subangular to subrounded, slightly calcareous, well cemented with silica, mica, very good visible porosity, no show.
3913.55	3914.5	Sandstone	White, occasional red speckles red, very fine to medium grained, subangular to subrounded, slightly calcareous, well cemented with silica, mica, fair to good visible porosity, no show.
3914.5	3915.45	Conglomerate	Red brown, white, speckled, mottled, fine to coarse, matrix, argillaceous in places, with argillaceous blocks, red brown claystone, siltstone, and very coarse, granules of quartz, moderately to locally very calcareous.
3915.45	3916.4	Sandstone	White, very fine grained, hard, well sorted, siliceous cement, with laminae of conglomerate, red brown, purple grey claystone blocks and quartz granules.
3916.4	3917.35	Sandstone	White, speckled red, fine to coarse grained, poorly sorted, well cemented, poor to fair visible porosity, locally excellent visible porosity.
3917.35	3918.0	Sandstone	White, speckled red, fine to medium grained, subangular to subrounded, poorly sorted, well cemented with silica, poor to visible porosity.
3918.0	3918.30	Siltstone	Red brown, purple grey, grey, hard, non calcareous, locally grading to argillaceous sandstone.
3918.30		Claystone	Red brown, purple brown, hard, blocky, very micaceous, non calcareous, locally very silty, grading to argillaceous siltstone.

PRESSURE DISCUSSION (D12-A-02)

Pore Pressure prediction methods were used to evaluate drilled formations for the presence of over pressured zones. The method utilized the Geoservices D'Exponent calculation based on the original Jordan and Shirley formula, modified for mud density. The D'Exponent package used during the drilling of the well employed the standard 'soft' values for Overburden (S) and Stress Ratio (K).

Overburden co-efficient (S) Stress Ratio co-efficient (K)

a = 0.01300	a = 0.26600
b = -0.17310	b = -2.66700
c = 1.43350	

Interpretations of formation pressure were also made in real time to determine and estimate the overbalance in the well. This included the use of background gas levels to connection gases, trip gases and the appearance of any pressure cavings. The use of modern drilling practices and equipment such as PDC bits and down hole motors can cause the D'Exponent software/calculations to inevitably be compromised, especially in sections where the formation is not totally consolidated such as Sands and soft, washable Claystone sequences. The well has been split into hole sections for the purpose of this discussion.

24" SECTION

Well D12-A-02 was spudded into the Sands and Claystones of the Tertiary and Quaternary Upper North Sea Group. The D'Exponent trend was provisionally set during this section, (110m-579m) and is not representative of the trends expected. Generally it would be expected to show a range of values for Formation Pressure ranging from 8.4 ppg to 8.9 ppg and 12.5 to 13 ppg for the Fracture Gradient. While the ranges actually seen for Formation Pressure were 8.3 ppg to 8.9 ppg, and 11.8 ppg to 12.8 ppg for the Fracture Gradient.

This short 24" section is not a totally consolidated formation with Sands and soft, washable Claystone sequences and as such the formation is largely expected to match the prognosis due to the absence of any evidence to the contrary. The 20" casing shoe was set at 571m MD (570.34m TVD) and an FIT result of 11.5 ppg EMW was achieved at 582m TVD. This compares reasonably with the estimated fracture pressure gradient of 12.7 ppg at this depth.

17½" SECTION

The 17½" section was drilled using Gel Polymer mud through the Ommelanden Chalk formation. The section TD and the 13 3/8" casing point was set in the upper reaches of the Texel Chalk of the Cretaceous.

Drilling commenced with a mud weight of 9.6 ppg, rising to 9.70 ppg at 1213m. At 611m an increase in pit level was observed (on Trip Tank note flow at 240 bbls/hr). The well was shut in and observed maximum pressure of 16 bars. The 17½" hole section was drilled with the well flowing (from 611m to 1028m average flow of 180/190 bbls/hr and from 1028m to 1213m average flow of 250 bbls/hr). To maintain the mud weight excess water was dumped and barite added.

The 13 3/8" casing shoe was set at 1193m MD without any problems. Prior to drilling the next section an FIT was taken at 1173m TVD with 10.0 ppg mud (Saturated Salt

Polymer), the leak off pressure was 507 psi giving an EMW of 12.5 ppg. This compares reasonably with the estimated fracture pressure gradient of 13.9 ppg at this depth.

12¼" SECTION

This section commenced at 1216m MD (1158.1m TVDSS) in the Texel formation and continued through the Holland and Vlieland formations of the Chalk group. The section continued through the Triassic Röt, Volpriehausen and Lower Buntsandstein formations and into the Zechstein of the Permian, where the casing point was reached at 2167m MD (1970.34m TVDSS). After performing an FIT test to 12.5 ppg EMW, the mud weight was increased to 11.0 ppg for the start of the section. Whilst drilling the section the mud weight was gradually increased to 11.7 ppg, to cope with an estimated formation pressure of 13 ppg in the Zechstein.

The mud system was swapped from a gel polymer to a salt saturated (KCl/NaCl) Polymer at 1213m. The Texel formation (1200mMD) was drilled with a mud weight of 10.50 ppg, which was increased to 11.0 ppg for the Holland, Vlieland, Röt, and Volpriehausen formations. At 1848 mMD, the mud weight was increased to 11.7 ppg for the Lower Buntsandstein in preparation for the Zechstein salt formations.

The section was drilled to 2167m MD into the Zechstein formation without any problems and with no abnormal increase in pore pressure. Formation pressure and fracture pressure deductions were made using evidence from the well during drilling and from the FIT. The pore pressure estimated for the Texel, Holland and Vlieland formation ranged between 9.0 ppg and 11.3 ppg EMW, with the maximum values at the bottom of the section. The pore pressure estimated for the Röt, Volpriehausen and Lower Buntsandstein, ranged between 11.3 and 12.0 ppg EMW, with the maximum values at the base of the section. The 9 5/8" casing shoe was set at 3542m MD in the Zechstein Group without any problems.

8 1/2" SECTION

The 8 1/2" section was drilled from 2159m MD (1970m TVDSS) using a KCl/NaCl-WBM of 11.7 ppg, quickly increasing it to 13.50 ppg in the Zechstein formation. An FIT test was performed with 13.3 ppg mud weight, the leak off pressure was 1697 psi giving an EMW of 18.3 ppg. This compares reasonably with the estimated fracture pressure gradient of 18.70 ppg at this depth. In order to avoid any influx when entering the Silverpit, the mud weight was increased to 14.5 ppg, towards the base of the Zechstein. No problems were experienced with the KCl/NaCl polymer WBM during this section.

As expected, higher gas readings were recorded in the Silverpit Formation (Total Gas: 0-2173 ppm, C1: 0-167 ppm, C2: 0-31 ppm) than in the Zechstein Formations (Total Gas: 0-400 ppm, C1: 0-100 ppm). Through Z2 and Z1 carbonates of the Zechstein group a gas peak of 4.8% was noted (Total Gas: 250-48950 ppm, C1: 100-21568 ppm, C2: 0-985 ppm). The section TD was in the Silverpit group at 3547m MD (3280m TVDSS), and was drilled without any major problems. A normal increasing trend was noted throughout the Zechstein and into the Silverpit. The top of the 7" liner hanger was set at 2049m MD and the bottom at 3542m MD.

Formation pressure and fracture pressure deductions were made using evidence from the well during drilling and from the FIT data. Pore pressures ranged between 12.7 ppg and 13.5 ppg EMW and fracture pressure between 17 ppg and 18.5 ppg EMW with maximum values at the bottom of the section.

5 7/8" SECTION

This section commenced at 3542m in the Silverpit formation and went through the Carboniferous Westphalian "C" formation, before reaching TD at 4178m (TVD 3739.13m) in the Westphalian "B" formation. The TD of the section was decided by the depth of the top of the Carboniferous, as a minimum of 50m had to be drilled to provide a pocket below the reservoir to allow the logging tools to fully examine the reservoir section. The MW at the beginning of this section was 10.3 ppg, but was increased to 11 ppg, and kept at this value for the whole of the section, due to salt layers in the Silverpit formation.

The phase was drilled with a total of three runs, the first and third run used a turbine rotary assembly, while the second run was a core barrel that covered the reservoir section of the well. No well bore problems were encountered while drilling this phase of the well, except when salt layers were encountered. At TD the pilot well was plugged back to 3700m.

The turbines would affect the 'D'Exponent values for the main part of the section along with the interbedded nature of the Claystone and Sandstones. According to the D'Exponent calculations, the Pore pressures ranged between 9.95 ppg and 10.35 ppg EMW and the Fracture pressure between 14.2 ppg and 14.85 ppg EMW with maximum values at the bottom of the section.

PRESSURE DISCUSSION (D12-A-02X)

Pore Pressure prediction methods were used to evaluate drilled formations for the presence of over pressured zones. The method utilized the Geoservices D'Exponent calculation based on the original Jordan and Shirley formula, modified for mud density. The D'Exponent package used during the drilling of the well employed the standard 'soft' values for Overburden (S) and Stress Ratio (K).

Overburden co-efficient (S) Stress Ratio co-efficient (K)

a = 0.01300	a = 0.26600
b = -0.17310	b = -2.66700
c = 1.43350	

Interpretations of formation pressure were also made in real time to determine and estimate the overbalance in the well. This included the use of background gas levels to connection gases, trip gases and the appearance of any pressure caving. The use of modern drilling practices and equipment such as PDC bits and down hole motors can cause the D'Exponent software/calculations to inevitably be compromised, especially in sections where the formation is not totally consolidated such Sands and soft, washable Claystone sequences. The well has been split into hole sections for the purpose of this discussion.

In this particular case of a deviated horizontal well the contribution of the D'Exponent calculations is even more compromised.

5 7/8" SECTION

The kick off point for the sidetrack was at 3700m, in the Silverpit formation and went through the Carboniferous Westphalian "C" formation, before reaching TD at 5109m (TVD 3581.2m) in the Westphalian "B" formation.

The MW was initially 11 ppg, prior to the fifth run and after observing connection and "pumps off" gas, the mud weight was increased to 11.2 ppg at 4585m and to 11.3ppg at 4492m.

The phase was drilled with a total of 6 bit runs, due to the difficulties when drilling the Conglomerate of the Westphalian C formation. No major well bore problems were encountered while drilling this phase of the well.

Gas readings were significant for the different formations encountered, values were maximum in the Sandstone layers (Total Gas:127000, C1:86785, C2:3698, C3:25 ppm from 4205m to 4330m MD; Total Gas:38000, C1: 23385, C2:374, C3:66 ppm from 4360m to 4520m MD). Despite high gas readings no connection or swabbing gas was observed at those depths.

In the Claystone, Siltstone layers below were the average background gas was of 550 ppm, from 4520m MD connection gas, swab and "pumps off" gas were observed indicating an increase in pore pressure close to 11.2 ppg EMW.

At 4591m MD after a positive flow check (6 bbls/5min) due to an increase in the ROP and gas readings the well was shut in and pressures of 17 bars on SPP and 12 bars in WHP were noted. At this stage the MW was increased to 11.3 ppg.

The turbines, motors and PDC bits would affect the 'D'Exponent values for the main part of the section, along with the interbedded nature of the Claystones and Sandstones. According to the D'Exponent calculations the pore pressures ranged between 10.85 ppg and 11.18 ppg EMW and the Fracture pressure between 15.86 ppg and 16.27 ppg EMW with maximum values at the bottom of the section.

Unwashed Samples (500g) (D12-A-02)
Sets: A, B, C D

Box Number	DEPTH	
	FROM	TO
1	130 m	430 m
2	440 m	645 m
3	650 m	855 m
4	860 m	1045 m
5	1050 m	1210 m
6	1215 m	1420 m
7	1425 m	1590 m
8	1595 m	1725 m
9	1730 m	1880 m
10	1885 m	2030 m
11	2035 m	2165 m
12	2170 m	2310 m
13	2315 m	2435 m
14	2440 m	2545 m
15	2550 m	2670 m
16	2675 m	2775 m
17	2780 m	2900 m
18	2905 m	3045 m
19	3050 m	3165 m
20	3170 m	3275 m
21	3280 m	3390 m
22	3395 m	3500 m
23	3505 m	3582 m
24	3584 m	3652 m
25	3654 m	3728 m
26	3732 m	3862 m
27	3084 m	3884 m
28	3886 m	3956 m
29	3958 m	4030 m
30	4032 m	4096 m
31	4098 m	4154 m
32	4156 m	4176 m

Washed and Dried Samples (D12-A-02) Sets: A, B, C

Box Number	DEPTH	
	FROM	TO
1	150 m	520 m
2	530 m	785 m
3	790 m	1035 m
4	1040 m	1305 m
5	1310 m	1495 m
6	1500 m	1720 m
7	1725 m	1850 m
8	1855 m	1995 m
9	2000 m	2165 m
10	2170 m	2435 m
11	2440 m	2695 m
12	2700 m	2920 m
13	2925 m	3135 m
14	3140 m	3370 m
15	3375 m	3545 m
16	3550 m	3656 m
17	3658 m	3766 m
18	3772 m	3884 m
19	3886 m	4018 m
20	4020 m	4138 m
21	4140 m	4178 m

Geochemical Samples (D12-A-02)

Box Number	DEPTH	
	FROM	TO
1	900 m	1500 m
2	1550 m	2100 m
3	2150 m	2700 m
4	2750 m	3300 m
5	3350 m	3200 m
6	3250 m	3918 m
7	3934 m	4178 m

Core Samples (D12-A-02)

Box Number	DEPTH	
	FROM	TO
1	3885.00 m	3885.95 m
2	3885.95 m	3886.90 m
3	3886.90 m	3887.85 m
4	3887.85 m	3888.80 m
5	3888.80 m	3889.75 m
6	3889.75 m	3890.65 m
7	3890.65 m	3891.60 m
8	3891.60 m	3892.55 m
9	3892.55 m	3893.50 m
10	3893.50 m	3894.45 m
11	3894.45 m	3895.40 m
12	3895.40 m	3896.35 m
13	3896.35 m	3897.30 m
14	3897.30 m	3898.25 m
15	3898.25 m	3899.20 m
16	3899.20 m	3899.60 m
17	3899.60 m	3900.55 m
18	3900.55 m	3901.50 m
19	3901.50 m	3902.45 m
20	3902.45 m	3903.40 m
21	3903.40 m	3904.35 m
22	3904.35 m	3905.30 m
23	3905.30 m	3906.25 m
24	3906.25 m	3907.20 m
25	3907.20 m	3908.15 m
26	3908.15 m	3908.80 m
27	3908.80 m	3909.75 m
28	3909.75 m	3910.70 m
29	3910.70 m	3911.65 m
30	3911.65 m	3912.60 m
31	3912.60 m	3913.55 m
32	3913.55 m	3914.50 m
33	3914.50 m	3915.45 m
34	3915.45 m	3916.40 m
35	3916.40 m	3917.35 m
36	3917.35 m	3918.30 m

Unwashed Samples (500g) (D12-A-02X)
Sets: A, B, C D

Box Number	DEPTH	
	FROM	TO
1	3700 m	3748 m
2	3750 m	3810 m
3	3812 m	3878 m
4	3880 m	3924 m
5	3926 m	3978 m
6	3980 m	4022 m
7	4024 m	4064 m
8	4078 m	4096 m
9	4098 m	4152 m
10	4154 m	4188 m
11	4190 m	4230 m
12	4232 m	4266 m
13	4268 m	4314 m
14	4316 m	4356 m
15	4358 m	4394 m
16	4396 m	4436 m
17	4438 m	4480 m
18	4484 m	4544 m
19	4546 m	4662 m
20	4664 m	4800 m
21	4802 m	4900 m
22	4902 m	4998 m
23	5002 m	5109 m

Washed and Dried Samples (D12-A-02X)
Sets: A, B, C

Box Number	DEPTH	
	FROM	TO
1	3700 m	3798 m
2	3800 m	3798 m
3	3946 m	4096 m
4	4098 m	4198 m
5	4200 m	4330 m
6	4332 m	4472 m
7	4474 m	4622 m
8	4624 m	4788 m
9	4790 m	4892 m
10	4894 m	5109 m

Geochemical Samples (D12-A-02X)

Box Number	DEPTH	
	FROM	TO
1	3700 m	3975 m
2	4000 m	4175 m
3	4200 m	4325 m
4	4350 m	4575 m
5	4600 m	4850 m
6	4875 m	5109 m

TIME ANALYSIS 31/05/03 - 17/08/03
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CODE	OPERATION	TOTAL HOURS	PERCENTAGE
01	Rig up/Down		
02	Drilling	868.75	46.11
03	Reaming/Dress cement	51.25	2.72
04	Coring	13.75	0.73
05	Circulating	58.5	3.11
06	Tripping	381	20.22
07	Lubricate rig	3.5	0.19
08	Repair rig	48	2.55
09	Cut/Slip drill line	7	0.37
10	Survey	1.25	0.07
11	Wireline logging	110.5	5.87
12	Casing & cementing	169.5	9.00
13	WOC		
14	N/U BOP's	41.75	2.22
15	Test BOP's	47	2.49
16	Drill stem tests		
17	Plug back	29.5	1.57
18	Squeeze cement		
19	Fishing		
20	Directional work		
21	Others	52.75	2.80
	TOTAL HOURS	1884	100

SURVEYS D12-A-02

Nbr	Survey Depth m	Bearing deg	Drift Deg	Vertical Depth m	Coord X m	Coord Y m
1	0	0	0	0	0.790E	2.000N
2	78	185.36	0.38	77.999	0.766E	1.742N
3	125	282.99	0.476	124.999	0.567E	1.630N
4	183	291.09	0.67	182.996	0.024E	1.804N
5	216	295.01	0.84	215.993	0.375W	1.976N
6	250	281.78	0.53	249.990	0.756W	2.114N
7	268	290.08	0.62	267.990	0.929W	2.164N
8	331	12.04	1.33	330.982	1.097W	2.996N
9	370	15.97	1.64	369.969	0.849W	3.975N
10	388	23.7	3.64	387.949	0.548W	4.746N
11	416	19.37	4.48	415.879	0.172E	6.592N
12	446	21.63	4.51	445.787	0.995E	8.793N
13	474	18.15	4.34	473.703	1.730E	10.822N
14	504	16.94	4.53	503.613	2.429E	13.034N
15	531	21.04	5.32	530.514	3.189E	15.221N
16	560	16.66	5.34	559.388	4.058E	17.769N
17	593	16.63	5.79	592.233	4.975E	20.836N
18	622	17.00	6.06	621.078	5.842E	23.703N
19	651	14.78	6.40	649.906	6.701E	26.729N
20	679	10.91	6.84	677.720	7.415E	29.875N
21	707	10.72	7.88	705.488	8.088E	33.400N
22	737	9.70	9.35	735.149	8.881E	37.824N
23	766	6.32	9.97	763.738	9.555E	42.641N
24	793	4.84	11.24	790.276	10.034E	47.586N
25	822	7.08	11.93	818.686	10.642E	53.376N
26	852	8.11	13.33	847.959	11.512E	59.878N
27	882	7.01	14.23	877.095	12.449E	66.963N
28	910	3.03	17.46	904.028	13.091E	74.575N
29	937	3.44	20.18	929.582	13.585E	83.270N
30	968	4.33	23.36	958.368	14.371E	94.738N
31	997	5.88	25.55	984.765	15.446E	106.694N
32	1026	6.99	28.14	1010.638	16.919E	119.704N
33	1055	7.82	29.42	1036.056	18.720E	133.548N
34	1083	8.51	31.76	1060.158	20.747E	147.650N
35	1114	9.25	32.61	1086.395	23.297E	163.962N
36	1143	8.86	32.69	1110.813	25.760E	179.413N
37	1172	6.79	33.97	1135.043	27.925E	195.197N
38	1194	6.25	34.36	1153.247	29.328E	207.471N
39	1227	5.16	34.88	1180.405	31.190E	226.124N
40	1256	5.35	34.35	1204.272	32.698E	242.528N
41	1285	5.64	33.79	1228.293	34.254E	258.701N
42	1314	5.68	33.31	1252.461	35.834E	274.652N
43	1342	4.31	33.19	1275.877	37.171E	289.945N
44	1371	3.32	33.52	1300.100	38.231E	305.854N
45	1400	3.43	33.62	1324.263	39.175E	321.862N
46	1429	2.70	33.75	1348.395	40.035E	337.922N

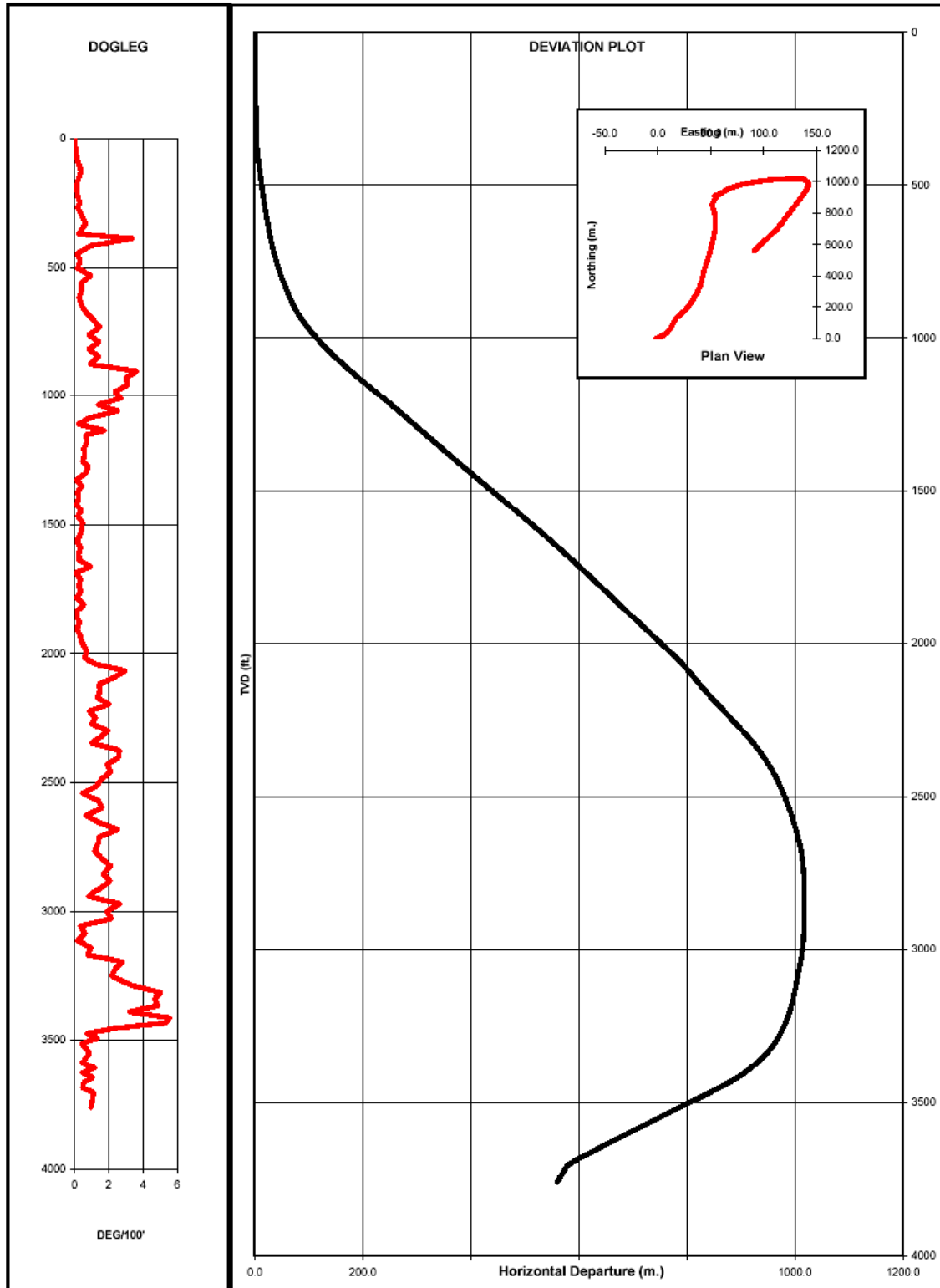
Nbr	Survey Depth m	Bearing deg	Drift deg	Vertical Depth m	Coord X m	Coord Y m
47	1458	2.45	33.61	1372.527	40.758E	353.987N
48	1487	2.24	33.83	1396.649	41.416E	370.072N
49	1515	2.25	33.96	1419.892	42.029E	385.674N
50	1545	2.05	34.33	1444.721	42.660E	402.499N
51	1573	1.99	34.52	1467.818	43.217E	418.318N
52	1602	1.95	34.06	1491.778	43.779E	434.644N
53	1631	2.63	33.87	1515.831	44.425E	450.832N
54	1660	3.05	33.66	1539.940	45.223E	466.929N
55	1689	3.21	33.54	1564.095	46.098E	482.953N
56	1719	2.63	33.67	1589.081	46.942E	499.536N
57	1747	2.24	33.58	1612.397	47.600E	515.026N
58	1777	2.45	33.31	1637.429	48.277E	531.547N
59	1806	2.42	32.40	1661.790	48.946E	547.265N
60	1835	2.37	32.33	1686.285	49.595E	562.775N
61	1864	2.06	32.02	1710.832	50.193E	578.206N
62	1893	2.07	31.76	1735.455	50.745E	593.516N
63	1921	1.97	31.42	1759.305	51.262E	608.175N
64	1949	1.74	31.39	1783.203	51.734E	622.759N
65	1979	2.12	30.88	1808.881	52.256E	638.262N
66	2007	2.08	30.72	1832.933	52.782E	652.588N
67	2036	1.95	30.84	1857.848	53.304E	667.419N
68	2063	1.50	30.72	1881.044	53.719E	681.231N
69	2093	1.24	30.82	1906.821	54.086E	696.575N
70	2117	1.15	30.57	1927.458	54.341E	708.824N
71	2148	0.42	30.81	1954.117	54.559E	724.644N
72	2192	358.54	31.26	1991.81	54.35E	747.34N
73	2221	358.81	31.81	2016.53	54.00E	762.51N
74	2250	0.28	30.87	2041.30	53.88E	777.59N
75	2279	359.42	28.03	2066.55	53.85E	791.84N
76	2308	358.31	25.86	2092.40	53.59E	804.98N
77	2336	355.80	25.05	2117.68	52.98E	817.00N
78	2364	356.34	26.42	2142.91	52.15E	829.13N
79	2395	358.41	27.47	2170.54	51.51E	843.16N
80	2423	2.08	28.26	2195.30	51.57E	856.24N
81	2452	3.51	28.76	2220.78	52.25E	870.06N
82	2481	5.78	28.24	2246.27	53.36E	883.85N
83	2509	7.00	27.49	2271.02	54.82E	896.86N
84	2538	10.43	26.34	2296.88	53.80E	909.83N
85	2566	11.86	25.03	2322.11	59.14E	921.74N
86	2594	12.07	24.09	2347.58	61.55E	933.12N
87	2624	14.87	21.70	2375.21	64.26E	944.47N
88	2653	18.19	19.47	2402.36	67.14E	954.25N
89	2682	21.52	17.95	2429.83	70.29E	962.99N
90	2712	25.65	16.20	2458.51	73.80E	971.07N
91	2741	30.66	15.49	2486.41	77.53E	978.05N
92	2770	34.35	14.70	2514.41	81.58E	984.42N

Nbr	Survey Depth m	Bearing deg	Drift deg	Vertical Depth m	Coord X m	Coord Y m
93	2798	36.04	14.53	2541.50	85.65E	990.19N
94	2827	40.73	13.78	2569.62	90.04E	995.75N
95	2856	46.00	12.80	2597.84	94.61E	1000.60N
96	2885	48.98	12.89	2626.12	99.36E	1004.95N
97	2914	55.04	13.14	2654.37	104.50E	1008.96N
98	2942	63.21	11.52	2681.73	109.61E	1012.05N
99	2971	68.43	10.53	2710.20	114.65E	1014.33N
100	2998	73.19	9.60	2736.78	119.10E	1015.89N
101	3028	79.89	9.11	2766.38	123.84E	1017.03N
102	3058	85.02	7.77	2796.06	128.20E	1017.62N
103	3088	94.53	5.97	2825.84	131.77E	1017.67N
104	3117	97.16	4.35	2854.72	134.37E	1017.42N
105	3145	110.69	2.56	2882.67	136.01E	1017.06N
106	3167	125.72	1.43	2904.66	136.69E	1016.73N
107	3188	109.48	0.65	2925.65	137.01E	1016.54N
108	3205	137.21	0.21	2942.65	137.13E	1016.48N
109	3234	162.37	2.79	2971.64	137.37E	1015.77N
110	3262	153.88	4.48	2999.58	138.06E	1014.14N
111	3292	171.69	5.94	3029.46	138.80E	1011.55N
112	3320	172.14	6.26	3057.30	139.22E	1008.60N
113	3348	166.87	6.33	3085.13	139.78E	1005.59N
114	3377	165.15	6.38	3113.96	140.56E	1002.47N
115	3405	168.48	7.20	3141.76	141.31E	999.25N
116	3435	172.37	7.79	3171.50	141.95E	995.39N
117	3463	177.16	10.30	3199.15	142.33E	991.01N
118	3491	179.50	12.48	3226.60	142.48E	985.49N
119	3519	181.30	14.49	3253.83	142.42E	978.96N
120	3556	184.52	18.53	3289.29	141.86E	968.46N
121	3585	183.58	23.39	3316.37	141.13E	958.12N
122	3614	185.55	27.83	3342.52	140.12E	945.62N
123	3642	185.60	32.40	3366.73	138.75E	931.64N
124	3671	186.15	35.48	3390.79	137.09E	915.53N
125	3700	186.06	40.86	3413.58	135.19E	897.72N
126	3727	186.24	45.61	3433.24	133.20E	879.34N
127	3757	186.58	47.95	3453.78	130.76E	857.61N
128	3787	186.52	48.66	3473.74	128.21E	835.36N
129	3815	186.70	49.92	3492.00	125.76E	814.27N
130	3845	186.48	49.52	3511.39	123.14E	791.54N
131	3875	186.25	48.86	3531.00	120.62E	768.97N
132	3904	186.02	48.02	3550.24	118.30E	747.40N
133	3933	187.01	49.00	3569.45	115.83E	725.82N
134	3961	187.56	48.89	3587.84	113.15E	704.87N
135	3990	189.07	48.88	3606.92	109.99E	683.26N
136	4019	188.83	48.44	3626.07	106.61E	661.75N

Nbr	Survey Depth m	Bearing deg	Drift deg	Vertical Depth m	Coord X m	Coord Y m
137	4048	188.75	47.40	3645.51	103.32E	640.48N
138	4076	189.08	46.93	3664.54	100.14E	620.19N
139	4105	188.48	45.56	3684.50	96.20E	598.1N
140	4134	187.51	42.35	3705.40	93.40E	578.20N
141	4162	187.78	39.62	3762.50	91.00E	560.00N



WELL DEVIATION PLOT
WELL : D12-A-02



SURVEYS D12-A-02X

Nbr	Survey Depth m	Bearing Deg	Drift Deg	Vertical Depth m	Coord X m	Coord Y m
1	3700.00	186.06	40.86	3413.57	135.19E	897.73N
2	3704.26	186.70	41.31	3416.78	134.88E	894.95N
3	3733.18	186.58	46.97	3437.53	132.55E	874.95N
4	3762.00	188.22	51.04	3456.43	129.74E	853.39N
5	3790.39	190.64	54.80	3473.55	126.02E	831.06N
6	3820.00	190.41	58.15	3489.90	121.51E	806.79N
7	3849.00	188.89	61.05	3504.57	117.32E	782.13N
8	3878.48	187.63	64.46	3518.07	113.56E	756.20N
9	3907.39	187.35	68.31	3529.65	110.11E	729.94N
10	3936.00	186.86	72.34	3539.28	106.78E	703.22N
11	3964.50	186.47	76.53	3546.92	103.60E	675.95N
12	3994.64	186.51	82.87	3552.31	100.25E	646.50N
13	4023.00	187.48	86.50	3554.94	96.81E	618.48N
14	4051.36	187.49	89.62	3555.90	93.12E	590.38N
15	4081.17	187.13	88.56	3556.37	89.32E	560.82N
16	4110.52	187.84	89.62	3556.84	85.50E	531.72N
17	4140.33	188.03	89.14	3557.16	81.39E	502.20N
18	4168.87	188.51	88.59	3557.72	77.28E	473.96N
19	4197.71	188.77	88.80	3558.38	72.95E	445.46N
20	4225.84	188.44	88.97	3558.93	68.74E	417.65N
21	4254.70	187.90	89.04	3559.43	64.64E	389.09N
22	4284.05	187.99	89.69	3559.75	60.59E	360.02N
23	4315.90	186.46	89.18	3560.07	56.58E	328.43N
24	4345.45	186.21	88.83	3560.58	53.32E	299.06N
25	4373.27	186.84	89.55	3560.98	50.16E	271.42N
26	4403.22	187.17	88.59	3561.46	46.51E	241.70N
27	4432.40	186.48	87.84	3562.37	43.04E	212.74N
28	4460.88	186.52	87.53	3563.52	39.82E	184.47N
29	4489.46	185.55	87.91	3564.50	35.9E	121.60N
30	4518.19	185.74	87.49	3565.70	33.1E	93.0N
31	4548.25	185.19	87.25	3567.19	31.13E	97.61N
32	4577.17	186.92	87.04	3568.63	28.09E	68.89N
33	4682.67	188.00	88.14	3569.79	24.52E	41.65N
34	4633.41	188.15	88.56	3570.61	20.48E	13.20N
35	4664.45	187.95	89.24	3571.21	16.14E	17.53S
36	4692.82	187.39	88.83	3571.69	12.35E	45.64S
37	4722.21	187.26	89.48	3572.12	8.61E	74.78S
38	4751.71	186.16	88.73	3572.58	5.16E	104.08S
39	4779.82	186.13	88.90	3573.16	2.15E	132.02S
40	4809.31	184.39	88.35	3573.87	0.55W	161.38S
41	4843.12	184.39	89.93	3574.38	3.14W	195.08S
42	4866.72	185.86	89.35	3574.53	5.25W	218.59S
43	4869.20	186.65	88.94	3574.97	-8.46W	-247.89S
44	4923.93	187.35	88.59	3575.56	-11.84W	-275.40S
45	4953.21	187.61	88.25	3576.37	-15.65W	-304.42S
46	4980.48	187.85	88.28	3577.20	-19.31W	-331.43S
47	5009.14	187.85	88.39	3578.03	-23.23W	-359.81

Nbr	Survey Depth m	Bearing Deg	Drift Deg	Vertical Depth m	Coord X m	Coord Y m
48	5037.25	187.16	88.52	3578.79	-26.90 W	-387.67
49	5066.47	186.80	87.77	3579.73	30.45 W	416.66
50	5089.22	187.10	88.11	3580.55	33.20 W	439.23

BIT SUMMARY D12-A-02

BHA #	RUN #	BIT MAKE TYPE	SIZE inches	DEPTH IN (m)	DEPTH OUT (m)	BIT TIME (hours)	PROGRESS (m)	ROP (m/hr)	FORMATION	BIT WEAR	COMMENTS
1	1	REED Y11L	24	105	579	19	469	25	Upper North Sea Group	1/1/WT/A/1/I/NO/TD	Drilled to casing point
2	2	SMITH MG02	17½	579	842	9.9	263	27	Middle/Lower North Sea Group & Ommelanden Chalk		Drilled to casing point
3	2RR	SMITH MG02	17½	842	1213	12.7	371	29	Ommelanden, Texel & Holland	1/1/WA/E/I/NO/TD	Change BHA
4	3	VAREL L217	12¼	1213	1216	0.25	3	12	Cement & Holland	1/4/BT/M/F/I/WT/BHA	Drilled to casing point
5	4	VAREL MK366	12¼	1216	2167	74.8	951	13	Holland, Vlieland, Triassic & Zechstein	3/7/BT/N/X/I/RO/TD	Drilled to casing point
6	5	SMITH NA62CT	8½	2167	3547	120.8	1380	11	Zechstein + Silverpit	0/1/CT/N/X/I/ER/TD	Drilled to casing
7	6	HUGHES HCM405	5 ^{7/8}	3547	3885	28.2	338	11.98	Silverpit + Carboniferous	1/3/CT/O/X/1/PN/CP	Coring point
8	7	DBS FC264	5 ^{7/8}	3885	3919.7	10.1	34.7	3.43	Carboniferous	1/1/NO/A/X/1/NO/CP	POOH core
9	6RR	HUGHES HCM405	5 ^{7/8}	3919.7	4097	30	177.3	5.91	Carboniferous	4/8/RR/S/X/1/WT/PR	Bit stalling Low penetration
10	8	HUGHES HC407	5 ^{7/8}	4097	4178	19.1	81	4.2	Carboniferous	1/3/CT/T/X/1/WT/TD	TD section

BIT SUMMARY D12-A-02X

BHA #	RUN #	BIT MAKE TYPE	SIZE inches	DEPTH IN (m)	DEPTH OUT (m)	BIT TIME (hours)	PROGRESS (m)	ROP (m/hr)	FORMATION	BIT WEAR	COMMENTS
1	1	BAKER HUGHES HCM405	5 ⁷ / ₈	3700	3903	34.9	203	5.8	Cement & Silverpit	1/0WT/A/X/I/NO/DMF	Sidetrack well Motor failed
2	1RR	BAKER HUGHES HCM405	5 ⁷ / ₈	3903	4308	90.4	405	4.5	Silverpit & Carboniferous	1/4WT/N/X/I/ER/BHA	
3	2	HYCALOG DSX143	5 ⁷ / ₈	4308	4482	51.3	174	3.4	Carboniferous	8/6/RO/N/X/1/WT/PR	
4	3	HUGHES HC407	5 ⁷ / ₈	4482	4522	12.1	40	3.3	Carboniferous	6/8/RO/N/X/1/CT/PR	
5	4	SMITH M11SY PX	5 ⁷ / ₈	4522	4585	37.2	63	1.7	Carboniferous	3/4WT/N/X/0/NO/BHA	
6	5	HYCALOG DSX111	5 ⁷ / ₈	4585	4831	52.8	246	4.7	Carboniferous	1/3WT/N/X/0/NO/BHA	
7	6	BAKER HUGHES HC 405	5 ⁷ / ₈	4831	5109	51.4	278	5.4	Carboniferous	1/3WT/T/X/I/CT/TD	Drilled to TD

BOTTOM HOLE
ASSEMBLIES

D12-A-02

BHA Nb. 1			BHA Nb. 2			BHA Nb. 3		
Bit Run: 1 Size: 24" Manufacturer: REED Type: YIIL Serial No.: DW3894 Nozzles: 2x22, 1x24, 1x16 TFA: 1.381			Bit Run: 2 Size: 17½" Manufacturer: SMITH Type: MG02TQCPD Serial No.: J8598 Nozzles: 3x22, 1x18 TFA: 1.362			Bit Run: 2R Size: 17½" Manufacturer: SMITH Type: MG02TQCPD Serial No.: J8598 Nozzles: 3x22, 1x18 TFA: 1.362		
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.61	0.61	Bit	0.43	0.43	Bit	0.43	0.43
Motor	7.78	8.39	9 5/8" motor	7.78	8.21	9 5/8" motor	7.78	8.21
Float sub	0.66	9.05	Float sub	0.66	8.87	Float sub	0.66	8.87
Stab	2.19	11.24	Stab	2.39	11.26	Stab	2.39	11.26
MWD	9.67	20.91	MWD	9.67	20.93	MWD	9.67	20.93
Stab	2.10	23.01	Stab	2.27	23.2	Stab	2.27	23.2
NMDC	8.92	31.93	NMDC	8.92	32.12	NMDC	8.92	32.12
5x9½" DC	46.00	77.93	5x9½" DC	46	78.12	5x9½" DC	46	78.12
X/O	0.70	78.63	X/O	0.70	78.82	X/O	0.70	78.82
1x8" DC	8.69	87.32	1x8" DC	8.69	87.51	1x8" DC	8.69	87.51
Jar	9.59	96.91	Jar	9.59	97.1	Jar	9.59	97.1
3x8" DC	27.17	124.08	3x8" DC	27.17	124.27	3x8" DC	27.17	124.27
X/O	0.66	124.74	X/O	0.66	124.93	X/O	0.66	124.93
12x5½ HWDP	111.51	236.25	12x5½ HWDP	111.51	236.44	12x5½ HWDP	111.51	236.44

BOTTOM HOLE
ASSEMBLIES

D12-A-02

BHA Nb. 4			BHA Nb. 5			BHA Nb. 6		
Bit Run: 3 Size: 12¼" Manufacturer: Varel Type: L217 Serial No.: 142867 Nozzles: no TFA:			Bit Run: 4 Size: 12¼" Manufacturer: Varel Type: MKS66 Serial No.: CP6266CR Nozzles: 3x14 3x16 TFA: 1.04			Bit Run: 5 Size: 8½" Manufacturer: Smith Type: MA62C Serial No.: JT0432 Nozzles: 6x16 TFA: 1.1781		
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.30	0.30	Bit	0.25	0.25	Bit	0.43	0.43
Bit sub w/ float	0.75	1.05	9"5/8 Sperry Drill	8.87	9.22	Turbine	4.59	5.02
4x9½" DC	36.73	37.78	Float sub	0.66	9.88	Turbine power section	7.14	12.16
X/O	0.70	38.48	9"1/2 MWD	9.67	19.55	Stab	2.13	14.29
1x8" DC	8.69	47.17	NMDC	8.92	28.47	NMDC	8.88	23.17
Jar	9.59	56.76	5x9½" DC	46.00	74.47	NM HOS	1.55	24.72
3x8" DC	27.17	83.93	X/O	0.70	75.17	Stab	2.19	26.91
X/O	0.66	84.59	1x8" DC	8.69	83.86	Spiral NMDC	8.79	35.70
12x5½" HWDP	111.51	196.10	Jar	9.59	93.45	X/O	0.37	36.07
			3x8" DC	27.17	120.62	3x6¼ DC	27.26	63.33
			X/O	0.66	121.28	Jar	9.75	73.08
			12x5½" HWDP	111.51	232.79	2x6¼ DC	18.21	91.29
						Accelerator	10.44	101.73
						2x6¼ DC	18.62	120.35
						X/O	0.73	121.08
						Circ Sub	0.50	121.58
						12x5" HWDP	111.08	232.66
						150 jnts 5" DP	1435.10	1667.76
						X/O	0.68	1668.44

BOTTOM HOLE
ASSEMBLIES

D12-A-02

BHA Nb. 7			BHA Nb. 8			BHA Nb. 9		
Bit Run: 6 Size: 5 7/8" Manufacturer: HUGHES Type: HCM405 Serial No.: 7001995 Nozzles: 4x14 TFA: 0.601			Bit Run: 7 Size: 5 7/8" Manufacturer: DBS Type: FC264 Serial No.: 7981409 Nozzles: TFA: 0.8			Bit Run: 6RR Size: 5 7/8" Manufacturer: HUGHES Type: HCM405 Serial No.: 7001995 Nozzles: 4x14 TFA: 0.601		
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.26	0.26	Coring head	0.30	0.30	Bit	0.26	0.26
Mud Motor	10.01	10.27	4x5 ^{27/32} " Core barrel	37.84	38.14	Mud Motor	10.01	10.27
NM X/O sub	0.42	10.69	Safety joint	0.70	38.84	NM X/O sub	0.42	10.69
DGWD slim hole	8.71	19.40	Circ sub	0.47	39.31	DGWD slim hole	8.71	19.40
X/O sub	0.88	20.28	4 ^{3/4} " NMDC	8.85	48.16	X/O sub	0.88	20.28
3x4" spiral HWDP	27.68	47.96	5½" String stab	1.94	50.10	3x4" spiral HWDP	27.68	47.96
Dart sub	0.67	48.63	X/O	0.88	50.98	Dart sub	0.67	48.63
2x4" spiral HWDP	18.42	67.05	5x4" HWDP	46.10	97.08	2x4" spiral HWDP	18.42	67.05
Drilling Jar	9.08	76.13	4 ^{3/4} " Jar	9.08	106.16	Drilling Jar	9.08	76.13
20x4" spiral HWDP	183.89	260.47	20x4" HWDP	183.89	290.50	20x4" spiral HWDP	183.89	260.47
4" DP	2095.37	2355.84	4" DP	2095.37	2385.87	4" DP	2095.37	2355.84
X/O sub	0.98	2356.82	X/O sub	0.98	2386.85	X/O sub	0.98	2356.82
X/O sub	0.68	2357.50	X/O sub	0.68	2387.53	X/O sub	0.68	2357.50

BOTTOM HOLE
ASSEMBLIES

D12-A-02

BHA Nb. 10								
Bit Run: 7 Size: 5 7/8" Manufacturer: HUGHES Type: HC407 Serial No.: 7201772 Nozzles: 2x18, 3x14 TFA: 0.948								
Tool Description	Length (m)	Cum. Length (m)						
Bit	0.29	0.29						
Mud Motor	10.01	10.33						
NM X/O sub	0.42	10.75						
DGWD slim hole	9.44	20.19						
X/O sub	0.88	21.07						
3x4" spiral HWDP	27.68	48.75						
Dart sub	0.67	49.42						
2x4" spiral HWDP	18.27	67.84						
Drilling Jar	9.08	76.92						
20x4" spiral HWDP	184.34	261.26						
4" DP	2095.37	2356.63						
X/O sub	0.98	2357.61						
X/O sub	0.68	2358.29						

BOTTOM HOLE
ASSEMBLIES

D12-A-02X

BHA Nb. 1			BHA Nb. 2			BHA Nb. 3		
Bit Run: 1 Size: 5 7/8" Manufacturer: BAKER Type: HCM 405 Serial No.: 7102969 Nozzles: 3x14 ; 1x16 TFA: 0.6473			Bit Run: 1RR Size: 5 7/8" Manufacturer: BAKER Type: HCM 405 Serial No.: 7102969 Nozzles: 3x14 ; 1x16 TFA: 0.6473			Bit Run: 2 Size: 5 7/8" Manufacturer: HYCALOG Type: DSX143 Serial No.: 201711 Nozzles: 2x18 1x16 TFA: 0.6934		
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.27	0.27	Bit	0.27	0.27	Bit	0.18	0.18
Motor	10.04	10.31	Motor	5.36	5.63	Motor	10.06	10.24
Pony DC	2.51	12.82	Pony DC	2.51	8.14	NM Pony DC	2.51	12.75
LWD Impulse	10.20	23.02	LWD Impulse	10.20	18.34	LWD Impulse	10.20	22.95
LWD AND	7.62	30.64	LWD AND	7.62	25.96	LWD AND	7.62	30.57
X/O	0.88	31.52	X/O	0.88	26.84	X/O	0.88	31.45
4xSpiral HWDP	36.80	68.32	4xSpiral HWDP	36.80	63.34	4x4" HWDP	36.80	68.25
Jars	9.03	77.35	Jars	9.03	72.67	Jars	9.00	77.25
1xSpiral HWDP	9.24	86.59	1xSpiral HWDP	9.24	81.91	1x4" HWDP	9.24	86.49
4" DP	611.59	698.18	4" DP	960.73	1042.64	4" DP	989.88	1076.37
29xSpiral HWDP	267.18	965.36	29xSpiral HWDP	267.18	1309.82	29x4" HWDP	267.18	1343.55
4" DP	1367.52	2332.88	4" DP	1193.13	2502.95	4" DP	1775.27	3118.85
X/O	0.98	2333.86	X/O	0.98	2503.93	X/O	0.98	3119.80
X/O	0.68	2334.54	X/O	0.68	2504.61	X/O	0.68	3120.48

BOTTOM HOLE
ASSEMBLIES

D12-A-02X

BHA Nb. 4			BHA Nb. 5			BHA Nb. 6		
Bit Run: 3 Size: 5 7/8" Manufacturer: HUGHES Type: HC407 Serial No.: 701536 Nozzles: 2x18 3x14 TFA: 0.9480			Bit Run: 4 Size: 5 7/8" Manufacturer: SMITH Type: M11SYPX Serial No.: JS9177 Nozzles: 6x13 TFA: 0.7777			Bit Run: 5 Size: 5 7/8" Manufacturer: HYCALOG Type: DSX111 Serial No.: 105546 Nozzles: 4 X 16 TFA: 0.7854		
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.28	0.18	Bit	0.19	0.19	Bit	0.17	0.17
Motor	10.00	10.24	X-treme Motor	10.00	10.00	X-treme Motor	10.03	10.20
Andergauge Stab	2.45	12.73	Andergauge Stab	2.45	12.64	NM Pony DC	2.51	12.71
NM Pony DC	2.51	15.24	NM Pony DC	2.51	15.15	LWD Impulse	10.43	23.14
LWD Impulse	10.20	25.44	LWD Impulse	10.20	25.35	LWD AND	7.62	30.76
LWD AND	7.62	33.06	LWD AND	7.62	32.97	X/O	0.88	31.64
X/O	0.88	33.94	X/O	0.88	33.85	4x4"HWDP	36.8	68.44
4x4"HWDP	36.80	70.74	4x4"HWDP	36.80	70.65	Jars	9	77.44
Jars	9.00	79.74	Jars	9.00	79.65	4" Spiral HWDP	9.24	86.68
1x4" HWDP	9.24	88.98	1x4" HWDP	9.24	88.89	129 x 4" DP	1251.74	1338.42
129 x 4" DP	1251.74	1340.72	129 x 4" DP	1251.74	1340.63	29x4" HWDP	267.18	1605.60
29x4" HWDP	267.18	1607.90	29x4" HWDP	267.18	1607.81	156 x 4" DP	1513.41	3119.01
156 x 4" DP	1513.41	3121.31	156 x 4" DP	1513.41	3121.22	X/O	0.98	3119.99
X/O	0.98	3122.29	X/O	0.98	3122.20	X/O	0.85	3120.84
X/O	0.68	3122.97	X/O	0.68	3122.88			

BOTTOM HOLE
ASSEMBLIES

D12-A-02X

BHA Nb. 7			BHA Nb.			BHA Nb.		
Bit Run: 6 Size: 5 7/8" Manufacturer: BAKER HUGHES Type: HC 405 Serial No.: 720 1930 Nozzles: 4x14 TFA: 0.6013								
Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)	Tool Description	Length (m)	Cum. Length (m)
Bit	0.28	0.28						
X-treme Motor	10.00	10.28						
Andergauge	2.51	12.79						
NM Pony DC	2.51	15.30						
LWD Impulse	10.43	25.73						
LWD AND	7.62	33.35						
X/O	0.88	34.23						
4"HWDP	9.22	43.45						
4 3/4"Jars	9.10	52.55						
4" Spiral HWDP	9.24	61.79						
144 x 4" DP	1397.28	1459.07						
32x4" HWDP	1753.83	1753.83						
141 x 4" DP	1367.87	3121.70						
X/O	0.98	3122.68						
X/O	0.85	3123.53						

WELL D12-A-02 MUD REPORTS

REPORT	1	2	3	4	5	6	7
DATE	M	31/05/03	01/06/03	02/06/03	03/06/03	04/06/03	05/06/03
DEPTH	I	180	420	579	579	579	579
MUD TYPE	X	Spud Mud	Spud Mud	Spud Mud	Spud Mud	Spud Mud	Spud mud
FL temp Deg C				30			25
MW (ppg)		8.9	9.8	9.6	9.7	9.7	9.7
FUNNEL VIS	S	51	46	55	56	58	45
PV	P	9	10	10	10	10	9
YP	U	24	25	26	28	28	20
GELS 0/10	D	0/0	0/0	14/22	14/22	14/24	18/23
API Filt. ml/30 min	M	0	0	0			14.0
HTHP	U	-	-				-
cake 32 nd in	D	0/0	0/0				2.0/0.0
Corr. Solids (%)		0	0				7.0
NAP/Water (%)		-	-	0.0/95.0	0.0/95.0	0.0/95.0	0.0/92.0
Sand (%)		-	-	1			0.00
MBT		-	-				21.0
PH		9.0	8.5	8.5	8.5	8.5	10.20
Alk. Mud (Pm)		0	0				0.26
Alk. filt. (Pf/Mf)		-	-				0.00/0.00
Chlorides mg/l		0	0				18k
hard Ca mg/l		0	0				800
LGS/HGS %		0	0				5.0/2.0
LGS/HGS ppb							45.4/29.91
ASG							3.064
Fann 600 (rpm)		42	45	46	48	48	38
Fann 300 (rpm)		33	35	36	38	38	29
Fann 200 (rpm)		21	20	28	32	32	25
Fann 100 (rpm)		17	18	26	28	28	21
Fann 6 (rpm)		16	14	16	16	16	16
Fann 3 (rpm)		5	5	14	12	12	15

WELL D12-A-02 MUD REPORTS

REPORT	8	9	10	11	12	13	14
DATE	06/06/03	07/06/03	08/06/03	09/06/03	10/06/03	11/06/03	12/06/03
DEPTH	734	993	1208	1213	1213	1213	1380
MUD TYPE	Gel Polymer	Gel Polymer	Gel Polymer	Gel Polymer	Gel Polymer	Saturated Salt Polymer	Saturated Salt Polymer
FL temp Deg C	22	30	31			22	38
MW (ppg)	9.8	9.7	9.6	9.5	9.35	9.9	11
FUNNEL VIS	35	31	33	35	89	85	53
PV	7	3	3	3	13	15	13
YP	7	3	3	3	48	33	24
GELS 0/10	4/6	2/3	2/4	2/3	22/35	10/12	7/11
API Filt. ml/30 min	45	50.0	50.0	50.0	16.0	6.0	5.5
HTHP							
cake 32 nd in	2.0/0.0	3.0/0.0	2.0/0.0	3.0/0.0	2.0/0.0	2.0/0.0	1.0/0.0
Corr. Solids (%)	4.9	4.8	4.1	3.7	5.8	0.4	5.5
NAP/Water (%)	0.0/93.0	0.0/93.0	0.0/93.5	0.0/94.0	0.0/93.5	0.0/86.5	0.0/82.0
Sand (%)	1.00	0.50	0.60	0.40	0	0.05	0.40
MBT	12.0	7.5	5.0	5.0	12.0	0.0	3.00
PH	9.5	9.40	9.50	9.30	9.70	9.61	9
Alk. Mud (Pm)	1.80	0.16	0.25	0.15	2.45	0.30	0.15
Alk. filt. (Pf/Mf)	0.04/1.82	0.06/0.20	0.10/0.20	0.06/1.40	0.04/0.18	0.08/0.42	0.20/0.30
Chlorides mg/l	40k	42k	45k	42k	12.6k	150k	151k
hard Ca mg/l	2.800	2.850	3.120	2.800	400	200	110
LGS/HGS %	1.5/3.4	2.1/2.7	1.7/2.4	1.6/2.2	4.7/1.0	0.5/-0.1	1.9/3.5
LGS/HGS ppb	13.22/ 50.48	19.29/ 39.09	15.75/ 34.86	14.55/ 31.68	43.07/ 15.10	4.71/-2.20	17.60/51. 81
ASG	3.724	3.490	3.525	3.519	2.885	1.949	3.633
Fann 600 (rpm)	21	9	9	9	74	63	50
Fann 300 (rpm)	14	6	6	6	61	48	37
Fann 200 (rpm)	11	4	5	5	50	40	30
Fann 100 (rpm)	9	3	4	4	38	30	23
Fann 6 (rpm)	5	2	2	3	22	11	8
Fann 3 (rpm)	4	1	1	2	18	8	6

WELL D12-A-02 MUD REPORTS

REPORT	15	16	17	18	19	20	21
DATE	13/06/03	14/06/03	15/06/03	16/07/03	17/06/03	18/06/03	19/06/03
DEPTH	1684	1890	2050	2167	2167	2167	2167
MUD TYPE	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer
FL temp Deg C	48	58	60				
MW (ppg)	11	11.7	11.7	11.7	11.70	11.80	11.70
FUNNEL VIS	48	52	52	47	56	52	51
PV	15	25	26	21	20	20	20
YP	25	28	25	22	19	18	16
GELS 0/10	7/9	6/10	6/10	6/9	5/8	5/9	5/9
API Filt. ml/30 mi	6	6	6.2	6.2	6.8	7.0	6.9
HTHP							
cake 32 nd in	1.0/0.0	1.0/0.0	1.0/0.0	1.0/0.0	1.0/0.0	1.0/0.0	1.0/0.0
Corr. Solids (%)	5.5	8.4	9.0	8.4	7.0	8.2	8.2
NAP/Water (%)	0.0/82.0	0.0/79.5	0.0/78.5	0.0/76.0	0.0/78.0	0.0/77.0	0.0/77.0
Sand (%)	0.30	0.20	0.20	0.20	0.20	0.20	0.20
MBT	7.5	10.0	12.5	12.5	15.0	12.5	12.5
PH	9.10	9.00	9.10	8.90	9.00	8.60	8.60
Alk. Mud (Pm)	0.15	0.20	0.20	0.10	0.20	0.15	0.10
Alk. filt. (Pf/Mf)	0.20/0.30	0.15/0.30	0.15/0.30	0.15/0.25	0.15/0.30	0.10/0.30	0.15/0.25
Chlorides mg/l	151k	150k	156k	191k	182k	182k	182k
hard Ca mg/l	100	120	400	1.6k	2.2k	2.5k	2.6k
LGS/HGS %	1.9/3.5	2.2/6.2	3.7/5.3	5.0/3.4	1.7/5.3	3.1/5.0	3.9/4.3
LGS/HGS ppb	17.60/51.8 1	20.38/91. 18	33.86/77.8 1	45.62/50.5 4	15.28/77. 98	28.69/73. 88	35.52/62. 85
ASG	3.633	3.775	3.540	3.251	3.815	3.583	3.436
Fann 600 (rpm)	55	78	77	64	59	58	56
Fann 300 (rpm)	40	53	51	43	39	38	36
Fann 200 (rpm)	33	42	39	31	29	28	27
Fann 100 (rpm)	24	29	27	21	19	19	19
Fann 6 (rpm)	7	7	8	6	5	5	6
Fann 3 (rpm)	5	5	6	5	4	4	4

WELL D12-A-02 MUD REPORTS

REPORT	22	23	24	25	26	27	28
DATE	20/06/03	21/06/03	22/06/03	23/06/03	24/06/03	25/06/03	26/06/03
DEPTH	2204	2400	2630	2842	2980	3200	3330
MUD TYPE	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer
FL temp Deg C	32	45	48	47	59	68	65
MW (ppg)	13.50	13.50	14	14	14.1	14.1	14.3
FUNNEL VIS	60	48	56	60	59	55	60
PV	28	24	30	31	31	34	38
YP	19	15	20	24	21	25	30
GELS 0/10	3/7	6/22	2/14	4/28	4/30	5/30	8/34
API Filt. ml/30 min	7.5	12.0	10.0	11.0	11.0	11.0	11.0
HTHP							
cake 32 nd in	2.00/0.0	4.0/0.0	3.0/0.0	3.0/0.0	3.0/0.0	3.0/0.0	3.0/0.0
Corr. Solids (%)	16.3	20.7	21.8	21.8	21.8	21.8	22.9
NAP/Water (%)	0.0/71.0	0.0/70.0	0.0/69.0	0.0/69.0	0.0/69.0	0.0/69.0	0.0/68.0
Sand (%)	0.00	0.10	0.20	0.20	0.30	0.20	0.20
MBT	12.5	12.5	17.5	17.5	17.5	17.5	17.5
PH	9.50	8.50	9.20	8.50	8.50	8.70	8.50
Alk. Mud (Pm)	0.50	0.40	0.40	0.30	0.30	0.30	0.30
Alk. filt. (Pf/Mf)	0.30/0.50	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30
Chlorides mg/l	171k	194k	194k	194k	194k	194k	195k
hard Ca mg/l	2.2k	1.68k	1.6k	1.7k	1.7k	1.6k	1.7k
LGS/HGS %	5.0/11.4	12.8/7.9	11.1/10.7	11.1/10.7	10.4/11.4	10.4/11.4	11.0/11.9
LGS/HGS ppb	45.30/ 167.46	116.27/ 116.58	101.5/ 157.13	101.50/ 157.13	94.67/ 168.16	94.67/ 168.16	99.82/ 175.67
ASG	3.713	3.213	3.383	3.383	3.438	3.438	3.434
Fann 600 (rpm)	75	63	80	86	83	93	106
Fann 300 (rpm)	47	39	50	55	52	59	68
Fann 200 (rpm)	36	30	37	43	39	48	58
Fann 100 (rpm)	22	20	22	29	26	34	38
Fann 6 (rpm)	4	8	4	6	6	8	11
Fann 3 (rpm)	3	6	2	4	4	5	8

WELL D12-A-02 MUD REPORTS

REPORT	29	30	31	32	33	34	
DATE	27/06/03	28/06/03	29/06/03	30/06/03	01/07/03	02/07/03	
DEPTH	3470	3547	3547	3547	3547	3547	
MUD TYPE	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	Saturated Salt Polymer	
MW (ppg)	14.45	14.5	14.5	14.5	14.5	14.5	
FUNNEL VIS	55	53	55	55	55	55	
PV	35	36	36	36	36	36	
YP	28	27	27	27	27	27	
GELS 0/10	7/32	6/2	6/3	6/3	6/3	6/3	
API Fluid loss	10.0	10.0	11.0	11.0	11.0	11.0	
HTHP							
cake API	2.0/0.0	2.0/0.0	3.0/0.0	3.0/0.0	3.0/0.0	3.0/0.0	
Corr Solids (%)	22.9	22.9	22.9	22.9	22.9	22.9	
Oil / Water (%)							
Oil/water ratio							
MBT	17.5	17.5	17.5	17.5	17.5	17.5	
pH	8.50	8.50	8.50	8.50	8.50	8.50	
Alk mud	0.30	0.30	0.30	0.30	0.30	0.30	
Pf/Mf	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30	0.10/0.30	
Chlorides mg/l	194k	194k	194k	194k	194k	194k	
hard Ca mg/l	1.7k	1.7k	1.7k	1.7k	1.7k	1.7k	
Low Grav Solids	9.9/13.1	9.5/13.4	9.5/13.4	9.5/13.4	9.5/13.4	9.5/13.4	
Fann 600 (rpm)	98	99	99	99	99	99	
Fann 300 (rpm)	63	63	63	63	63	63	
Fann 200 (rpm)	53	58	53	53	53	53	
Fann 100 (rpm)	39	53	35	35	35	35	
Fann 6 (rpm)	11	9	6	9	9	9	
Fann 3 (rpm)	7	6	6	6	6	6	

WELL D12-A-02 MUD REPORTS

REPORT	35	36	37	38	39	40	41
DATE	03/07/03	04/07/03	05/07/03	06/07/03	07/07/03	08/07/03	09/07/03
DEPTH	3547	3664	3852	3885	3919	3976	4079
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	10.30	10.35	11.00	11.00	11.00	11.00	11.00
FUNNEL VIS	58	58	55	57	57	59	57
PV	21	21	21	19	21	22	22
YP	13	18	18	18	18	18	18
GELS 0/10	10/17	17/26	16/25	16/25	16/26	16/25	15/24
NAP/water ratio	71.3/28.7	73.6/26.4	72.3/27.7	72.3/27.7	72.3/27.7	71.7/28.3	72.1/27.9
HTHP	3.0	3.0	3.0	2.9	2.8	2.7	2.8
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	12.7	10.4	14.4	14.2	14.2	14.1	14.7
NAP / Water (%)	62.0/25.0	64.0/23.0	60.0/23.0	60.0/23.0	60.0/23.0	59.5/23.5	59.5/23.0
Sand % by vol	0.20	0.20	0.30	0.25	0.30	0.30	0.20
Alkalinity	2.80	0.30	0.30	0.25	0.25	1.10	1.40
AgNO3 ml		2.00	2.00	2.10	2.10	2.10	2.10
THTS		1.40	1.39	1.20	1.25	1.15	1.20
CaCl2 ppb	0.97	13.01	12.91	11.16	11.65	9.66	10.15
NaCl (sol/Insol)	1.29/0.00	15.20/0.00	15.30/0.00	18.27/0.32	17.85/0.22	20.16/0.00	19.14/0.51
WPS ppm		259,160	259,195	267,414	267,913	265,821	266,494
Lime ppb/elect sta	3.63/474	0.39/580	0.39/590	0.32/604	0.32/565	1.42/620	1.81/640
LGS/HGS %	4.9/7.9	2.8/7.6	6.3/8.1	6.0/8.2	6.0/8.2	5.9/8.2	7.0/7.7
ASG	3.587	3.772	3.499	3.521	3.518	3.529	3.436
Fann 600 (rpm)	55	60	60	56	60	62	62
Fann 300 (rpm)	34	39	39	37	39	40	40
Fann 200 (rpm)	25	30	31	30	32	31	31
Fann 100 (rpm)	17	21	22	20	21	22	22
Fann 6 (rpm)	8	10	10	10	11	10	10
Fann 3 (rpm)	7	9	9	9	9	9	9

WELL D12-A-02 MUD REPORTS

REPORT	42	43	44	45	46	47	48
DATE	10/07/03	11/07/03	12/07/03	13/07/03	14/07/03	15/07/03	16/07/03
DEPTH	4097	4178	4178	4178	4178	4178	4178
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	11.10	11.05	11.05	11.00	11.35	11.20	11.20
FUNNEL VIS	61	57	62	65	90	85	87
PV	23	21	23	22	24	21	21
YP	18	17	16	18	18	17	17
GELS 0/10	16/26	12/21	13/23	13/24	14/25	12/21	13/22
NAP/water ratio	70.9/29.1	73.6/26.4	72.7/27.3	72.8/27.2	72.7/27.3	72.8/27.2	72.8/27.2
HTHP	3.0	2.7	2.9	3.0	2.8	2.8	2.8
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	14.6	15.9	16.8	16.3	16.8	16.3	16.3
NAP / Water (%)	58.5/24.0	60.0/21.5	58.5/22.0	59.0/22.0	58.5/22.0	59.0/22.0	59.0/22.0
Sand % by vol	0.20	0.20	0.20	0.20	0.20	0.15	0.20
Alkalinity	1.35	1.40	1.10	1.00	1.00	1.10	1.00
AgNO3 ml	2.15	2.40	2.35	2.35	2.40	2.40	2.40
THTS	1.25	1.40	1.35	1.30	1.40	1.40	1.40
CaCl2 ppb	10.63	12.09	11.60	11.12	12.09	12.09	12.09
NaCl (sol/Insol)	19.86/0.00	15.70/6.24	16.69/5.04	17.10/5.14	16.29/5.65	16.29/5.65	16.29/5.65
WPS ppm	266,053	269,409	268,446	267,887	269,045	269,045	269,045
Lime ppb/elect sta	1.75/675	1.81/700	1.42/0	1.30/665	1.30/690	1.42/685	1.30/680
LGS/HGS %	6.3/8.3	8.9/7.0	10.9/5.9	10.2/6.1	8.7/8.1	8.8/7.5	8.8/7.5
ASG	3.510	3.306	3.160	3.196	3.371	3.338	3.338
Fann 600 (rpm)	64	59	62	62	66	59	59
Fann 300 (rpm)	41	38	39	40	42	38	38
Fann 200 (rpm)	33	30	31	31	32	30	31
Fann 100 (rpm)	22	20	20	21	22	20	21
Fann 6 (rpm)	11	9	9	9	9	9	10
Fann 3 (rpm)	10	8	8	8	8	8	8

WELL D12-A-02 / D12-A-02X MUD REPORTS

REPORT	49	50	51	52	53	54	55
DATE	17/07/03	18/07/03	19/07/03	20/07/03	21/07/03	22/07/03	23/07/03
DEPTH	4178	3650	3711	3802	3903	3915	4015
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	11.05	11.10	11.00	11.10	11.00	11.00	11.00
FUNNEL VIS	69	78	45	66	63	63	65
PV	22	23	61	28	27	27	28
YP	17	17	25	18	17	17	18
GELS 0/10	13/24	14/24	6/18	8/18	8/17	8/18	9/18
NAP/water ratio	72.4/27.6	72.2/27.8	69.5/30.5	71.3/28.8	72.5/27.5	73.1/26.9	72.5/27.5
HTHP	2.7	2.8	2.5	2.0	2.0	2.0	2.5
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	15.8	16.3	15.1	16.9	17.3	17.3	17.3
NAP / Water (%)	59.0/22.5	58.5/22.5	57.0/25.0	57.0/23.0	58.0/22.0	58.5/21.5	58.0/22.0
Sand % by vol	0.20	0.20	0.10	0.20	0.10	0.10	0.20
Alkalinity	1.20	1.00	2.70	2.80	2.80	2.70	2.80
AgNO3 ml	2.30	2.30	2.10	2.00	2.10	2.00	2.10
THTS	1.25	1.30	1.00	0.00	1.10	1.00	1.10
CaCl2 ppb	10.63	11.12	8.21	0.00	9.18	8.21	9.18
NaCl (sol/Insol)	18.11/3.91	17.70/3.82	21.69/0.0	28.89/0.0	18.78/1.89	19.04/1.21	18.78/1.89
WPS ppm	267,132	267,619	254,411	263,824	266,062	265,516	266,062
Lime ppb/elect sta	1.55/580	1.30/560	3.50/600	3.63/635	3.63/690	3.50/690	3.63/680
LGS/HGS %	8.8/7.0	9.5/6.8	8.1/7.0	10.8/6.1	12.2/5.1	12.2/5.2	12.2/5.1
ASG	3.309	3.267	3.342	3.178	3.069	3.077	3.069
Fann 600 (rpm)	61	63	64	74	74	71	74
Fann 300 (rpm)	39	40	39	46	44	44	46
Fann 200 (rpm)	30	31	30	36	36	35	38
Fann 100 (rpm)	20	21	20	25	24	24	26
Fann 6 (rpm)	9	9	8	10	10	10	10
Fann 3 (rpm)	8	8	6	8	8	8	9

WELL D12-A-02X MUD REPORTS

REPORT	56	57	58	59	60	61	62
DATE	24/07/03	25/07/03	26/07/03	27/07/03	28/07/03	29/07/03	30/07/03
DEPTH	4060	4138	4210	4303	4308	4363	4403
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	11.00	11.00	11.00	11.10	11.00	11.00	11.00
FUNNEL VIS	68	62	65	64	66	64	65
PV	30	26	27	26	28	28	28
YP	20	19	18	19	19	18	21
GELS 0/10	10/20	8/20	9/21	10/22	10/22	9/21	10/23
NAP/water ratio	73.4/26.6	73.8/26.3	73.8/26.3	74.7/25.3	74.7/25.3	74.7/25.3	74.7/25.3
HTHP	2.5	2.5	3.0	2.6	2.5	3.0	3.0
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/3.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	18.4	17.4	17.4	18.5	18.5	18.5	18.5
NAP / Water (%)	58.0/21.0	59.0/21.0	19.0/21.0	59.0/20.0	59.0/20.0	59.0/20.0	59.0/20.0
Sand % by vol	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Alkalinity	2.80	2.90	2.90	2.90	2.90	2.90	2.90
AgNO3 ml	2.10	2.10	2.20	2.00	2.00	2.10	1.90
THTS	1.10	1.10	1.00	0.90	0.90	0.90	0.80
CaCl2 ppb	9.18	9.18	8.21	7.24	7.24	7.24	6.26
NaCl (sol/Insol)	17.55/3.12	17.55/3.12	18.42/4.72	18.07/3.20	18.07/3.20	18.07/4.64	18.98/1.87
WPS ppm	266,415	266,415	265,646	265,258	265.258	265.258	264,774
Lime ppb/elect sta	3.63/680	3.76/740	3.76/730	3.76/790	3.76/730	3.76/830	3.76/860
LGS/HGS %	14.3/4.1	12.2/5.2	12.2/5.2	13.5/5.0	14.2/4.3	14.2/4.3	14.2/4.3
ASG	2.954	3.076	3.080	3.034	2.970	2.970	2.974
Fann 600 (rpm)	80	74	72	75	75	74	77
Fann 300 (rpm)	50	45	45	47	47	46	49
Fann 200 (rpm)	40	36	36	37	37	36	39
Fann 100 (rpm)	29	36	26	26	26	27	28
Fann 6 (rpm)	12	10	11	11	11	11	12
Fann 3 (rpm)	10	8	9	10	10	9	10

WELL D12-A-02X MUD REPORTS

REPORT	63	64	65	66	67	68	69
DATE	31/07/03	01/08/03	02/08/03	03/08/03	04/08/03	05/08/03	06/08/03
DEPTH	4483	4482	4482	4517	4522	4552	4585
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	11.00	11.10	11.10	11.00	11.05	11.05	11.20
FUNNEL VIS	69	70	70	66	81	60	66
PV	31	32	32	29	29	25	28
YP	20	24	22	19	20	20	20
GELS 0/10	11/23	15/29	15/29	14/28	15/28	13/26	14/25
NAP/water ratio	74.7/25.3	74.7/25.3	72.5/27.5	73.0/27.0	73.0/27.0	73.8/26.3	74.7/25.3
HTHP	3.0	3	3	2.8	2.9	3.0	2.8
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	18.5	18.5	17.3	17.9	17.9	17.4	18.5
NAP / Water (%)	59.0/20.0	59.0/20.0	58.0/22.0	58.0/21.5	58.0/21.5	59.0/21.0	59.0/20.0
Sand % by vol	0.20	0.20	0.10	0.20	0.20	0.30	0.20
Alkalinity	2.90	2.00	1.00	1.10	1.00	1.10	1.40
AgNO3 ml	2.00	2.00	2.00	2.40	2.50	2.40	2.50
THTS	0.90	1.00	1.00	1.20	1.10	1.00	1.00
CaCl2 ppb	7.24	8.21	8.21	10.15	9.18	8.21	8.21
NaCl (sol/Insol)	18.07/3.20	17.19/3.06	19.65/0.60	17.32/6.66	18.16/8.28	18.42/7.61	17.19/10.28
WPS ppm	265,258	265,948	265,399	267,119	266,230	265,646	265,948
Lime ppb/elect sta	3.76/890	2.59/940	1.30/910	1.42/890	1.30/880	1.42/940	1.81/985
LGS/HGS %	14.2/4.3	13.6/5.0	11.4/5.9	13.3/4.5	12.9/5.0	11.8/5.6	12.8/5.7
ASG	2.970	3.030	3.143	3.006	3.044	3.115	3.095
Fann 600 (rpm)	82	88	86	77	78	70	76
Fann 300 (rpm)	51	56	54	48	49	45	48
Fann 200 (rpm)	42	45	44	40	40	35	36
Fann 100 (rpm)	31	31	30	28	29	25	26
Fann 6 (rpm)	13	14	14	11	12	11	12
Fann 3 (rpm)	11	12	11	9	10	9	10

WELL D12-A-02X MUD REPORTS

REPORT	70	71	72	73	74	75	76
DATE	07/08/03	08/08/03	09/08/03	10/08/03	11/08/03	12/08/03	13/08/03
DEPTH	4585	4673	4763	4824	4831	4859	4961
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul	Enviromul
MW (ppg)	11.20	11.30	11.30	11.30	11.40	11.30	11.35
FUNNEL VIS	81	62	61	60	69	66	65
PV	29	27	26	26	26	28	28
YP	18	19	18	16	18	19	17
GELS 0/10	14/27	13/23	13/24	12/23	13/24	14/24	11/22
NAP/water ratio	74.7/25.3	75.5/24.5	75.5/24.5	76.6/23.4	76.6/23.4	76.1/23.9	76.1/23.9
HTHP	3	2.8	2.8	3.0	2.9	2.8	2.8
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0
Corr Solids (%)	18.5	20.2	20.2	20.8	20.8	20.3	20.3
NAP / Water (%)	59.0/20.0	58.5/19.0	58.5/19.0	59.0/18.0	59.0/18.0	59.0/18.5	59.0/18.5
Sand % by vol	0.20	0.20	0.20	0.20	0.20	0.20	0.20
Alkalinity	1.30	1.10	1.00	1.00	1.50	1.6	1.20
AgNO3 ml	2.40	2.50	2.40	2.50	2.50	2.5	2.50
THTS	1.00	1.00	1.00	1.00	1.00	1.20	1.20
CaCl2 ppb	8.21	8.21	8.21	8.21	8.21	10.15	10.15
NaCl (sol/Insol)	17.19/8.84	15.97/11.5	15.97/10.06	14.75/12.72	14.75/12.72	13.72/11.71	13.72/11.71
WPS ppm	265,948	266,321	266,321	266,783	266,783	269,017	269,017
Lime ppb/elect sta	1.68/0	1.42/1.018	1.30/965	1.30/995	1.94/1.035	2.07/1.040	1.55/975
LGS/HGS %	12.8/5.7	15.2/4.9	15.2/4.9	16.3/4.5	15.6/5.2	15.4/4.9	15.0/5.3
ASG	3.095	2.992	2.992	2.946	3.003	2.987	3.017
Fann 600 (rpm)	76	73	70	68	70	75	73
Fann 300 (rpm)	47	46	44	42	44	47	45
Fann 200 (rpm)	35	35	34	33	34	37	35
Fann 100 (rpm)	26	25	24	23	23	26	24
Fann 6 (rpm)	12	12	10	10	10	12	9
Fann 3 (rpm)	10	10	9	8	8	10	8

WELL D12-A-02X MUD REPORTS

REPORT	77	78	79	80			
DATE	14/08/03	15/08/03	16/08/03	17/08/03			
DEPTH	5071	5109	5109	5109			
MUD TYPE	Enviromul	Enviromul	Enviromul	Enviromul			
MW (ppg)	11.30	11.35	11.30	11.30			
FUNNEL VIS	60	68	68	69			
PV	27	29	29	30			
YP	16	18	18	18			
GELS 0/10	11/22	13/24	12/24	12/25			
NAP/water ratio	76.6/23.4	76.6/23.4	76.6/23.4	76.6/23.4			
HTHP	2.8	2.8/120	2.8/120	2.8/120			
cake 32 nd in	0.0/2.0	0.0/2.0	0.0/2.0	0.0/2.0			
Corr Solids (%)	20.8	20.8	20.8	20.8			
NAP / Water (%)	59.0/18.0	59.0/18.0	59.0/18.0	59.0/18.0			
Sand % by vol	0.20	0.20	0.00	0.20			
Alkalinity	1.20	1.20	1.20	1.20			
AgNO3 ml	2.40	2.40	2.40	2.40			
THTS	1.30	1.00	1.00	1.00			
CaCl2 ppb	11.12	8.21	8.21	8.21			
NaCl (sol/Insol)	12.35/10.61	14.75/11.28	14.75/11.28	14.75/11.28			
WPS ppm	271.143	266.783	266.783	266,783			
Lime ppb/elect sta	1.55/980	1.55/1.015	1.55/1,000	1.55/1,000			
LGS/HGS %	16.5/4.4	15.9/4.9	16.3/4.5	16.3/4.5			
ASG	2.935	2.975	2.946	2.946			
Fann 600 (rpm)	70	76	76	78			
Fann 300 (rpm)	43	47	47	48			
Fann 200 (rpm)	33	36	36	37			
Fann 100 (rpm)	23	24	24	26			
Fann 6 (rpm)	9	10	10	12			
Fann 3 (rpm)	8	9	9	10			

ENCLOSURE A

FORMATION EVALUATION LOG
SCALE 1:500

D12-A02 & D12-A02X

**THIS BLANK SHEET IS TO MARK THE POSITION FOR A CLEAR A4 POCKET
CONTAINING A COPY OF THE REQUIRED LOG.**

ENCLOSURE B

DRILLING ENGINEERING DATA LOG
SCALE 1:1000

D12-A02 & D12-A02X

**THIS BLANK SHEET IS TO MARK THE POSITION FOR A CLEAR A4 POCKET
CONTAINING A COPY OF THE REQUIRED LOG.**

ENCLOSURE C

PRESSURE EVALUATION LOG
SCALE 1:5000

D12-A02 & D12-A02X

**THIS BLANK SHEET IS TO MARK THE POSITION FOR A CLEAR A4 POCKET
CONTAINING A COPY OF THE REQUIRED LOG.**

ENCLOSURE D

GAS RATIO LOG
SCALE 1:500

D12-A02 & D12-A02X

**THIS BLANK SHEET IS TO MARK THE POSITION FOR A CLEAR A4 POCKET
CONTAINING A COPY OF THE REQUIRED LOG.**

ENCLOSURE E

COMPOSITE LOG
SCALE 1:500

D12-A02 & D12-A02X

**THIS BLANK SHEET IS TO MARK THE POSITION FOR A CLEAR A4 POCKET
CONTAINING A COPY OF THE REQUIRED LOG.**

ENCLOSURE F

SET OF DATA DISKS

- Depth database
- FWR & PDF files

D12-A02 & D12-A-02X