



CNR International (U.K.) Limited
On behalf of
Statoil ASA and Revus Energy ASA

Murchison Platform

**UK 211/19a-M75 (M31RD)
NOR 33/9-20 S
Blåmann Prospect
Exploration Well**

FINAL WELL REPORT

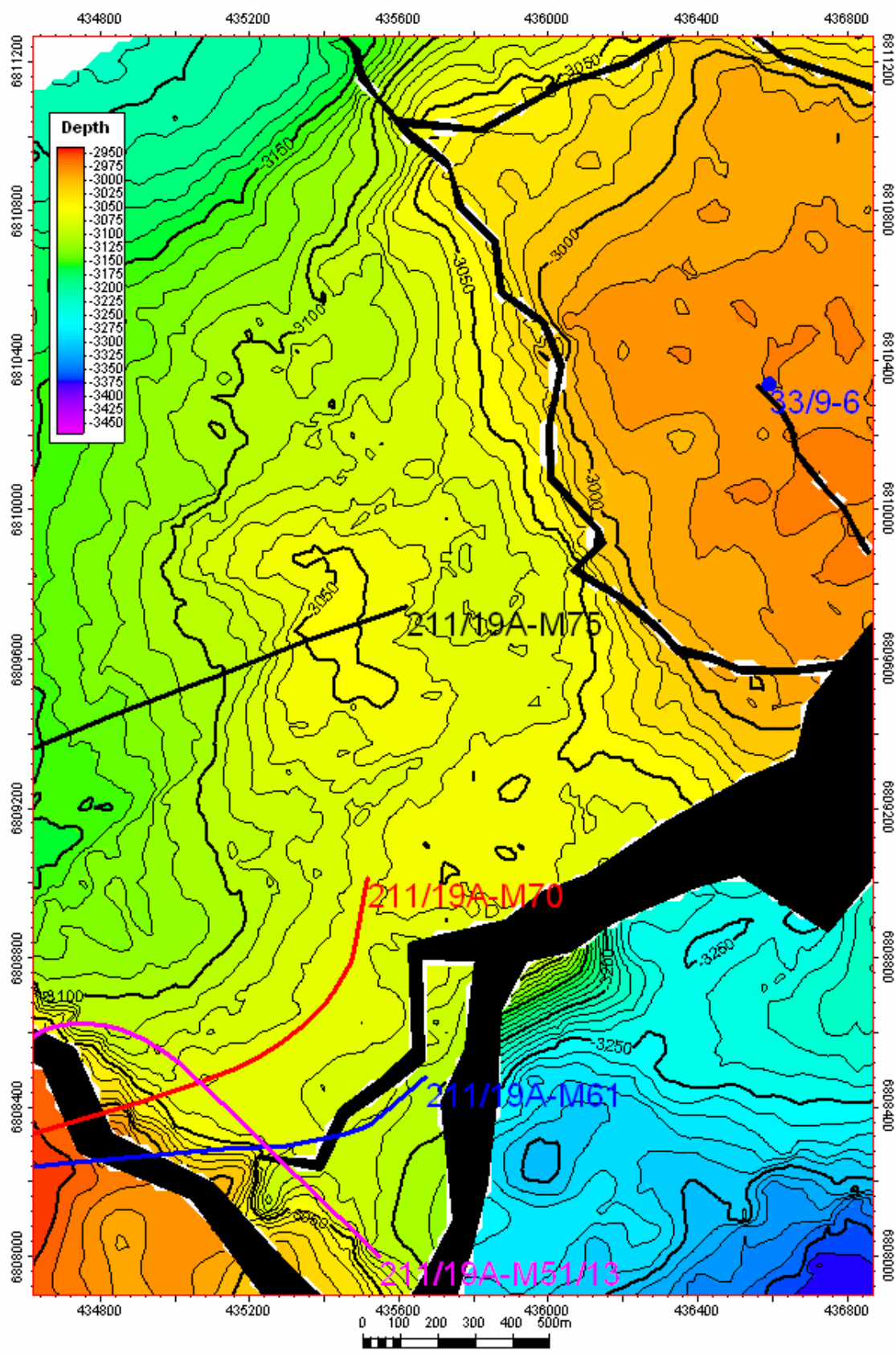
TABLE OF CONTENTS

	Page
1.0 WELL DATA SUMMARY	3
1.1 Location Map	4
1.2 Hole Sizes and Casing	5
2.0 INTRODUCTION	5
2.1 Reservoir Description	6
3.0 OBJECTIVES	6
4.0 WELL RESULTS	6
5.0 DRILLING SUMMARY WITH OBSERVATIONS AND REMARKS	8
6.0 GEOLOGY SUMMARY	14
6.1 211/19a-M75 (M31 RD) / NOR33/9-20S Formation Tops	14
6.2 211/19a-M75 (M31 RD) / NOR33/9-20S Cuttings and Formation Summary	15
6.3 211/19a-M75 (M31 RD) / NOR33/9-20S MWD / LWD Logging Runs	24
6.4 211/19a-M75 (M31 RD) / NOR33/9-20S Wireline Logging Runs	24
7.0 APPRAISAL OF SERVICES	25
7.1 Appraisal of Mudlogging Services	25
7.2 Appraisal of MWD / LWD Logging Service	25
8.0 SAMPLES COLLECTED	27
8.1 211/19a-M75 (M31 RD) / NOR33/9-20S Sample Inventory	27
9.0 CUTTINGS DESCRIPTIONS	29
9.1 211/19a-M75 (M31 RD) / NOR33/9-20S Cuttings Description Table	29
10.0 MUD DATA	47
10.1 211/19a-M75 (M31 RD) / NOR33/9-20S Mud Data Table	47
11.0 WELL RESULTS	47
11.1 Geosteering and Modelling	47
11.2 Perforations	47
12.0 HEALTH, SAFETY AND THE ENVIRONMENT (HSE)	48
APPENDIX 1 – FINAL DIRECTIONAL SURVEY DATA	49
APPENDIX 2 – SCHLUMBERGER LWD REPORT	54

1.0 WELL DATA SUMMARY

LICENCE OPERATOR : Statoil ASA		WELL : 211/19-M75 / NOR33/9-20S	
License No :	PL037D	Block :	NOR33/9
		Field :	Blåmann Prospect
Well Operator :	CNR International (UK)	Slot :	23
License Operator:	Statoil ASA	Classification :	Exploration, Oil Production Well
Licensees :			
Revus Energy ASA	78.125 %	Targets :	Tarbert Formation (Brent Group)
Statoil ASA	21.875 %	Donor :	211/19a-M31
Rig :	Murchison Platform	Surface Co-ordinates (Slot 23):	
RTE :	185ft / 56.3m	Y	6 807 90.24 m N
Water Depth :	512ft / 156.1m	X	432 751.20 m E
On AFE :	25 th April 2006	Latitude :	61° 23' 48.260" N
M75 Spud Date:	25 th July 2006	Longitude :	01° 44' 27.249" E
M75 Date at TD:	30 th August 2006		
M75 Well Abandoned:	9 th Sept 2006	M75 T.D. Co-ordinates : (actual)	
Well on Production :	N/A	(Projected to TD)	
Well:	211/19a-M75	Y	6 809 739.30m N
	NOR33/9-20S	X	435 617.64m E
		Z	10,362ft TVDSS
		Latitude :	61° 24' 52.982" N
		Longitude :	01° 47' 37.975" E
		M75 T.D. Co-ordinates : (Planned)	
		Y	6 809 790.42m N
		X	435 761.53m E
		Z	10,900ft TVDSS
		Latitude :	61° 24' 54.720" N
		Longitude :	01° 47' 47.613" E
M75 Total Depth :	18,052ft / -5502.25m MDBRT	MWD :	Schlumberger D&M
	10,362.1ft / -3158.36m TVDSS	Directional Drilling :	Schlumberger D&M
M75 Mud Type :	Versaclean UFG OBM	Geologging :	HRH Ltd.
M75 TD Formation:	Etive Formation	Wellsite Geology:	HRH Ltd.
		Wireline:	Schlumberger

1.1 Location Map



1.2 Hole Sizes and Casing

Hole Size	Hole depth MD (TVDSS)	Casing Size	Shoe Depth MD (TVDSS)	FIT ppg / SG	Comments
-	-	13 3/8"	Top of window @ 4,548ft / 13,86.23m (3,926ft / 1,196.65m) Bottom of window @ 4,571ft / 1,393.24m (3,941ft / 1201.22)	13.5 / 1.61	From Donor Well M31 Window milled in 13 3/8" casing.
12 1/4"	16,100ft / 4,907.28m (9,378.8ft / 2,858.7m)	9 5/8"	16,082ft / 4,901.79m (9,371.19ft / 2,856.39m)	N/A	
8 1/2"	18,052ft / 5,502.25m (10,362ft / 3,158.36m)	N/A	N/A	N/A	The well is plugged back and suspended.

2.0 INTRODUCTION

The UK211/19a-M75/NOR 33/9-20S Blåmann well was drilled into an undrilled area adjacent to the Murchison field. The Delta discovery well NOR33/9-6 was drilled to the Northeast of the Blåmann prospect by Mobil Exploration in 1976. This well had good oil shows, but was not tested due to mechanical problems. To the Southwest of the Blåmann prospect, three Murchison wells have been drilled into a downthrown Murchison flank (MR-segment) by wells UK211/19a-M51/13, UK211/19-M61/20 and UK211/19a-M70/20. The well UK211/19a-M51/13 has produced 0.21 MSm³ oil since September 1999 and has been supported by the water injection well UK211/19a-M70/20 since December 2003.

The reservoir quality was assumed to be moderate in the Tarbert/Ness Formations reservoir units, but excellent in the Etive Fm.

2.1 Reservoir Description

The Blåmann area is located on the Tampen Spur on a structural high where the Murchison Field is located to the southwest and the Delta structure and the Statfjord Nord Field to the northeast. This structural high is bounded by a large southeast dipping fault complex. This fault has generally a listric shape accompanied by rollover anticlines in the footwall. This is illustrated on inline 2322 (Geological Programme Fig 5). The largest throw at Top Tarbert Fm level is about 1148ft (350 metres).

A northwest – southeast trending “down-to-the-northeast” fault that separates the Blåmann area from the Murchison Field has also a listric shape. The Delta structure is located on the rollover anticline generated by this fault.

3.0 OBJECTIVES

- Test the presence of and type of hydrocarbon in the Brent Group in the Blåmann prospect.
- Test the Blåmann prospect close to the top of the structure in secure distance from the Delta fault
- Test an area of the Blåmann prospect with as high Etive Fm hydrocarbon column as possible
- Test the Blåmann prospect where there is good hydrocarbon indication
- Penetrate the Upper Brent Group reservoir unit and the Lower Brent Group reservoir unit down to an established OWC
- Obtain pressure measurements for regional understanding
- Successful drilling to TD within tolerances
- Successful completion and well production according to prognosis
- To conduct and complete operations safely and efficiently in accordance with CNR International Safety Policy and within AFE budget.

4.0 WELL RESULTS

The exploration well NO33/9-20S (211/19-M75) was drilled from the Murchison platform (UK) into the Norwegian PL037D license. The well tested the Blåmann prospect located East of the producing Murchison MR-segment. At top reservoir level, well NO33/9-20S (211/19-M75) is located less than 2625ft (800 meters) from a proved oil column found in the MR-segment 211/19-M70 water injector. In case of discovery, the well was planned to be completed as an oil producer. The reservoir section was expected to be located in the Brent Group, within the Tarbert, Ness and Etive Formations. According to prognosis an oil column of 213 ft (65 m) TVD was expected in well NO33/9-20S (211/19-M75) based on the observed Oil Down To (ODT) in well 211/19-M70.

The Base Cretaceous Unconformity was found 36 feet (11 meters) TVDSS deeper than prognosed. The Heather shale was 98 ft (30 meters) TVT thicker than prognosed and the top Tarbert Formation was found 144 ft (44 meters) TVDSS deeper than prognosed. No

hydrocarbons were encountered in the reservoir section even though the top Tarbert Formation was found 69 ft (21 meters) TVDSS above the expected oil water contact.

The well drilled through the Tarbert and Ness Formations and into the Etive Formation. The formation thickness' above the Mid Ness shale was around 33 ft (10 meters) thinner in 211/19-M75/NOR33/9-20S compared to 211/19-M70. The well TD was set prematurely in the Etive Formation at a total well depth of 18052 ft (-5502.25 m) MD due to unstable well conditions and well results indicating a dry hole. The planned TLC logging programme was not carried out.

The drilling operation went safely and within budget.

It is difficult to explain the well results with the current available seismic. Further studies have been initiated to assess the remaining potential reserves in the area.

5.0 DRILLING SUMMARY WITH OBSERVATIONS AND REMARKS

Well Abandonment

The rig was skidded to slot 23 on the 14th of July 2006 and the 13 5/8" riser section was installed and nipped up to the BOP and pressure tested. The IBOP malfunctioned and was replaced prior to preparing the well for the drilling phase of M75 / NOR33/9-20S. The 9 5/8" casing string was pulled and abandonment operations were completed on M31.

Drilling data acquisition was via the on board MD Totco system. The Total Gas measurement was via the platform's own MD/Totco gas system. However due to loss of rig power the MD Totco lost the calibration files and proved unreliable throughout the 8 1/2" section.

12 1/4" Casing Mill

4,550ft – 4,592ft MD
(3,926.46ft – 3,955.46ft TVDSS)

1,386.84m – 1,399.64m MD
(1,196.78m – 1,205.62m TVDSS)

On the 24th July 2006 a whipstock and Trackmaster mill assembly was run in hole. The tool face was orientated to 66° right of the high side and the whipstock set in place at 4584ft (1397.2m).

A window in the 13 3/8" casing was milled from 4550ft (1386.84m) to 4571ft (1393.24m), and 21ft (6.4m) of new formation was penetrated to 4592ft (1399.64m). The milling assembly was worked through the window several times to ensure good passage with no drag or overpulls observed. With an 11.85ppg (1.41 SG) mud, a formation integrity test was attempted to 14.0ppg (1.67 SG) but leaked off at 13.5ppg (1.61 SG) EMW. The 13.5ppg EMW was sufficient to satisfy safety requirements. Following the FIT, the milling assembly was pulled out of hole.

12 1/4" Hole Section

4,592ft – 16100ft MD
(3,955.46ft – 9,378.89ft TVDSS)

1,399.64m – 4,907.28m MD
(1,205.62m – 2,858.69m TVDSS)

A 12 1/4" Powerdrive assembly with LWD directional, gamma, and resistivity tools was picked up and run in the hole on the 26th July 2006. Bottom was tagged at 4,592ft (1399.64m), and drilling commenced. Intermittent problems with drilling package electrical system were experienced resulting in power shutdowns of pumps and topdrive pressure blower motor. This was particularly a problem during and after connections and slowed the average ROP.

Cuttings sampling was programmed to commence at 10,600ft (3230.88m) MD as per NPD requirements, however, due to poor weather, the arrival of the HRH crew was delayed. Rig crew commenced taking 100ft (30m) wet unwashed samples until the arrival of the HRH crew at the wellsite.

The 12 ¼" hole continued to drill with increasingly frequent power problems on the rig floor. Heavy cavings were seen in the upper part of the section. These were large tabular clasts, 300mm wide, 10-15mm thick. These consisted of medium to dark blueish grey Claystone with cream white (kaolinitic?) inclusions. Subsequent biostratigraphy analysis of this material, performed at the end of section, found them to originate mainly from the Early Eocene Horda formation. Although the size and volume decreased with depth, cavings were present throughout the whole section. Circulation at TD produced blade-like cavings of 20mm length and 2mm thickness, tapering to a sharp edge down the longest axis. Drilling continued to 12228ft (3727.09m), when a blower motor in the top drive system failed, resulting in a 12 hour delay while maintenance took place.

One HRH Wellsite Geologist and two HRH Geologgers arrived on the platform on the 2nd August 2006, and commenced the collection of 30ft samples from 12330ft (3758.18m).

Due to the continued presence of cavings in the well, mud weight was raised from 12.9ppg (1.54 SG) to 13.0ppg (1.56) on 3rd August. Cavings were seen to reduce significantly after this point, although remained present in quantities estimated at 35% of the coarse fraction of material coming over the shakers. Drilling continued, with pump noise effecting the Schlumberger D&M unit being intermittently unable to decode MWD and survey signal. This was caused by poor pulsation dampening of the mudpumps. The pulsation dampeners were recharged to 1000psi and the noise was removed.

Drilling continued to 16100ft (4907.28m), TD of the 12 ¼" section on the 8th August 2006. Bottoms up was circulated and the string worked between depths 16100ft (4907.28m) to 14691ft (4477.81m) to clean the well of cuttings above the BHA. A total of 7 bottoms up was circulated.

The BHA continued to be pulled out of hole wet from 14691ft (4477.81m) to 13868ft (4226.96m) where a ledge was encountered with 30klbs over pull. The string was wiped through at 70rpm, 364gpm at 1600psi without problems. Pulling out of hole wet continued to 11980ft (3651.5m) where 2 x bottoms up was circulated. The string was rotated and pumps staged up to 800gpm with returns being confirmed. The power to the pumps shut down and once pump operations were back online, pumps were staged with no returns. Attempted to pump at a low gpm rate without success. Estimated losses 131bbls. The well was placed on the trip tank and 10bbls of lost mud regained.

The string continued to be pulled out of hole from 11981ft (3651.8m) to 11932ft (3636.84m) where a slight over pull was encountered. The sting washed though the tight spot and continued to be pulled out of hole to 10873ft (3314.09m). Circulation was attempted, pipe rotated and pumps staged up slowly to 100gpm, 250-300psi with initial returns. However circulation could not be sustained with low flow and pressure.

Pulling out of hole continued from 10873ft (3314.09m) to 6780ft (2066.54m) with the hole in good condition. Several attempts were made to establish circulation but again due to low flow rates and pressure could not be sustained. At 6780ft (2066.54m) a tight spot was encountered and the string ran back in hole to 6880ft (2097.02m). Parameters were established and commenced working through the tight spot with 30rpm, 8klbs torque, 86gpm and 300psi. The string was run in hole to work through the tightspot but whilst passing near the top Balder formation at 6742ft (2054.96m) it was held up. The string continued to be pulled out of hole with rotation and minimum pumps and pressure with packing off persisting from 6800ft (2072.64m) to 6127ft (1867.51m).

From 6127ft (1867.51m) to 6035ft (1839.46m) an increase in the circulation capacity bottoms up was circulated two times with minimal losses of 20bbls/hr. With an increase in the string parameters to 100-125rpm a large increase in fines and small cuttings was observed over the shakers. Circulation continued until a sustained decrease in cuttings over the shakers was seen.

The string continued to be pulled out of hole from 6035ft (1839.46m) to 5940ft (1810.51m) where another tightspot was encountered. Unable to pull through without rotation and working the string, the string was pumped and back reamed from 5940ft (1810.51m) with a reduction in the numbers of pack offs. Pulling out of hole continued to 5281ft (1609.64m) where it passed safely through the window to 4434ft (1351.48m) where bottoms up was circulated two times. Fines and small cuttings were observed at the shakers.

The well was flow checked with no losses recorded. The drill line was slipped and cut prior to a slug being pumped. The string continued to be pulled out of hole to surface with no further problems.

12 ¼" Clean Out Run

Due to the problems experienced with pulling out of the hole, a 12 ¼" clean-out assembly was picked up, and RIH to the shoe. At the shoe, repairs were made to the drawworks clutch, mud pump and the leaking IBOP. Bottoms up was circulated and the mud was sheared. Parameters were established and string washed down to 6384ft (1945.84m) where a 20klbs increase in drag was observed. The string was worked down to 6459ft (1968.7m) where it packed off. An attempt was made to regain circulation without success. The BHA was pulled out of hole to 6289ft (1916.88m) where circulation was regained and returns established. Reciprocation and rotation of the string occurred between 6289ft (1916.88m) to 6200ft (1889.76m) with the pumps staged up to 500gpm. The pipe was worked and at 5860stks a noted increase in the volume of cuttings and fines was observed over the shakers. The geologist identified that the cuttings were from the Shetland formation with a sample sent to town for biostratigraphy analysis.

The assembly continued to be washed down to 6479ft (1974.79m) where hole was circulated clean and the string reciprocated and rotated. A large volume of cuttings was observed over the shakers. Washing down continued to 6665ft (2031.49m) without restrictions again with the string being reciprocated and rotated. The volume of cuttings observed at the shakers gradually reduced.

Rotary was reduced whilst running back in hole with one stand being stood back per hour from 6665ft (2031.49m) to 6479ft (1974.79m). A large volume of cuttings and fines was initially observed at the shakers gradually reducing.

The string was pulled out of hole wet from 6479ft (1974.79m) to 4404ft (1342.33m) with minor drag values being observed through the 4°/100ft section. The hole was circulated clean before running back in hole to 6595ft (2010.15m). The hole continued to be washed without rotation from 6659ft (2029.66m) to 7233ft (2204.61m) with the BHA components passing the bottom of the Balder formation before circulation and rotation was attempted.

The hole was circulated and parameters increased to 500gpm, 1000psi 140rpm and 8klbs torque before running in hole from 7233ft (2204.61 m) to 15950ft (4861.56m) without restrictions. From 15950ft (4861.56m) to 16100ft (4907.28m) the hole was washed down and bottom tagged with 5-10kftlbs. No losses were observed between 7233ft (2204.61m) to 16100ft (4907.28m). The hole was circulated clean with rotary staged up to 160rpm. An increase in the mud weight from 13.7ppg (1.64 SG) was observed with an increase of fines and cuttings at the shakers on the first bottoms up reducing considerably by the third bottoms up circulation.

The BHA was pulled out of hole standing back one stand every two hours to 15900ft (4846.32m), with the string being pulled out wet to 15027ft (4580.23m) with no restrictions. A flow check was performed with no losses or gains and a 20bbls slug pumped. The BHA continued to be pulled out of hole to 6845ft (2086.35m) where a 30klbs overpull was observed. The string was ran back in hole to 7680ft (2340.86m) with no restrictions and the hole circulated clean. Again cutting and fines were observed over the shakers gradually reducing by the second bottoms up.

Pulling out of hole continued from 7680ft (2340.86m) to 4404ft (1342.33m) with no restrictions noted. The hole was circulated clean, flow check and another 20bbl slug pumped. The string was pulled to surface with no problems.

9 5/8" Casing Run

The casing equipment was rigged up on the 15th August 2006, and running of the 9 5/8" casing commenced after an eccentric casing shoe was added to enable the casing to pass any small obstruction in the well. The casing was run in hole to 6095ft (1857.75m) where 20klb drag was observed. An attempt was made to work past the obstruction without success. Parameters were established, staged up and managed to work past obstruction washing down to 6747ft (2056.48m). Area between 6095ft (1857.75m) to 6747ft (2056.48m) was drilled with hole angles of 50° to 60° inclination and several doglegs of 4°/100ft.

Running in hole continued to 6826ft (2080.56m) where 20klbs drag was again observed. Circulation was attempted with the hole packing off with 42gpm and 300psi. The casing string was worked and tried to free pack off without success. The assembly was pulled out of hole to 6747ft (2056.48m) with one joint laid out on deck. The FAC toll was installed, circulation established and staged up to 214gpm, 300psi. Washing down commenced from 6747ft (2056.48m) to 7259ft (2212.54m) with slight packing off

observed. Running in hole continued to 16063ft (4896m) where the string was landed off, with only slight packoffs and drag recorded.

Cementing operations started on 18th August 2006 with the pressure testing of surface equipment prior to circulating 120% casing volume. Pumps were brought up in 10spm increments with 30spm, 730psi giving 80bbls/hr losses, 20spm, 640psi 60bbls/hr losses and 15spm, 16bbls/hr losses. After 50% of the casing volume had been circulated the decision was taken to start cementing due to losses. The cement slurry was pumped and top plug released. The cement was displaced with OBM with the first plug observed 50bbls early and the second plug not bumping. Approximately 75% losses observed from displacement during cement job with total losses at 1100bbls and 612bbls behind the casing string. Choke and manifold valves were tested whilst waiting for the cement to harden. The casing packoffs were installed and landed off on the 20th August 2006.

8 ½” Clean Out Run

15,966ft – 16,050ft MD
(9,322.17ft – 9357.6ft TVDSS)

4,866.43m – 4,892.04m MD
(2841.34m – 2852.19m TVDSS)

On the 21st August 2006, a 8 ½” clean out BHA was made up and run in hole to 15928ft (4854.85m) where a 10klbs set down was observed. Parameters were established and was washed down with 247gpm, 1650psi and the float collar tagged at 15966ft (4866.43m). Drilling of the float collar commenced to 15970ft (4867.65m) where erratic torque was observed. The string was worked through the float collar several times to ensure good passage. Washing and reaming continued to 16050ft (4892.04m) until no rotation could be made after making a connection. The string was pulled back a stand and rotation established before washing and reaming back down to 16050ft (4892.04m) where losses of up to 80bbls/hr were experienced. After circulating the hole clean the clean out BHA was pulled out of hole. It was decided to make up a cement stinger to perform squeeze job to remedy losses and possible loss of integrity at the shoe.

The cement squeeze job was performed squeezing 14.5bbls cement. The stinger was POOH and laid out on the 24th August.

8 ½” Hole Section

16,050ft – 18,052ft MD
(9,357.6ft – 10,362.1ft TVDSS)

4,892.04m – 5,502.25m MD
(2,852.19m – 3,158.33m TVDSS)

On the 24th August, the rotary steerable drilling assembly was made and run in hole with MWD carrying out a shallow pulse test. Running in hole continued to 14960ft (4559.80m) where a spillage of mud onto the BOP deck halted operations. The spill was contained and cleaned up with the problem being traced to a partially blocked flow line. Washing down then continued to 15618ft (4760.36m) where top of cement was tagged.

The casing was pressure tested to 3500psi and the drill in slipped and cut. The cement and shoe track was drilled from 15618ft (4760.36m) to 16100ft (4907.28m) and the string worked through the window several time to ensure good passage. Drilling continued from 16100ft (4907.28m) to 16317ft (4973.42m) where after taking a survey and making a connection, rotation of the string was lost. A 50klbs of drag was observed and was reduced by working the string however rotation still could not be established. The string was pulled back inside the shoe with excessive high torque reading were noted. Rotation was again attempted with success and the pipe worked to gain normal parameters. It was observed that the mud was out of specifications resulting from water contamination of the mud system and as such circulated and conditioned. After conditioning the mud, rotation was re-established and the string washed back to bottom. A power 'blackout' stopped operations until the problem could be rectified before drilling of the 8 ½" hole continued. From 16317ft (4973.42m) to 16926ft (5159.04m) drilling continued, however it was noticed that the volume of cuttings filling the skips suggested the hole was not being adequately cleaned. The hole was circulated clean whilst racking back a stand every 40 minutes to 16700ft (5090.16m).

Drilling was temporally halted due to a Platform General Alarm.

Running in hole commenced by washing down from 16700ft (5090.16m) to 16926ft (5159.04m) and drilling resumed. At 17307ft (5275.17m) the ECD was showing an increasing trend so bottoms up was circulated to reduce from 14.92ppg (1.78 SG) to 14.86ppg (1.78 SG). Drilling resumed 18052ft (5502.25m) where a torque spike was observed. After breaking through, immediate losses of up to 145bbbls/hr were observed. The string was pulled out of hole to 17993ft (5484.26m) and the flow rate reduced in stages from 530gpm to 450gpm with dynamic losses reducing to 8bbbls/hr. The hole was circulated clean reciprocating and rotating the string. Pressure was lost on one of the mud pumps and although the decision was initially made to continue drilling, a later decision was made to plug and abandon the well.

The string was washed back to bottom with no losses observed (440gpm, 2450psi) and bottoms up circulated two times. The well was flow checked and the string pulled out of hole to surface without incident.

Well Abandonment

On the 1st September 2006, a cement stinger was picked up and run in hole to set abandonment cement plugs plug between depths 18042ft (5499.20m) to 17292ft (5270.60m), 16382ft (4993.23m) to 16053ft (4892.95m) and 16053ft (4892.95) to 15553ft (4740.55m). (The second abandonment plug was found to be 317ft lower than expected and only 29ft inside the shoe so a third cement plug was set).

The well was plugged and suspended on the on the 9th September 2006.

6.0 GEOLOGY SUMMARY

6.1 211/19a-M75 (M31 RD) / NOR33/9-20S Formation Tops

6.1.1 Prognosed v Actual (Feet)

Formation Tops	Proposed Well Plan: M31RD Plan 1.91 Geodetic from surface						Diff. TVD
	Prognosed (Feet)			Actual (Feet)			
	MD	TVD	TVDSS	MD	TVD	TVDSS	
Tie in and kick off point	4600	-4145	-3960	4571	4126.45	3941.45	-18.55
Top Rogaland Group							
Top Balder Fm	6650	-5524	-5339	6716	5529	5344	+5
Top Sele Fm	7169	-5772	-5587	Not Seen			-
Top Lista Fm	7579	-5945	-5760	7025	5665.24	5480.24	-279.76
Top Våle Fm	8284	-6246	-6061	8212	6180.9	5995.9	-65.1
Top Shetland Group	8363	-6277	-6092	8327	6230.96	6045.96	-46.04
12 ¼” Section TD	16100	-9553	-9368	16100	9563.81	9378.81	+10.81
Top Cromer Knoll Group							
Top Rodby Fm	16522	-9732	-9547	16450	9721.51	9536.51	-10.49
Top Sola Fm	16562	-9750	-9565	16500	9744.8	9559.8	-5.2
Top Valhall Fm	Not Prognosed			16739	9854.63	9669.63	-
Top Mime Fm	16949	-9913	-9728	16960	9955.58	9770.58	+42.58
Top Viking Group/BCU							
Top Draupne Fm (Kimmeridge Clay Fm)	17013	-9980	-9795	17094.99	10017.45	9832.45	+37.45
Top Munin Fm Top possible U Jurassic Sst	17156	-10006	-9821	Not Seen			-
Top Heather Fm	17434	-10150	-9965	17449.72	10194.71	10009.66	+44.71
Target 1							
Top Tarbert Fm	17498	-10185	-10000	17684.92	10328.93	10143.94	+143.94
Top Ness Fm	Not Prognosed			17877.37	10440.31	10255.31	-
Mid Ness (MNS)	Not Prognosed			17919.57	10465.51	10280.51	-
Lower Ness	Not Prognosed			17948.40	10483.16	10298.16	-
Top Etive Fm	Not Prognosed			17970.39	10496.62	10311.57	-
OWC=ODT M70	17871	-10398	-10213	Not Drilled to			-
Top Dunlin Group	18681	-10951	-10766	Not Drilled to			-
Total Depth	18850	-11085	-10900	18052	10547.1	10362.1	-537.9

6.1.2 Prognosed v Actual (Meters)

Formation Tops	Proposed Well Plan: M31RD Plan 1.91 Geodetic from surface						Diff. TVD
	Prognosed (Meters)			Actual (Meters)			
	MD	TVD	TVDSS	MD	TVD	TVDSS	
Tie in and kick off point	1402	-1263	-1207	1393.24	1257.7	-1201.35	-5.65
Top Rogaland Group							
Top Balder Fm	2027	-1684	-1627	2046.99	1685.21	-1628.83	-1.83
Top Sele Fm	2185	-1759	-1703	Not Seen			-
Top Lista Fm	2310	-1812	-1756	2140.99	1726.75	-1670.37	-85.63
Top Våle Fm	2525	-1904	-1847	2502.99	1883.94	-1827.55	-19.45
Top Shetland Group	2549	-1913	-1857	2537.99	1899.19	-1842.81	-14.19
12 ¼” Section TD	4907	-2912	-2855	4907.28	2914.6	-2858.29	+3.29
Top Cromer Knoll Group							
Top Rodby Fm	5036	-2966	-2910	5013.96	2963.11	-2906.73	-3.27
Top Sola Fm	5048	-2972	-2915	5029.2	2969.7	-2913.4	-1.6
Top Valhall Fm	Not Prognosed			5102.05	3003.69	-2947.3	-
Top Mime Fm	5166	-3021	-2965	5169.4	3054.2	-2978.07	+12.9
Top Viking Group/BCU							
Top Draupne Fm (Kimmeridge Clay Fm)	5186	-3042	-2986	5210.57	3053.3	-2996.94	+10.94
Top Munin Fm Top possible U Jurassic Sst	5229	-3050	-2993	Not Seen			-
Top Heather Fm	5314	-3094	-3037	5318.69	3107.4	-3050.94	+13.94
Target 1							
Top Tarbert Fm	5333	-3104	-3048	5390.38	3148.3	-3091.88	+43.88
Top Ness Fm	Not Prognosed			5449.04	3182.3	-3125.89	-
Mid Ness (MNS)	Not Prognosed			5461.90	3189.9	-3133.49	-
Lower Ness	Not Prognosed			5470.69	3195.3	-3138.86	-
Top Etive Fm	Not Prognosed			5477.39	3199.4	-3142.96	-
OWC=ODT M70	5447	3169	-3113	Not Drilled to			-
Top Dunlin Group	5694	3337	-3281	Not Drilled to			-
Total Depth	5745	-3379	-3322	5502.25	3214.7	-3158.36	-163.64

6.2 211/19a-M75 (M31 RD) / NOR33/9-20S Cuttings and Formation Summary

CRETACEOUS Shetland Group Undifferentiated

12300ft (Start of geologging) – 16450ft MD
(7762ft – 9536.5ft TVDSS)

3749.04m – 5013.96m MD
(2365.85m – 2906.73m TVDSS)

Massive bedded sequence of Claystones with occasional limestone stringers.

Claystone: Dark grey to dark blue grey, becoming light grey to light blue grey, moderately firm, occasional hard, sub blocky to angular, predominantly homogeneous, non to slightly

swelling, non to moderately calcareous, trace carbonaceous material, trace pyrite.

Limestone: (mudstone) very pale brown to orange brown, soft, amorphous occasionally friable, microcrystalline, no visible porosity.

Interval MD	ROPft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
12300ft to 16450ft	294	18	64	1.2	No chromatograph on rig					

Depth MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
12300ft to 16450ft	No peaks observed		No chromatograph on rig					

UPPER JURASSIC

Cromer Knoll Group

Rodby Formation

16450ft – 16500ft MD
(9536.5ft – 9559.8ft TVDSS)

5013.96m – 5029.2m MD
(2906.73m – 2913.4m TVDSS)

Identified by an initial decrease in Gamma Ray reading at the top (compared to those of the overlying Shetland Claystones.) a decrease in porosity and a corresponding increase in density can also be observed. The formation consists of interbedded red and grey massive bedded claystones and an increase in limestone stringers.

Claystone 1: Predominantly Red brown to pale red brown, moderately firm to hard, blocky, occasionally angular, predominantly homogeneous, grading to siltstone in places, very calcareous, trace glauconite.

Claystone 2: Medium to light grey, occasionally blue grey, moderately firm to hard, blocky to angular, homogeneous, slightly swelling, slight to moderately calcareous, trace glauconite

Limestone: (mudstone), off white to grey white, very pale grey, rarely yellow brown, soft to firm, sub blocky to angular, amorphous, microcrystalline, slightly argillaceous, no visible porosity.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16450 to 16500	57.7	17.15	31.9	0.76	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
	No Peaks observed		No chromatograph on rig					

Cromer Knoll Group
Sola Formation

16500ft – 16739ft MD
(9559.8ft – 9669.63ft TVDSS)

5029.2m – 5102.05m MD
(2913.4m – 2947.3m TVDSS)

Identified by the absence of red brown claystone of the overlying Rodby and increasing gamma ray readings coinciding with a further decrease in porosity and increase in density readings. The Sola formation is and massive bedded claystone sequence with occasional limestone stringers and tuff beds.

Claystone 1: Predominantly dark grey to dark grey/black, with occasional blue grey, generally very firm to hard, blocky, splintery and sub angular in places, weakly to non calcareous, commonly grading to siltstone in places.

Claystone 2: Common red brown to brown, moderately firm to firm, sub blocky to blocky, weakly to moderately calcareous, fairly homogenous commonly silty.

Limestone: Yellow/brown, tan, off white, moderately hard to very hard, brittle, sub blocky to blocky, microcrystalline, very argillaceous in places.

Tuff: Light grey, light grey/green with grey to dark grey speckles, very soft, earthy, crumbly.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16500 to 16739	68	17	48	0.75	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16500 to 16739	No peaks observed		No chromatograph on rig					

Cromer Knoll Group
Lower Valhall Formation

16739ft – 16960ft MD
(9669.63ft – 9,770.58ft TVDSS)

5102.05m - 5169.4 m MD
(2947.3m – 2978m TVDSS)

Picked on a high gamma ray peak and the presence of red brown calcareous claystones/siltstones with an increase in limestone stringers.

Claystone 1: Red brown predominantly firm to moderately hard, soft in places, sub blocky to blocky, commonly brittle, fissile in places, occasionally soft and crumbly, non to weakly calcareous, commonly grading to siltstone in places.

Claystone 2: Dark grey predominantly firm to moderately hard, soft in places, sub blocky to blocky, commonly brittle, fissile in places, occasionally soft and crumbly, non to weakly calcareous, commonly grading to siltstone in places

Limestone: Yellow/brown, tan, off white, moderately hard to very hard, brittle, sub blocky to blocky, microcrystalline, very argillaceous in places

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16739 to 16960	60	29	42		No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16739 to 16960	No peaks observed		No chromatograph on rig					

Cromer Knoll Group
Mime Formation

16960ft – 17094.99ft MD
(9770.58ft – 9832.45ft TVDSS)

5169.4m – 5211m MD
(2978m – 2996.94m TVDSS)

Denoted by the increase percentage of limestone (up to 100%) The formation is characterised by an overall decreasing gamma ray trend, decreased porosity and increase density readings. The sequence is interbedded with siltstone and claystone at the top becoming massive bedded limestones at the base.

Limestone: (mudstone) very pale grey, grey brown, and occasionally pale blue grey, moderately firm to hard, sub blocky to

angular, splintery in places, microcrystalline, very argillaceous, no visible porosity.

Trace Claystone 1: Red brown predominantly firm to moderately hard, soft in places, sub blocky to blocky, commonly brittle, fissile in places, occasionally soft and crumbly, non to weakly calcareous, commonly grading to siltstone in places.

Trace Claystone 2: Dark grey predominantly firm to moderately hard, soft in places, sub blocky to blocky, commonly brittle, fissile in places, occasionally soft and crumbly, non to weakly calcareous, commonly grading to siltstone in places

Interval ft MD	ROP ft/hr			TG %	Chromatograph ppm					
	Max	Min	Avg		C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16960 to 17095	61	17	26	0.97	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
16960 to 17095	No peaks observed		No chromatograph on rig					

Viking Group

Draupne (Kimmeridge Clay Formation)

17094.99ft – 17449.72ft MD
(9832.45ft – 10009.71ft TVDSS)

5210.57m – 5318.69m MD
(2996.94m – 3050.94m TVDSS)

Massive bedded sequence of organic rich claystone with occasional limestone and sandstone stringers. The Draupne (Kimmeridge Clay) formation is characterised by very high gamma reading of above 200api.

Claystone: Predominantly medium grey to grey, grey brown, dark grey, grey black in places, occasional red brown to brown types, soft to moderately firm, crumbly, earthy texture, sub blocky to blocky, silty to commonly argillaceous in parts, micro-micaceous, weakly calcareous.

Trace Limestone: (mudstone), off white, very pale grey, firm to moderately hard, sub blocky to blocky, commonly earthy texture with argillaceous micro lamination, occasional micro crystalline

Trace Sandstone: Translucent to transparent, opaque, pale grey, loose and uncemented, unconsolidated, well sorted, spherical.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17095 to 17450	67	9	30	1.0	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17095 to 17450	No peaks observed		No chromatograph on rig					

Viking Group
Heather Formation

17449.72ft – 17684.92ft MD
(10009.71ft – 10143.93ft TVDSS)

5318.69m – 5390.38m MD
(3050.94m – 3091.88m TVDSS)

Massive bedded sequence of heterogeneous claystone and siltstone with an increasing occurrence of limestone and sandstone stringers toward the base of the sequence. The top is identified by a decrease in gamma ray values compared to those of the Draupne and a decrease in porosity and increase in density reading compared to those of the overlying Draupne.

Claystone: Dark grey brown to light grey brown, occasionally very pale brown, soft to moderately firm, splintery in places, waxy, predominantly homogeneous, grading to siltstone in places, trace carbonaceous material, trace pyrite.

Limestone: (mudstone), grey to very pale grey, off white, soft to moderately firm, amorphous to sub blocky, microcrystalline, very argillaceous, arenaceous, no visible porosity.

Siltstone: Pale brown, medium brown, pale grey, firm, sub blocky, crumbly, friable, argillaceous, micro-micaceous, trace glauconite, trace pyrite

Sandstone: Pale grey, pale cream to off white, predominantly seen as rock flour but commonly seen as poor to weakly consolidated grains, loose, friable, poor cement, sub round to round, very fine to fine grained, moderate inter-granular porosity, non calcareous.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17450 to 17685	80	22	45	1.28	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17450 to 17685	No peaks observed		No chromatograph on rig					

BRENT Group
Tarbert Formation

17684.92ft – 17877.37ft MD
(10143.93ft – 10255.31ft TVDSS)

5390.38m – 5449.04m MD
(3091.88m – 3125.89m TVDSS)

The Tarbert formation consists of interbedded claystones, siltstones and sandstones. identified be a significant decrease in gamma ray values coupled with decreasing density values. Increased background gas levels are also observed.

Sandstone: Pale grey to pale cream grey, predominantly seen as rock flour, but commonly as weakly consolidated grains, very fine to fine grain, moderately well sorted, sub rounded to round, moderately firm, friable, poor cement, fair inter-granular porosity, common pyrite, no show.

Claystone: Predominantly medium to dark grey, moderately firm to firm, occasionally moderately hard, sub blocky to blocky, commonly seen grading to siltstone in places, slightly calcareous.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17683.67 - 17877.24	61.4	20.9	38.8	1.68	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17683.67 - 17877.24	No peaks observed		No chromatograph on rig					

BRENT Group
Ness Formation

17877.37ft – 17970.39ft MD
(10255.31ft – 10311.62ft TVDSS)

5449.04m – 5477.39m MD
(3125.89m – 3142.96m TVDSS)

Intra Ness Members

Mid Ness: 17919.57ft – 17948.4ft MD (10280.51ft – 10298.16ft TVDSS)
5461.9m – 5470.69m MD (3133.49m – 3138.86m TVDSS)

Lower Ness: 17948.4ft – 17970.39ft MD (10298.16ft – 10311.64ft TVDSS)
 5470.69m – 5477.39m MD (3138.86m – 3142.96m TVDSS)

A thick interbedded sequence of Sandstones, siltstones, claystones and coal beds, a slight decrease in background gas occurs in this sequence coupled with complex LWD curve responses and erratic ROP's owing to the interbedded nature of the formation.

Sandstone: Light brown, light grey brown, predominantly seen as rock flour, with common weakly cemented consolidated types, friable, fine grained, sub round to round, sub spherical, moderate sorting, moderate inter-granular porosity, no show, no stain, commonly argillaceous, trace pyrite.

Claystone: Predominantly medium to dark grey, moderately firm to firm, occasionally moderately hard, sub blocky to blocky, commonly seen grading to siltstone in places, slightly calcareous.

Coal: Dark brown to dark brown black, moderately firm to hard, sub blocky to blocky, brittle, splintery, conchoidal fracture, occasional very fine micro-pyrite lamination, vitreous lustre.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17877.24 – 17969.11	64.1	13.4	38	1.2	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C ₅
17877.24 – 17969.11	No peaks observed		No chromatograph on rig					

BRENT Group **Etive Formation**

17970.39ft – 18052ft MD
 (10311.57ft – 10,62.1ft TVDSS)

5477.39m – 5502.25m MD
 (3142.96m – 3158.36m TVDSS)

Identified by the absence of coal and decrease in percentage of argillaceous material the Etive formation is a massive bedded sequence of clean low gamma response sandstone.

Sandstone: Predominantly seen as rock flour, very pale brown, grey white, very pale grey, grey brown, moderately firm, sub angular, friable and amorphous, very argillaceous.

Trace Loose Quartz: Transparent, translucent, opaque, very pale orange, very pale yellow, white, moderately fine grained, moderately

sorted, sub round, spherical, weak calcareous cement in places, no visible porosity, no show.

Siltstone/Claystone:

Dark grey to dark grey brown, moderately firm to firm, amorphous, sub blocky, occasionally angular, occasional friable, heterogeneous, very argillaceous, no calcareous, non swelling, very carbonaceous.

Interval ft MD	ROP ft/hr			TG	Chromatograph ppm					
	Max	Min	Avg	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C5
17969.11 - 18052	51.1	18.3	33.47	1.11	No chromatograph on rig					

Depth ft MD	Gas Peak Type	%	C ₁	C ₂	C ₃	iC ₄	nC ₄	C5
17969.11 - 18052	No peaks observed		No chromatograph on rig					

6.3 211/19a-M75 (M31 RD) / NOR33/9-20S MWD / LWD Logging Runs

Schlumberger performed real-time and recorded mode LWD as follows:

Hole Size	Run No.	Tool No.	Service Level	Start Depth	End Depth	SENSOR OFFSETS (ft)							Max Temp °F	Comments
						GR	RES	PWD	INC	D&I	POR	DEN		
12 ¼"	1		D&I	4551ft (1387.14m)	4591 (1399.33m)									Whipstock Run
12 ¼"	2	ARC8126 MWDDEFP70	D&I / MWD	4591ft (1399.33m)	16100ft (4907.28m)	38.63	38.46	36.14	-	63.17	-	-	214	POOH section TD no failures
8 ½"	3	ARC1197 MWD AEEF01 ADN40774	Triple Combo	16100ft (4907.28m)	18052 (5502.25m)	37.70	37.53	35.20	-	67.21	95.90	92.65	246	POOH TD well no failures

MWD/LWD Abbreviation Listing:-

INC = Inclinator; PWD = Pressure While Drilling; GR = Gamma Ray; RES = Resistivity;

D&I = Directional with Vibration Stick-Slip; DEN= Density; POR = Neutron.

6.4 211/19a-M75 (M31 RD) / NOR33/9-20S Wireline Logging Runs

The well plan included running a TLC DSI/MDT (with contingent PVT/ Water samples).

No wireline logging was performed before or after plugging back and suspending the well. This is due to the quality of the reservoir seen on the LWD data while drilling and the losses taken at TD.

7.0 APPRAISAL OF SERVICES

7.1 Appraisal of Mudlogging Services

HRH Geologging

211/19a-M75 (M31 RD) / NOR33/9-20S

Geologgers:	Steven Chapman
	Craig Still
	Stephanie Nwoko
	Sharon Houston
Wellsite Geologists	Robin Greenly
	Pete Mercer
	Rob Reynolds (Datalog)

One HRH Wellsite Geologist and two HRH Geologgers arrived on the platform on the 2nd August 2006, and commenced the collection of samples. Three sets of bulk cuttings were collected at 30ft intervals from Geologging start depth of 12,330ft (3758.18m) MD to 16,800ft (5120.64m) MD, and at 10ft (3.05m) intervals from 16,800ft (5120.64m) MD to 18,052ft (5502.25m) MD (TD).

A 1:500 scale measured depth lithology log was produced while Geologging. This was integrated into the 1:500 scale measured depth composite log.

Drilling and gas data were taken from the onboard Martin Decker Totco System, and were imported into Winlog.

The MD Totco system malfunctioned due to intermittent rig power downs and therefore no reliable drilling data could be obtained during drilling the 8 ½" hole section, because the system required recalibration. Therefore no drilling data was imported into Winlog during this section.

The gas system external equipment remained serviceable for both 12 ½" section and the 8 ½" section. The gas system was serviced and calibrated prior to drilling the 8 ½" section. The gas system was not affected and needed no recalibration, however gas reading taken from the MD Totco Drilgas unit was hand inputted into the Winlog data base to produce gas curves in both 12 ¼" sections and 8 ½" sections.

7.2 Appraisal of MWD / LWD Logging Service

Schlumberger

LWD/MWD Engineers	Peter Bisset	MWD
	Scott Lawrie	LWD
	Andy Lea	LWD
	Scott Mabo	LWD
	Akikat Makhmovin	MWD
	James Pratt	MWD

Schlumberger were contracted to provide real time and memory LWD data.

For the M75 12 ½” section direction and inclination, and MWD Gamma Ray / Resistivity were used until section TD at 16,100ft (4907.28m) MD.

For the M75 well 8½” hole section, a full suite of Gamma Ray, Resistivity, and Neutron Density tools were used from casing window to TD on both runs.

As per requirements the tools were set to record 2 samples per foot in real time. This meant the rate of penetration was controlled to 50ft/hr through the reservoir section. No tool failures were experienced.

Intermittent signal problems from the ARC Gamma Ray tool between 17,100ft (5212.08m) MD to 17,400ft (5303.52m) MD gave poor data in real time.

The Anadril Schlumberger Interact system was switched on from 17,000ft (5181.6m) MD and proved invaluable to the wellsite geologist enabling rapid formation top evaluation. Some minor network problems occurred which were attributed to rig communications, the system performed well throughout the 8 ½” hole section.

Schlumberger provided data in a prompt and efficient manner.

A Full LWD report can be seen in Appendix 3 of this report.

8.0 SAMPLES COLLECTED

Details of the cutting samples collected are as follows. Each sample was described at well site and descriptions included in the Lithology log.

8.1 211/19a-M75 (M31 RD) / NOR33/9-20S Sample Inventory

Three wet samples and one dry were caught and bagged at 30ft (9.14m) intervals from 12300ft (3749.04m) to 16800ft (5120.64m), and 10ft (3.05m) samples from 16800ft (5120.64m) to 18052ft (5502.25) TD.

Statoil

WET SAMPLES SETS A & B

Box No	Depth Interval ft	Sample Interval ft
1	12420 to 13260	30
2	13260 to 14040	30
3	14040 to 15060	30
4	15060 to 15960	30
5	15960 to 16790	30
6	16790 to 17120	10
7	17120 to 17440	10
8	17440 to 17820	10
9	17820 to 18052	10

NPD

WET SAMPLES SET C

Box No	Depth Interval ft	Sample Interval ft
1	12420 to 13260	30
2	13260 to 14040	30
3	14040 to 15060	30
4	15060 to 15960	30
5	15960 to 16790	30
6	16790 to 17120	10
7	17120 to 17440	10
8	17440 to 17820	10
9	17820 to 18052	10

DRY SAMPLES

Box No	Depth Interval ft	Sample Interval ft
1	N/A to be processed and forwarded	30 and 10ft
2	N/A to be processed and forwarded	10ft
3	N/A to be processed and forwarded	10ft

Wet samples A and B located at:

Attn Jan Meltveit
Res Lab
Nikkelveien 13
4313 Sandnes
Norway

Wet samples C located at:

Attn Borehullsarkiv
OD
Postboks 600
4001 Stavanger
Norway

Dry Samples located at: -

Attn Jan Meltveit
Res Lab
Nikkelveien 13
4313 Sandnes
Norway

9.0 CUTTINGS DESCRIPTIONS

Details of the cutting samples collected are as follows:

Each sample was described at well site and descriptions included in the Lithology log.

9.1 211/19a-M75 (M31 RD) / NOR33/9-20S Cuttings Description Table

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
12330	100	CLAYSTONE: Medium grey, medium light grey, blocky, splintery, firm to moderately hard.
12360	100 trace	CLAYSTONE: As above. Occasionally very light grey DOLOMITE: Off white, pale grey, blocky, soft to firm, micro-crystalline.
12390	100	CLAYSTONE: As above.
12420	100	CLAYSTONE: As above.
12450	100	CLAYSTONE: Medium grey to medium light grey, blocky to sub-blocky, firm, amorphous
12480	100 trace	CLAYSTONE: As above. Occasionally firm DOLOMITE: Off white, pale grey, blocky, soft to firm, micro-crystalline.
12510	100 trace	CLAYSTONE: As above. DOLOMITE: As above.
12540	100	CLAYSTONE: As above.
12570	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. LIMESTONE: Pale grey to off white, firm, blocky to splintery, micro-crystalline.
12600	100 trace	CLAYSTONE: As above. DOLOMITE: As above.
12630	100 trace	CLAYSTONE: Medium grey to medium light grey, blocky to splintery, moderately soft to firm, occasionally hard. DOLOMITE: Pale yellow orange to pale grey, firm to moderately firm, crumbly to blocky, crypto-crystalline.
12660	100 trace	CLAYSTONE: As above. DOLOMITE: As above.
12690	100 trace	CLAYSTONE: As above. DOLOMITE: As above.
12720	100 trace	CLAYSTONE: As above. DOLOMITE: As above.
12750	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: Light grey to very light grey, sub-rounded, firm to slightly hard, good calcareous cement, occasionally glauconitic, no visible porosity.
12780	100 trace	CLAYSTONE: As above. DOLOMITE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	trace	SILTSTONE: As above.
12810	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
12840	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
12870	90 10 trace trace	CLAYSTONE: As above. Occasionally greyish brown SILTSTONE: As above. DOLOMITE: As above. PYRITE
12900	100	CLAYSTONE: As above.
12930	100	CLAYSTONE: As above.
12960	90 10 trace	CLAYSTONE: As above. SILTSTONE: As above. DOLOMITE: As above.
12990	100 trace	CLAYSTONE: Dark grey to light grey, blocky to sub-blocky, firm to slightly hard, occasionally brittle, occasionally splintery, silty in places. PYRITE
13020	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13050	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13080	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13110	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13140	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13170	100 trace trace	CLAYSTONE: As above. DOLOMITE: As above. SILTSTONE: As above.
13200	100 trace	CLAYSTONE: Dark grey to medium dark grey, occasionally light grey, sub-blocky, firm to moderately hard, occasionally splintery. SILTSTONE: Light grey to very light grey, occasionally dark grey, sub-rounded to rounded, firm to hard, occasional calcareous cement, no visible porosity.
13230	100 trace	CLAYSTONE: As above. LIMESTONE: Off white to pale yellow orange, hard to

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
		firm, blocky to sub-blocky, splintery, micro-crystalline, crypto-crystalline, occasionally crumbly, DOLOMITIC in places, occasionally dark grey.
13260	90 10	CLAYSTONE: As above. LIMESTONE: As above.
13290	90 10	CLAYSTONE: As above. LIMESTONE: As above.
13320	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13350	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13380	90 10	CLAYSTONE: Medium dark grey, brown grey, occasionally dark grey, medium light grey, soft to firm, blocky, crumbly in places, splintery in places, occasionally silty. LIMESTONE: As above, becoming increasingly white.
13410	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13440	90 10	CLAYSTONE: As above. LIMESTONE: As above.
13470	80 20	CLAYSTONE: As above. LIMESTONE: As above.
13500	80 20	CLAYSTONE: As above. LIMESTONE: As above.
13530	90 10	CLAYSTONE: Medium dark grey to brown grey, occasionally dark grey, occasionally light grey, blocky, splintery, firm to medium hard, occasionally soft, occasionally crumbly, silty in places. LIMESTONE: White to very light grey, pale yellow orange, firm to hard, occasionally soft, blocky to crumbly, micro-crystalline to crypto-crystalline, DOLOMITIC in places.
13560	90 10	CLAYSTONE: As above. LIMESTONE: As above.
13590	100 trace trace	CLAYSTONE: Medium grey to dark grey, rarely light grey, occasionally greyish green, blocky to sub-blocky, firm to slightly hard, occasionally soft and crumbly, silty in places. DOLOMITE: As above. CHERT
13620	100	CLAYSTONE: As above.
13650	100	CLAYSTONE: As above.
13680	100 trace	CLAYSTONE: As above. LIMESTONE: White to very light grey, firm, splintery, blocky, micro-crystalline to crypto-crystalline, argillaceous micro-laminations.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
13710	100 trace	CLAYSTONE: As above. LIMESTONE: As above, occasionally light yellow
13740	100	CLAYSTONE: As above.
13770	100	CLAYSTONE: As above.
13800	100	CLAYSTONE: As above.
13830	100	CLAYSTONE: As above.
13860	100 trace	CLAYSTONE: Medium grey to dark grey, occasionally greenish grey, blocky, firm to slightly hard, occasionally brittle, rarely silty. LIMESTONE: As above.
13890	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13920	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13950	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
13980	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14010	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14040	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14070	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14100	100	CLAYSTONE: Dark grey to medium dark grey, brown grey, firm to hard, occasionally soft, blocky, splintery, occasionally platy, silty in places.
14130	90 10	CLAYSTONE: As above, trace black carbonaceous specks. LIMESTONE: Very light grey to pale yellow orange, firm, crumbly to blocky, dark argillaceous laminations, micro-crystalline.
14160	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14190	100 trace	CLAYSTONE: As above, increasing light grey. LIMESTONE: As above.
14220	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
14250	100	CLAYSTONE: Medium to dark grey, brown grey, occasionally light grey, firm to hard, soft in places, blocky to splintery, occasionally platy, silty in places, occasionally black carbonaceous specks.
14280	100	CLAYSTONE: As above.
14310	100	CLAYSTONE: As above.
14340	100	CLAYSTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
14370	100	CLAYSTONE: As above.
14400	100 trace	CLAYSTONE: As above. LIMESTONE: Pale grey to light grey, pale yellow orange, firm to hard, soft in places, crumbly to blocky, micro-crystalline, DOLOMITIC in places.
14430	100	CLAYSTONE: As above.
14460	100	CLAYSTONE: As above.
14490	100	CLAYSTONE: As above.
14520	100	CLAYSTONE: Medium dark grey to dark grey, firm to slightly hard, blocky to splintery, silty in places.
14550	100	CLAYSTONE: As above.
14580	100	CLAYSTONE: As above.
14610	100	CLAYSTONE: As above.
14640	100	CLAYSTONE: As above.
14670	100	CLAYSTONE: As above.
14700	100	CLAYSTONE: Dark grey to medium grey, light grey, occasionally brown grey, firm to hard, soft in places, blocky.
14730	100	CLAYSTONE: As above.
14760	100	CLAYSTONE: As above, slightly calcareous
14790	100	CLAYSTONE: As above.
14820	100	CLAYSTONE: As above.
14850	100	CLAYSTONE: As above.
14880	100	CLAYSTONE: As above.
14910	100 trace	CLAYSTONE: Medium dark grey to dark grey, brown grey, light grey, firm to hard, soft in places, blocky to splintery, silty in places, slightly calcareous in places. LIMESTONE: White to very light grey, pale yellow orange, firm, occasionally soft, micro-crystalline, DOLOMITIC in places.
14940	100	CLAYSTONE: As above.
14970	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15000	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15030	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15060	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15090	100 trace	CLAYSTONE: Medium grey to dark grey, firm to slightly hard, soft in places, blocky to sub-blocky, occasionally brittle, rarely silty, slightly calcareous in places. LIMESTONE: As above.
15120	100 trace	CLAYSTONE: As above. LIMESTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
15150	100	CLAYSTONE: As above.
15180	100	CLAYSTONE: As above.
15210	100	CLAYSTONE: Medium grey to dark grey, blocky to sub-blocky, firm to slightly hard, brittle in places, occasionally splintery, calcareous.
15240	100	CLAYSTONE: As above.
15270	100	CLAYSTONE: As above.
15300	100	CLAYSTONE: As above.
15330	100	CLAYSTONE: As above.
15360	100 trace	CLAYSTONE: As above. LIMESTONE: Pale yellow to light brown, soft to slightly firm, blocky, micro-crystalline, DOLOMITIC in places.
15390	100 trace	CLAYSTONE: Medium grey to dark grey, occasionally greyish green, blocky to sub-blocky, firm to slightly hard, occasionally soft, brittle in places, occasionally splintery, calcareous. LIMESTONE: As above.
15420	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15450	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15480	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15510	100 trace	CLAYSTONE: As above, moderately calcareous. LIMESTONE: As above.
15540	100 trace	CLAYSTONE: Medium light grey to medium dark grey, brown grey, firm to hard, blocky to splintery, moderately calcareous, slightly silty in places. LIMESTONE: White to pale yellow orange, firm to occasionally soft, blocky to crumbly, micro-crystalline, DOLOMITIC in places.
15570	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15600	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15630	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15660	100 trace	CLAYSTONE: As above. LIMESTONE: As above, good trace.
15690	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15720	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15750	100 trace	CLAYSTONE: As above. LIMESTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
15780	90 10	CLAYSTONE: Medium dark grey to dark grey, light grey, brown grey, firm to hard, blocky, splintery, calcareous, slightly silty in places. LIMESTONE: Off white to buff, pale yellow orange, blocky to crumbly, soft to firm, micro-crystalline, slightly DOLOMITIC in places.
15810	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15840	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15870	100 trace	CLAYSTONE: Medium grey to dark grey, occasionally greyish green, sub-blocky, occasionally blocky, firm to slightly hard, brittle, calcareous. LIMESTONE: Off white to cream, buff, firm to soft, blocky, crumbly, micro-crystalline, DOLOMITIC in places.
15900	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15930	100 trace	CLAYSTONE: As above, increasing abundance of greyish green LIMESTONE: As above.
15960	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
15990	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16020	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16050	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16080	100 trace	CLAYSTONE: Medium grey to dark grey, occasionally greyish green, rarely light grey, blocky to sub-blocky, firm to slightly hard, rarely soft, brittle, calcareous in places. LIMESTONE: As above.
16100	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16130	100 trace	CLAYSTONE: Dark grey to dark blue grey, becoming light grey to light blue grey, moderately firm, occasional hard, sub blocky to angular, predominantly homogeneous, non to slightly swelling, non to moderately calcareous, trace carbonaceous material, trace pyrite. LIMESTONE: (mudstone) very pale brown to orange brown, soft, amorphous occasionally friable, microcrystalline, no visible porosity.
16160	100 trace	CLAYSTONE: As above. LIMESTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
16190	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16220	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16250	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16280	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16310	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16340	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16370	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16400	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16430	100 trace	CLAYSTONE: Rarely 1) Red brown to pale red brown, moderately firm to hard, blocky, occasionally angular, predominantly homogeneous, grading to siltstone in places, very calcareous, trace glauconite. Predominantly 2) Medium to light grey, occasionally blue grey, moderately firm to hard, blocky to angular, homogeneous, slightly swelling, slight to moderately calcareous, trace glauconite. LIMESTONE: (mudstone), off white to grey white, very pale grey, rarely yellow brown, soft to firm, sub blocky to angular, amorphous, microcrystalline, slightly argillaceous, no visible porosity.
16460	100 trace	CLAYSTONE: Predominantly 1) Red brown to pale red brown, moderately firm to hard, blocky, occasionally angular, predominantly homogeneous, grading to siltstone in places, very calcareous, trace glauconite. 2) Medium to light grey, occasionally blue grey, moderately firm to hard, blocky to angular, homogeneous, slightly swelling, slight to moderately calcareous, trace glauconite. LIMESTONE: (mudstone), off white to grey white, very pale grey, rarely yellow brown, soft to firm, sub blocky to angular, amorphous, microcrystalline, slightly argillaceous, no visible porosity.
16490	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16520	100	CLAYSTONE: 50-50% 1) Red brown to pale red brown, moderately firm to hard, blocky, occasionally angular, predominantly homogeneous, grading to siltstone in places, very

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	trace	calcareous, trace glauconite. 2) Predominantly grey to dark grey, with occasional blue grey to grey, moderately firm to hard, blocky to angular, homogeneous, slightly swelling, weak to slightly calcareous, trace glauconite. LIMESTONE: As above.
16550	100 trace Trace	CLAYSTONE: Predominantly dark grey to grey black, occasional moderate grey, occasional red/brown to brown, firm to moderately hard, sub blocky to blocky, commonly grading to siltstone in places, earthy texture, generally fissile but locally crumbly. LIMESTONE: As above. TUFF: pale grey, pale blue/grey, pale green/grey, amorphous, very soft, earthy.
16580	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. TUFF: As above.
16610	100 trace	CLAYSTONE: 1)predominantly dark grey to dark grey/black, with occasional blue grey, generally very firm to hard, blocky, splintery and sub angular in places, weakly to non calcareous, commonly grading to siltstone in places 2) common red brown to brown, moderately firm to firm, sub blocky to blocky, weakly to moderately calcareous, fairly homogenous commonly silty, LIMESTONE: As above.
16640	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16670	100 trace	CLAYSTONE: As above. with 70% red/brown to 30% dark grey LIMESTONE: As above.
16700	100 trace	CLAYSTONE: As above. with 90% red/brown to 10% dark grey LIMESTONE: As above.
16730	100 trace trace	CLAYSTONE: 50% red brown to 50% dark grey Predominantly firm to moderately hard, soft in places, sub blocky to blocky, commonly brittle, fissile in places, occasionally soft and crumbly, non to weakly calcareous, commonly grading to siltstone in places. LIMESTONE: yellow/brown, tan, off white, moderately hard to very hard, brittle, sub blocky to blocky, microcrystalline, very argillaceous in places TUFF: light grey, light grey/green with grey to dark grey speckles, very soft, earthy, crumbly.
16760	100 trace	CLAYSTONE: As above. but 80% red/brown to 20% dark grey

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
		LIMESTONE: As above.
16790	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. TUFF: light grey, light grey/green with grey to dark grey speckles, very soft, earthy, crumbly.
16800	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. TUFF: As above.
16810	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16820	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16830	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16840	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16850	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
16860	100	CLAYSTONE: light grey to dark grey, red brown in part, firm to moderately hard, soft in places, brittle, crumbly, sub blocky, silty in places, very calcareous.
16870	100 trace	CLAYSTONE: As above. LIMESTONE: yellow brown, firm to moderately hard, sub blocky, micro-crystalline, brittle, argillaceous.
16880	100	CLAYSTONE: As above.
16890	100	CLAYSTONE: As above.
16900		MISSED SAMPLE
16910	100	CLAYSTONE: As above.
16920	90 10	CLAYSTONE: medium to dark grey, red brown in places, but otherwise as described As above.. LIMESTONE: mudstone, off white, pale grey, firm to moderately hard, brittle, microcrystalline, sub blocky to blocky, silty to argillaceous, carbonaceous specks, grading to argillaceous claystone in places.
16930	90 10	CLAYSTONE: As above. LIMESTONE: As above.
16940	100	CLAYSTONE: predominantly red brown, rare dark grey to medium grey, firm to moderately hard and occasionally very hard, brittle, sub blocky to blocky, splintery break, silty in places, very calcareous
16950	80 20	CLAYSTONE: As above. LIMESTONE: mudstone, of white to pale grey, firm to moderately hard, rare soft types, sub blocky to blocky, amorphous, micro-crystalline, trace argillaceous micro-laminations
16960	40	CLAYSTONE: red brown, dark grey, moderately firm,

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	60	soft, sub blocky, amorphous, slightly marly, predominantly homogenous, grading to siltstone in places, moderately to very calcareous. LIMESTONE: mudstone, very pale grey, very pale blue grey, moderately firm to hard, sub blocky to angular, splintery break, micro-crystalline, very argillaceous, no visible porosity,
16970	70 30	CLAYSTONE: As above. LIMESTONE: As above.
16980	90 10	CLAYSTONE: As above. LIMESTONE: As above.
16990	100 trace	CLAYSTONE: dark blue grey, very dark grey, hard, firm, sub blocky to angular, predominantly homogenous but becoming slightly silty, carbonaceous, very calcareous. LIMESTONE: As above.
17000	100 trace	CLAYSTONE: predominantly red brown, rare very dark grey to grey black, firm to moderately hard, occasional soft, sub blocky to blocky, occasionally amorphous, silty in places, slightly to very calcareous. LIMESTONE: As above.
17010	20 80	CLAYSTONE: As above. LIMESTONE: As above.
17020	10 90	CLAYSTONE: As above. LIMESTONE: off white to pale grey, rare pale green grey, firm to moderately hard, occasionally soft, sub blocky, amorphous, crumbly in places, micro-crystalline, silty, carbonaceous specks, argillaceous laminations, very argillaceous.
17030	10 90	CLAYSTONE: As above. LIMESTONE: As above.
17040	10 90	CLAYSTONE: As above. LIMESTONE: As above.
17050	100 trace	LIMESTONE: As above. CLAYSTONE: As above.
17060	100 trace	LIMESTONE: As above. CLAYSTONE: As above.
17070	100	LIMESTONE: As above., with occasional very hard types.
17080	100	LIMESTONE: As above.
17090	100 trace	LIMESTONE: pale grey, off white, soft in places but predominantly firm to moderately hard, brittle, sub blocky to blocky, occasionally crumbly, argillaceous micro lamination. CLAYSTONE: red brown, medium brown, dark grey in places, firm to moderately hard, brittle, occasionally crumbly, sub blocky to blocky, silty, calcareous.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
17100		MISSED SAMPLE
17110	90 10	CLAYSTONE: predominantly grey brown to brown, grey to dark grey with occasional blue grey, soft to moderately firm, sub blocky to blocky, generally amorphous but commonly silty, argillaceous, carbonaceous, earthy texture, trace pyrite, weakly to moderately calcareous. LIMESTONE: As above.
17120	100	CLAYSTONE: As above.
17130		MISSED SAMPLE
17140	100 trace	CLAYSTONE: predominantly grey brown to brown, occasional blue grey, soft and sticky, sub blocky, generally amorphous, argillaceous, weakly calcareous, commonly silty, earthy texture, commonly marly in places, trace pyrite. LIMESTONE: As above.
17150	100	CLAYSTONE: As above.
17160	100	CLAYSTONE: As above.
17170	100 trace	CLAYSTONE: predominantly medium grey to grey, grey brown, dark grey, grey black in places, occasional red brown to brown types, soft to moderately firm, crumbly, earthy texture, sub blocky to blocky, silty to commonly argillaceous in parts, micro-micaceous, weakly calcareous. LIMESTONE: As above.
17180		MISSED SAMPLE
17190	100 Trace	CLAYSTONE: As above. LIMESTONE: As above.
17200	100 trace	CLAYSTONE: As above. but predominantly brown to grey brown in colour. LIMESTONE: As above.
17210	100	CLAYSTONE: As above. commonly silty and argillaceous
17220	100 trace	CLAYSTONE: As above. SANDSTONE: translucent to transparent, opaque, pale grey, loose and uncemented, unconsolidated, very grained, well sorted, spherical.
17230	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17240	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17250	100 trace trace	CLAYSTONE: As above. SANDSTONE: As above. LIMESTONE: mudstone, off white, very pale grey, firm to moderately hard, sub blocky to blocky, commonly earthy texture with argillaceous micro lamination, occasional micro crystalline

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
17260	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17270	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17280	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17290	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17300	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
17310	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
17320	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
17330	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17340	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17350	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17360	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17370	100 trace trace	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17380	80 trace 20	CLAYSTONE: As above. LIMESTONE: As above. SANDSTONE: As above.
17390	90 10 trace	CLAYSTONE: Grey black to dark grey, firm to moderately hard, occasionally soft, amorphous to sub blocky, blocky, heterogeneous, non calcareous, non to slightly swelling, abundant calcareous material, carbonaceous, grading to coarse silt in places. LIMESTONE: (mudstone), grey to very pale grey, off white, soft to moderately firm, amorphous to sub blocky, microcrystalline, very argillaceous, arenaceous, no visible porosity. SANDSTONE: Recovered as rock flour, grey to dark grey, soft, amorphous, friable, slightly calcareous, very argillaceous, very silty.
17400	100 trace	CLAYSTONE: As above. LIMESTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	trace	SANDSTONE: As above.
17410	100	CLAYSTONE: As above.
17420		Missed
17430		Missed
17440	100 trace	CLAYSTONE: Dark grey brown to light grey brown, occasionally very pale brown, soft to moderately firm, splintery in places waxy, predominantly homogeneous, grading to siltstone in places, trace carbonaceous material. LIMESTONE: (mudstone), grey to very pale grey, off white, soft to moderately firm, amorphous to sub blocky, microcrystalline, very argillaceous, arenaceous, no visible porosity.
17450		Missed
17460	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
17470		Missed
17480	100 trace	CLAYSTONE: As above. LIMESTONE: As above.
17490	100	CLAYSTONE: As above.
17500	100	CLAYSTONE: As above.
17510	100	CLAYSTONE: As above.
17520	100	CLAYSTONE: As above.
17530	100	CLAYSTONE: As above.
17540	100	CLAYSTONE: As above.
17550	100	CLAYSTONE: As above.
17560	100	CLAYSTONE: As above.
17570	100	CLAYSTONE: As above.
17580	100 trace	CLAYSTONE: As above. grading to Siltstone SILTSTONE: pale brown, medium brown, pale grey, firm, sub blocky, crumbly, friable, argillaceous, micaceous, trace glauconite, trace pyrite
17590	50 30 20	SLITSTONE: As above. CLAYSTONE: As above. SANDSTONE: pale grey, pale cream to off white, predominantly seen as rock flour but commonly seen as poor to weakly consolidated grains, loose, friable, poor cement, sub round to round, very fine to fine grained, moderate inter-granular porosity, non calcareous, no show.
17600		MISSED SAMPLE
17610	80 20	SANDSTONE: As above. CLAYSTONE: As above.
17620	70 30	SANDSTONE: As above. CLAYSTONE: As above.
17630	90	CLAYSTONE: medium grey to dark grey, soft to slightly

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	10	firm, occasional moderately firm, sub blocky to blocky, argillaceous, becoming silty in places, slightly calcareous. SANDSTONE: As above.
17640	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17650	100 trace	CLAYSTONE: As above. SANDSTONE: As above.
17660	100 trace trace	CLAYSTONE: As above. moderately firm to firm SANDSTONE: As above., pale green in places, argillaceous LIMESTONE: pale grey to off white, moderately firm to hard, brittle, sub blocky.
17670	90 10	CLAYSTONE: predominantly medium grey to dark grey, occasional red brown to brown, moderately firm to firm sub blocky to blocky, grading to silty claystone in places, slightly calcareous. SANDSTONE: pale brown to off white, pale cream, pale grey to pale green grey, argillaceous, predominantly seen as rock flour but common weak to moderately consolidated grains, poor cement, moderately firm, friable, fine grained, sub rounded to rounded, fair inter-granular porosity, common trace of fine disseminated pyrite, no show.
17680	80 20	SANDSTONE: As above. CLAYSTONE: As above.
17690	90 10	SANDSTONE: As above. CLAYSTONE: As above.
17700	90 10	SANDSTONE: As above. CLAYSTONE: As above.
17710	100	SANDSTONE: As above. with abundant trace of fine disseminated pyrite, trace carbonaceous material.
17720	80 20	SANDSTONE: pale grey to pale cream grey, predominantly seen as rock flour, but commonly as weakly consolidated grains, very fine to fine grain, moderately well sorted, sub rounded to round, moderately firm, friable, poor cement, fair inter-granular porosity, common pyrite, no show. CLAYSTONE: predominantly medium to dark grey, moderately firm to firm, occasionally moderately hard, sub blocky to blocky, commonly seen grading to siltstone in places, slightly calcareous.
17730	100 trace	SANDSTONE: As above. CLAYSTONE: As above. including blue grey to grey, dark blue grey, grey brown to brown.
17740	100	SANDSTONE: As above. commonly very pale creamy pink to pale grey in colour

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	trace	CLAYSTONE: As above.
17750		MISSED SAMPLE
17760	100 trace	SANDSTONE: As above. CLAYSTONE: As above.
17770		MISSED SAMPLE
17780	100 trace	SANDSTONE: light brown, light grey brown, predominantly seen as rock flour, with common weakly cemented consolidated types, friable, fine grained, sub round to round, sub spherical, moderate sorting, moderate inter-granular porosity, no show, no stain, commonly argillaceous, trace pyrite. CLAYSTONE: As above.
17790	100 trace	SANDSTONE: As above. with trace carbonaceous material CLAYSTONE: As above.
17800	100 trace	SANDSTONE: As above. CLAYSTONE: As above.
17810	100 trace	SANDSTONE: As above. CLAYSTONE: As above.
17820	100 trace trace	SANDSTONE: As above. CLAYSTONE: As above. COAL: dark brown to dark brown black, moderately firm to hard, sub blocky to blocky, brittle, splintery, conchoidal fracture, occasional very fine micro-pyrite lamination, vitreous lustre.
17830	100 trace trace	SANDSTONE: As above. CLAYSTONE: As above. COAL: As above.
17840	100 trace trace	SANDSTONE: pale grey, pale blue grey, grey to brown grey, grey brown, predominantly as rock flour, moderately firm to firm, sub blocky to blocky, occasional moderately consolidated, friable, poor cement, moderate visible porosity, sub round to round, moderate sphericity, fine grained, moderate sorting, occasional loose quartz grains, transparent to translucent, opaque, sub angular. CLAYSTONE: As above. COAL: As above.
17850	100 trace trace	SANDSTONE: As above. with common very pale grey. CLAYSTONE: As above. COAL: As above.
17860	100 trace trace	SANDSTONE: As above. CLAYSTONE: As above. COAL: As above.
17870	60 40	SANDSTONE: As above. CLAYSTONE: As above.
17880	80	CLAYSTONE: As above.

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
	20	SANDSTONE: As above.
17890	90 10	CLAYSTONE: As above. SANDSTONE: As above.
17900	100	CLAYSTONE: As above.
17910	60 40	SILTSTONE: dark grey to dark grey brown, moderately firm to firm, amorphous, sub blocky, occasionally angular, occasional friable, heterogeneous, very argillaceous, non calcareous, non swelling, very carbonaceous. SANDSTONE: predominantly seen as rock flour, very light brown to light grey brown, soft to moderately firm, amorphous, friable, non calcareous, very argillaceous, very silty, carbonaceous in places. Trace Loose QUARTZ: translucent, transparent, clear, white, very pale orange, very pale yellow, fine to medium grain, sub round to sub angular, spherical, no cement.
17920	70 30	CLAYSTONE: As above. SANDSTONE: As above.
17930		CLAYSTONE: As above. SANDSTONE: As above.
17940		MISSED SAMPLE
17950	60 40	CLAYSTONE: As above. SANDSTONE: As above.
17960	90 10 trace	SANDSTONE: As above. COAL: dark brown to dark brown black, moderately firm to hard, sub blocky to blocky, brittle, splintery, conchoidal fracture, occasional very fine micro-pyrite lamination, vitreous lustre. CLAYSTONE: As above.
17970		MISSED SAMPLE
17980	70 20 10	SANDSTONE: As above. CLAYSTONE: As above. COAL: dark brown to dark brown black, moderately firm to hard, sub blocky to blocky, brittle, splintery, conchoidal fracture, occasional very fine micro-pyrite lamination, vitreous lustre. CLAYSTONE: As above.
17990	70 20 10	SANDSTONE: As above. CLAYSTONE: As above. COAL: As above.
18000	90 10 trace	SANDSTONE: As above. CLAYSTONE: As above. LIMESTONE: As above.
18010	100	SANDSTONE: predominantly seen as rock flour, very light brown to light grey brown, soft to moderately firm, amorphous, friable, non calcareous, very argillaceous,

Depth (Feet)	%	Cuttings Sample Lithology Descriptions
		very silty, carbonaceous in places. Trace Loose QUARTZ: translucent, transparent, clear, white, very pale orange, very pale yellow, fine to medium grain, sub round to sub angular, spherical, no cement.
18020		MISSED SAMPLE
18030	100 trace	SANDSTONE: As above. but medium brown to brown white, trace finely disseminated pyrite, trace carbonaceous material. CLAYSTONE: As above.
18040	100	SANDSTONE: As above.
18050	100	SANDSTONE: As above.
18052 B/U	90 10 trace	SANDSTONE: predominantly seen as rock flour, very pale brown, grey white, very pale grey, grey brown, moderately firm, sub angular, friable and amorphous, very argillaceous Trace Loose QUARTZ: transparent, translucent, opaque, very pale orange, very pale yellow, white, moderately fine grained, moderately sorted, sub round, spherical, weak calcareous cement in places, no visible porosity, no show. SILTSTONE/CLAYSTONE: dark grey to dark grey brown, moderately firm to firm, amorphous, sub blocky, occasionally angular, occasional friable, heterogeneous, very argillaceous, no calcareous, non swelling, very carbonaceous. COAL: dark brown to dark brown black, moderately firm to hard, sub blocky to blocky, brittle, splintery, conchoidal fracture, occasional very fine micro-pyrite lamination, vitreous lustre.

10.0 MUD DATA

10.1 211/19a-M75 (M31 RD) / NOR33/9-20S Mud Data Table

Mud parameters maintained while drilling M75 are tabulated below.

Depth (ft)	MW ppg	MW SG	FV	PV/YP	GEL	Alk	Chlorides Whole mud Mg/l	Oil Water Ratio
12 ¼" Hole Section								
5475	12	1.43	27/17	68	10/14/16	689	21.37	56/25
6316	13	1.55	31/17	70	10/13/15	685	20.82	54/25
6780	13	1.55	31/22	69	11/15/18	659	21.37	53/25
7327	13	1.55	33/17	69	10/16/19	748	21.1	53/25
7931	13	1.55	29/18	64	11/14/17	743	21.92	53/24
8401	12	1.43	29/17	69	11/15/17	778	21.37	53/24
9114	13	1.55	27/19	64	11/18/21	736	20.28	53/24
9664	13	1.55	30/19	67	11/18/22	732	19.73	53/24
10327	13	1.55	32/21	68	11/17/22	749	22.47	53/24
10946	13	1.55	32/20	68	10/17/21	761	22.47	53/24
11450	13	1.55	34/19	69	11/17/21	746	21.92	53/24
12228	13	1.55	41/20	72	11/19/22	750	23.56	53/22
12930	13	1.55	40/18	70	10/18/21	708	24.11	53/22
13308	13	1.55	42/20	72	11/18/21	730	23.29	53/21
13930	13	1.55	40/17	58	10/19/22	665	23.84	52.5/22
14598	13	1.55	43/19	57	11/19/20	687	25.21	53/21
8 ½" Hole Section								
16585	12.8	1.53	47/15	77	9/17/18	465	21.39	70/33
17230	12.9	1.54	43/20	77	9/17/18	507	22.52	72/28
18000	12.8	1.53	32/16	74	7/13/15	54.2	25.41	77/23

11.0 WELL RESULTS

11.1 Geosteering and Modelling

This well was not geosteered or modelled..

11.2 Perforations

Well 211/19a-M75 (M31 RD) / NOR33/9-20S was plugged and suspended and thus not perforated.

12.0 HEALTH, SAFETY AND THE ENVIRONMENT (HSE)

There were 2 LTI's during the well operations, 0 first aid cases and 0 environmental spills.

LTI 1 (CLOSED)

6/08/2006

BJ tubular employees were testing out their equipment prior to running casing. They had an airline rigged up to a pump for purpose of testing. 2 operatives were in attendance at the time. When the test was completed one of the operatives disconnected the airline from the utility stand and as he did so there was a release of air from the rig up. This caused a puncture wound to his wrist. The medic dressed the wound and gave him antibiotics as a precaution.

LTI 2 (CLOSED)

15/08/2006

An 8" diameter Accelerator measuring 32.75ft and weighing 1.6 ton had been slung up to be transported from the catwalk to the landing bay. The Banksman and a Roustabout had been tasked with landing the accelerator in the landing bay on the west side of the pipe deck.

The accelerator was lowered into the landing bay where, before being fully landed off, the furthest away end contacted and came to rest on a drill collar. This caused a slight "fulcrum" effect with the accelerator swinging mildly from side to side. The IP moved forward to stop the accelerator from swinging. At this point there was a downward movement of the Accelerator which caused it to roll/bounce toward the IP contacting the toe of his left boot, the steel toecap of his boot took the impact.

No instructions were issued to the crane driver during the attempt to stop the swinging pipe.

The crane driver had a full and clear view of the men and the bay throughout the operation.

75% of the well time was productive.

23% of the well time was unproductive.

2% of the well time was unplanned time.

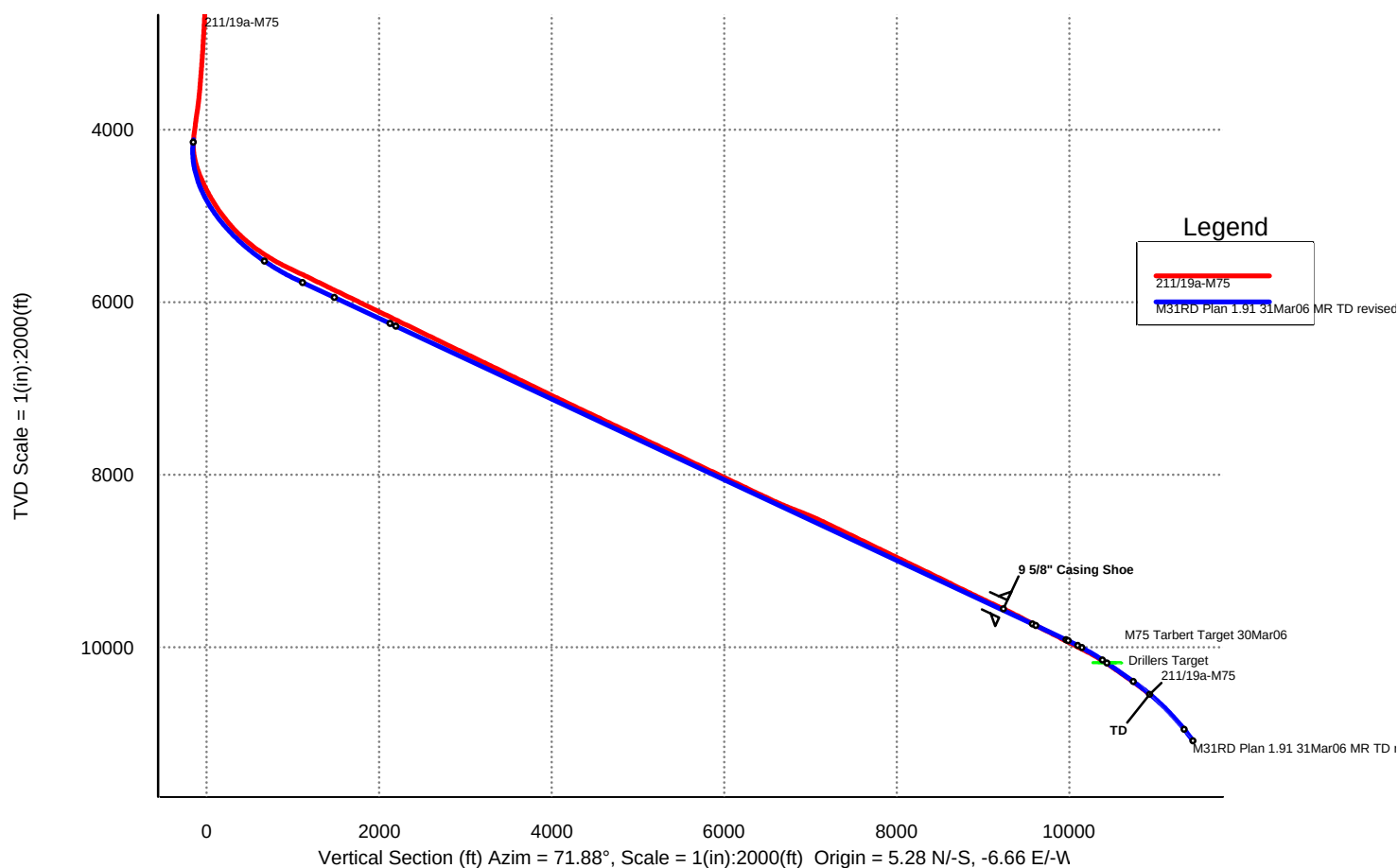
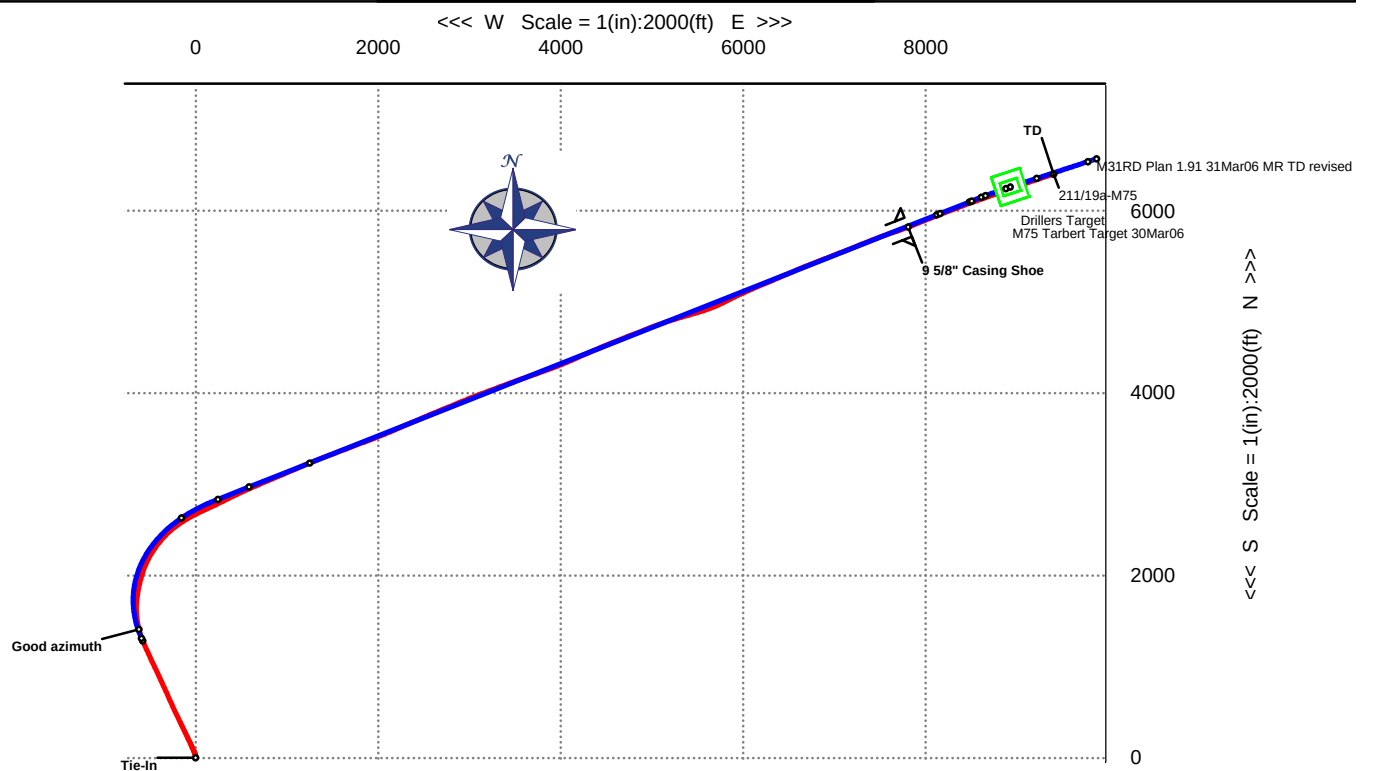
Phase Description	AFE Time (Days)	Actual Time (Days)				Variance (Days)
		Total	P	U	T	
Preparation	2.80	6.93	4.10	1.65	1.18	-4.13
Removal of Tubulars	8.60	3.82	3.50	0.00	0.32	4.78
Sidetrack Preparation	4.20	12.81	9.18	0.12	3.51	-8.61
Drill 12 1/4" Hole	19.40	20.36	17.04	0.06	3.26	-0.96
Secure 12 1/4" Hole	3.60	9.01	4.92	0.00	4.09	-5.41
Drill 8 1/2" Hole	9.90	7.43	5.59	0.00	1.85	2.47
Abandon Well	0.00	8.14	4.66	0.00	3.50	-8.14

For further information on the time/cost breakdown, highlights/lowlights and lessons learnt for the well please refer to the Drilling End of Well Report which has been issued separately.

APPENDIX 1 – FINAL DIRECTIONAL SURVEY DATA

The final definitive survey for 211/19a-M75 / 33/9-20S can be seen overleaf, along with an actual compared to prognosed Wellpath diagram.

WELL 211/19-M75 Plan Vs Actual			FIELD Murchison			STRUCTURE Murchison Platform		
Magnetic Parameters Model: BGGM 2006 Dip: 73.471° Mag Dec: -3.033°			Surface Location Lat: N61 23 48.260 Lon: E1 44 27.249 UTM Zone 31 on ED50 Datum Northing: 6807790.24 m Easting: 432751.20 m Grid Conv: -1.10547288° Scale Fact: 0.9996554002			Miscellaneous Slot: 23 Plan: 211/19a-M75 TVD Ref: Rotary Table (185.00 ft above MSL) Svy Date: September 05, 2006		



211/19a-M75 Survey Report

Report Date: September 5, 2006	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: CNR International	Vertical Section Azimuth: 71.880°
Field: Murchison	Vertical Section Origin: N 5.280 ft, W 6.660 ft
Structure / Slot: Murchison Platform / 23	TVD Reference Datum: Rotary Table
Well: 211/19-M12, M31, M75	TVD Reference Elevation: 185.0 ft relative to MSL
Borehole: M75	Sea Bed / Ground Level Elevation: -512.000 ft relative to MSL
UWI/API#:	Magnetic Declination: -3.033°
Survey Name / Date: 211/19a-M75 / September 5, 2006	Total Field Strength: 50951.552 nT
Tort / AHD / DDI / ERD ratio: 210.739° / 13188.66 ft / 6.677 / 1.250	Magnetic Dip: 73.471°
Grid Coordinate System: UTM Zone 31 on ED50 Datum	Declination Date: September 05, 2006
Location Lat/Long: N 61 23 48.260, E 1 44 27.249	Magnetic Declination Model: BGGM 2006
Location Grid N/E Y/X: N 6807790.240 m, E 432751.200 m	North Reference: Grid North
Grid Convergence Angle: -1.10547288°	Total Corr Mag North -> Grid North: -1.928°
Grid Scale Factor: 0.99965540	Local Coordinates Referenced To: Structure Reference Point

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	5.28	-6.66	0.00	6807790.24	432751.20	N 61 23 48.260	E 1 44 27.249
	582.00	0.00	0.00	582.00	0.00	5.28	-6.66	0.00	6807790.24	432751.20	N 61 23 48.260	E 1 44 27.249
	650.00	0.10	85.33	650.00	0.06	5.29	-6.60	0.15	6807790.24	432751.22	N 61 23 48.260	E 1 44 27.250
	697.00	0.80	107.37	697.00	0.36	5.19	-6.25	1.51	6807790.21	432751.33	N 61 23 48.259	E 1 44 27.257
	700.00	0.85	107.53	700.00	0.40	5.18	-6.21	1.67	6807790.21	432751.34	N 61 23 48.259	E 1 44 27.258
	750.00	1.15	94.82	749.99	1.16	5.03	-5.35	0.74	6807790.16	432751.60	N 61 23 48.257	E 1 44 27.276
	797.00	1.03	79.56	796.98	2.02	5.06	-4.47	0.67	6807790.17	432751.87	N 61 23 48.258	E 1 44 27.294
	850.00	1.13	51.53	849.97	2.98	5.48	-3.59	1.00	6807790.30	432752.14	N 61 23 48.262	E 1 44 27.312
	900.00	1.53	35.87	899.96	3.98	6.32	-2.81	1.07	6807790.56	432752.37	N 61 23 48.271	E 1 44 27.327
	1000.00	1.92	17.85	999.91	6.04	9.00	-1.52	0.66	6807791.37	432752.77	N 61 23 48.297	E 1 44 27.353
	1050.00	2.17	12.07	1049.88	7.01	10.72	-1.06	0.65	6807791.90	432752.91	N 61 23 48.314	E 1 44 27.362
	1100.00	2.48	10.38	1099.84	8.00	12.71	-0.67	0.63	6807792.50	432753.03	N 61 23 48.334	E 1 44 27.369
	1150.00	2.65	352.05	1149.79	8.72	14.92	-0.64	1.67	6807793.18	432753.04	N 61 23 48.356	E 1 44 27.369
	1200.00	2.92	344.37	1199.73	8.98	17.29	-1.14	0.92	6807793.90	432752.88	N 61 23 48.379	E 1 44 27.357
	1250.00	3.35	341.23	1249.66	9.02	19.90	-1.95	0.93	6807794.69	432752.64	N 61 23 48.404	E 1 44 27.340
	1300.00	3.95	344.35	1299.56	9.08	22.94	-2.89	1.26	6807795.62	432752.35	N 61 23 48.434	E 1 44 27.319
	1350.00	4.58	348.03	1349.42	9.37	26.55	-3.77	1.37	6807796.72	432752.08	N 61 23 48.470	E 1 44 27.300
	1400.00	5.17	343.13	1399.24	9.63	30.66	-4.83	1.44	6807797.97	432751.76	N 61 23 48.510	E 1 44 27.276
	1450.00	6.12	338.83	1448.99	9.54	35.31	-6.45	2.08	6807799.39	432751.26	N 61 23 48.555	E 1 44 27.241
	1500.00	6.68	337.52	1498.68	9.18	40.48	-8.52	1.16	6807800.96	432750.63	N 61 23 48.606	E 1 44 27.197
	1550.00	7.70	339.30	1548.29	8.80	46.30	-10.82	2.09	6807802.74	432749.93	N 61 23 48.663	E 1 44 27.147
	1595.00	8.24	337.82	1592.85	8.44	52.10	-13.10	1.28	6807804.51	432749.24	N 61 23 48.719	E 1 44 27.098
	1650.00	8.88	337.53	1647.24	7.84	59.68	-16.21	1.17	6807806.81	432748.29	N 61 23 48.793	E 1 44 27.031
	1700.00	9.43	336.63	1696.60	7.17	67.00	-19.31	1.14	6807809.05	432747.35	N 61 23 48.865	E 1 44 26.965
	1750.00	9.57	335.40	1745.92	6.33	74.54	-22.67	0.49	6807811.34	432746.32	N 61 23 48.938	E 1 44 26.893
	1800.00	9.80	335.47	1795.21	5.38	82.19	-26.16	0.46	6807813.67	432745.26	N 61 23 49.013	E 1 44 26.818
	1900.00	10.30	335.25	1893.67	3.40	98.05	-33.44	0.50	6807818.51	432743.04	N 61 23 49.168	E 1 44 26.662
	2000.00	11.35	335.32	1991.89	1.24	115.11	-41.29	1.05	6807823.70	432740.65	N 61 23 49.334	E 1 44 26.494
	2100.00	12.30	335.57	2089.77	-1.05	133.75	-49.81	0.95	6807829.38	432738.05	N 61 23 49.516	E 1 44 26.312
	2200.00	13.10	336.30	2187.32	-3.32	153.83	-58.77	0.82	6807835.50	432735.32	N 61 23 49.712	E 1 44 26.120
	2300.00	13.90	335.35	2284.56	-5.79	175.12	-68.33	0.83	6807841.99	432732.41	N 61 23 49.920	E 1 44 25.915
	2400.00	15.05	334.47	2381.38	-8.83	197.76	-78.94	1.17	6807848.89	432729.18	N 61 23 50.141	E 1 44 25.689
	2500.00	16.20	334.20	2477.68	-12.37	222.03	-90.61	1.15	6807856.28	432725.62	N 61 23 50.377	E 1 44 25.439
	2558.00	17.50	334.10	2533.19	-14.63	237.16	-97.94	2.24	6807860.89	432723.39	N 61 23 50.525	E 1 44 25.283
	2653.00	18.80	334.10	2623.46	-18.64	263.78	-110.86	1.37	6807869.00	432719.45	N 61 23 50.785	E 1 44 25.007
	2749.00	20.00	334.10	2714.01	-22.95	292.47	-124.79	1.25	6807877.74	432715.21	N 61 23 51.064	E 1 44 24.710
	2844.00	21.25	334.10	2802.92	-27.48	322.57	-139.41	1.32	6807886.91	432710.75	N 61 23 51.358	E 1 44 24.398
	2939.00	23.00	334.10	2890.92	-32.33	354.75	-155.04	1.84	6807896.72	432705.99	N 61 23 51.672	E 1 44 24.064
	3035.00	24.75	334.60	2978.70	-37.41	389.78	-171.85	1.84	6807907.39	432700.87	N 61 23 52.013	E 1 44 23.705
	3130.00	26.50	335.10	3064.36	-42.44	426.97	-189.30	1.86	6807918.73	432695.55	N 61 23 52.376	E 1 44 23.332
	3225.00	28.75	334.60	3148.52	-47.83	466.84	-208.03	2.38	6807930.87	432689.84	N 61 23 52.765	E 1 44 22.931
	3321.00	31.00	334.10	3231.76	-54.11	509.94	-228.73	2.36	6807944.01	432683.54	N 61 23 53.185	E 1 44 22.489
	3416.00	33.00	335.10	3312.32	-60.47	555.42	-250.31	2.18	6807957.86	432676.96	N 61 23 53.629	E 1 44 22.028
	3511.00	35.50	335.60	3390.84	-66.55	604.01	-272.60	2.65	6807972.67	432670.17	N 61 23 54.103	E 1 44 21.551
	3606.00	38.00	335.85	3466.95	-72.64	655.82	-295.97	2.64	6807988.46	432663.05	N 61 23 54.609	E 1 44 21.051
	3707.00	40.75	336.10	3545.02	-79.22	714.34	-322.05	2.73	6808006.29	432655.10	N 61 23 55.180	E 1 44 20.492
	3797.00	43.25	335.60	3611.90	-85.56	769.28	-346.69	2.80	6808023.03	432647.60	N 61 23 55.716	E 1 44 19.964
	3892.00	45.75	335.35	3679.65	-92.99	829.86	-374.33	2.64	6808041.48	432639.17	N 61 23 56.307	E 1 44 19.373
	3988.00	48.50	334.60	3744.96	-101.45	893.59	-404.10	2.92	6808060.90	432630.10	N 61 23 56.929	E 1 44 18.736
	4083.00	50.00	335.10	3806.97	-110.26	958.74	-434.68	1.63	6808080.75	432620.79	N 61 23 57.564	E 1 44 18.083
	4178.00	49.50	334.10	3868.36	-119.44	1024.24	-465.78	0.96	6808100.71	432611.31	N 61 23 58.203	E 1 44 17.418
	4274.00	49.00	336.60	3931.03	-127.72	1090.32	-496.11	2.04	6808120.85	432602.07	N 61 23 58.848	E 1 44 16.769
	4369.00	49.00	334.60	3993.36	-135.56	1155.61	-525.72	1.59	6808140.74	432593.04	N 61 23 59.485	E 1 44 16.135
	4464.00	49.00	336.10	4055.68	-143.71	1220.77	-555.63	1.19	6808160.59	432583.93	N 61 24 0.121	E 1 44 15.495
	4641.44	47.72	340.00	4173.61	-152.61	1343.70	-605.22	1.79	6808198.05	432568.82	N 61 24 1.322	E 1 44 14.428
	4735.82	48.01	345.50	4236.95	-151.54	1410.49	-625.95	4.33	6808218.40	432562.51	N 61 24 1.975	E 1 44 13.976
	4830.98	48.16	350.89	4300.55	-143.76	1479.76	-640.42	4.22	6808239.51	432558.10	N 61 24 2.654	E 1 44 13.651

4922.05	47.61	354.56	4361.63	-131.06	1546.75	-648.98	3.05	6808259.92	432555.49	N 61 24 3.312	E 1 44 13.448
5012.39	46.57	357.88	4423.15	-114.69	1612.75	-653.36	2.93	6808280.03	432554.15	N 61 24 3.961	E 1 44 13.332
5110.52	45.44	3.30	4491.33	-92.09	1683.29	-652.67	4.14	6808301.52	432554.37	N 61 24 4.656	E 1 44 13.319
5203.15	45.43	6.62	4556.34	-66.23	1749.02	-646.96	2.55	6808321.55	432556.10	N 61 24 5.304	E 1 44 13.410
5294.89	45.54	9.04	4620.67	-37.61	1813.82	-638.05	1.88	6808341.29	432558.82	N 61 24 5.944	E 1 44 13.567
5395.98	45.78	12.09	4691.33	-2.91	1884.88	-624.79	2.17	6808362.94	432562.86	N 61 24 6.646	E 1 44 13.811
5491.62	45.64	14.48	4758.12	32.76	1951.50	-609.06	1.79	6808383.24	432567.65	N 61 24 7.304	E 1 44 14.107
5582.40	45.79	17.15	4821.51	69.03	2014.01	-591.35	2.11	6808402.29	432573.05	N 61 24 7.923	E 1 44 14.446
5676.81	46.01	20.89	4887.22	109.96	2078.08	-569.26	2.85	6808421.81	432579.78	N 61 24 8.558	E 1 44 14.874
5772.10	46.33	24.73	4953.22	154.98	2141.42	-542.62	2.93	6808441.11	432587.90	N 61 24 9.187	E 1 44 15.396
5864.56	46.75	28.87	5016.84	202.36	2201.30	-512.36	3.28	6808459.35	432597.12	N 61 24 9.782	E 1 44 15.994
5955.58	47.37	32.35	5078.85	252.43	2258.62	-478.44	2.88	6808476.82	432607.45	N 61 24 10.353	E 1 44 16.668
6052.51	48.74	35.46	5143.65	309.26	2318.43	-438.21	2.77	6808495.04	432619.71	N 61 24 10.949	E 1 44 17.470
6144.00	50.20	39.95	5203.12	366.78	2373.40	-395.68	4.06	6808511.79	432632.67	N 61 24 11.498	E 1 44 18.322
6245.84	51.66	43.77	5267.32	435.23	2432.25	-342.92	3.25	6808529.72	432648.74	N 61 24 12.088	E 1 44 19.382
6341.63	53.34	48.22	5325.65	503.58	2485.00	-288.26	4.08	6808545.80	432665.40	N 61 24 12.618	E 1 44 20.483
6432.46	55.07	52.30	5378.79	572.05	2532.06	-231.61	4.11	6808560.14	432682.66	N 61 24 13.092	E 1 44 21.628
6530.14	56.93	56.45	5433.42	649.26	2579.18	-165.79	4.00	6808574.49	432702.71	N 61 24 13.568	E 1 44 22.961
6624.50	59.11	59.59	5483.40	726.96	2621.54	-97.91	3.65	6808587.40	432723.40	N 61 24 13.998	E 1 44 24.338
6718.87	61.19	62.27	5530.38	807.31	2661.28	-26.37	3.31	6808599.51	432745.19	N 61 24 14.403	E 1 44 25.792
6809.18	63.24	64.24	5572.48	886.29	2697.22	44.98	2.98	6808610.46	432766.93	N 61 24 14.770	E 1 44 27.242
6908.01	64.76	65.55	5615.80	974.46	2734.90	125.41	1.95	6808621.94	432791.44	N 61 24 15.156	E 1 44 28.879
7002.00	64.89	64.86	5655.79	1058.94	2770.58	202.63	0.68	6808632.81	432814.97	N 61 24 15.522	E 1 44 30.451
7094.32	64.71	63.77	5695.09	1141.75	2806.78	277.91	1.09	6808643.84	432837.91	N 61 24 15.893	E 1 44 31.983
7185.78	64.28	63.39	5734.48	1223.43	2843.51	351.83	0.60	6808655.03	432860.43	N 61 24 16.268	E 1 44 33.486
7278.54	64.05	64.23	5774.90	1306.09	2880.36	426.75	0.85	6808666.26	432883.26	N 61 24 16.645	E 1 44 35.010
7373.65	64.14	65.06	5816.45	1390.96	2916.99	504.06	0.79	6808677.42	432906.81	N 61 24 17.021	E 1 44 36.583
7466.40	64.12	66.11	5856.92	1473.91	2951.49	580.05	1.02	6808687.93	432929.97	N 61 24 17.375	E 1 44 38.130
7559.13	64.23	67.06	5897.32	1557.02	2984.65	656.65	0.93	6808698.04	432953.31	N 61 24 17.716	E 1 44 39.690
7651.38	64.25	67.10	5937.41	1639.81	3017.01	733.17	0.04	6808707.90	432976.62	N 61 24 18.049	E 1 44 41.249
7743.91	64.23	67.11	5977.62	1722.86	3049.43	809.94	0.02	6808717.78	433000.01	N 61 24 18.383	E 1 44 42.813
7845.79	64.34	66.87	6021.83	1814.31	3085.31	894.43	0.24	6808728.71	433025.76	N 61 24 18.752	E 1 44 44.534
7935.59	64.52	66.79	6060.59	1895.00	3117.18	968.90	0.22	6808738.42	433048.45	N 61 24 19.080	E 1 44 46.051
8032.91	64.10	66.59	6102.78	1982.34	3151.89	1049.44	0.47	6808748.99	433072.99	N 61 24 19.436	E 1 44 47.691
8126.24	64.14	66.69	6143.51	2065.96	3185.18	1126.53	0.11	6808759.14	433096.48	N 61 24 19.779	E 1 44 49.261
8220.20	64.12	67.38	6184.51	2150.20	3218.17	1204.37	0.66	6808769.19	433120.20	N 61 24 20.118	E 1 44 50.847
8313.51	64.19	68.41	6225.19	2233.98	3249.77	1282.17	1.00	6808778.82	433143.90	N 61 24 20.444	E 1 44 52.432
8406.79	64.08	68.78	6265.88	2317.77	3280.40	1360.32	0.38	6808788.15	433167.71	N 61 24 20.760	E 1 44 54.025
8503.66	64.12	68.99	6308.20	2404.80	3311.79	1441.61	0.20	6808797.72	433192.48	N 61 24 21.085	E 1 44 55.682
8596.35	64.10	69.10	6348.67	2488.08	3341.61	1519.48	0.11	6808806.80	433216.21	N 61 24 21.393	E 1 44 57.270
8689.48	64.10	69.24	6389.35	2571.76	3371.41	1597.78	0.14	6808815.88	433240.07	N 61 24 21.701	E 1 44 58.866
8781.56	64.27	69.23	6429.45	2654.56	3400.79	1675.28	0.18	6808824.83	433263.68	N 61 24 22.005	E 1 45 0.446
8878.31	64.13	69.40	6471.56	2741.58	3431.56	1756.78	0.21	6808834.21	433288.51	N 61 24 22.323	E 1 45 2.108
8973.53	64.31	69.49	6512.97	2827.25	3461.67	1837.06	0.21	6808843.38	433312.97	N 61 24 22.635	E 1 45 3.745
9068.15	64.15	69.12	6554.11	2912.37	3491.78	1916.77	0.39	6808852.56	433337.26	N 61 24 22.946	E 1 45 5.370
9162.87	64.28	68.43	6595.31	2997.54	3522.66	1996.27	0.67	6808861.97	433361.48	N 61 24 23.265	E 1 45 6.991
9251.37	64.33	67.72	6633.68	3077.11	3552.43	2070.25	0.73	6808871.04	433384.03	N 61 24 23.572	E 1 45 8.498
9347.03	64.35	67.18	6675.11	3163.08	3585.50	2149.89	0.51	6808881.11	433408.29	N 61 24 23.913	E 1 45 10.121
9437.46	64.30	66.47	6714.29	3244.26	3617.57	2224.81	0.71	6808890.89	433431.12	N 61 24 24.243	E 1 45 11.647
9522.53	64.18	66.52	6751.26	3320.54	3648.13	2295.07	0.15	6808900.20	433452.53	N 61 24 24.557	E 1 45 13.078
9614.79	64.22	66.53	6791.41	3403.24	3681.22	2371.26	0.04	6808910.28	433475.74	N 61 24 24.897	E 1 45 14.630
9707.63	64.14	66.83	6831.85	3486.47	3714.30	2448.00	0.30	6808920.36	433499.12	N 61 24 25.237	E 1 45 16.193
9802.71	64.16	67.05	6873.30	3571.71	3747.82	2526.73	0.21	6808930.57	433523.11	N 61 24 25.582	E 1 45 17.797
9888.66	64.19	67.18	6910.75	3648.81	3777.90	2598.01	0.14	6808939.74	433544.83	N 61 24 25.891	E 1 45 19.249
9982.27	64.20	67.20	6951.50	3732.81	3810.57	2675.69	0.02	6808949.69	433568.50	N 61 24 26.227	E 1 45 20.832
10074.57	64.12	67.49	6991.73	3815.62	3842.57	2752.35	0.30	6808959.44	433591.86	N 61 24 26.557	E 1 45 22.394
10165.98	64.07	67.40	7031.66	3897.60	3874.11	2828.29	0.10	6808969.05	433615.00	N 61 24 26.881	E 1 45 23.941
10257.30	64.15	67.90	7071.54	3979.53	3905.35	2904.27	0.50	6808978.57	433638.15	N 61 24 27.203	E 1 45 25.489
10349.90	64.40	68.36	7111.73	4062.77	3936.43	2981.69	0.52	6808988.04	433661.74	N 61 24 27.524	E 1 45 27.067
10436.50	64.65	68.84	7148.98	4140.82	3964.95	3054.48	0.58	6808996.73	433683.91	N 61 24 27.818	E 1 45 28.551
10532.66	64.56	69.13	7190.22	4227.58	3996.10	3135.57	0.29	6809006.22	433708.62	N 61 24 28.140	E 1 45 30.204
10621.02	64.63	69.31	7228.12	4307.31	4024.22	3210.19	0.20	6809014.85	433731.36	N 61 24 28.433	E 1 45 31.726
10714.44	64.66	69.37	7268.13	4391.65	4054.21	3289.19	0.07	6809023.93	433755.43	N 61 24 28.741	E 1 45 33.337
10804.21	64.55	69.66	7306.63	4472.67	4082.59	3365.15	0.32	6809032.57	433778.58	N 61 24 29.034	E 1 45 34.886
10897.56	64.60	69.97	7346.70	4556.93	4111.68	3444.28	0.30	6809041.44	433802.69	N 61 24 29.336	E 1 45 36.500
10988.23	64.54	70.25	7385.64	4638.77	4139.54	3521.29	0.29	6809049.93	433826.15	N 61 24 29.624	E 1 45 38.071
11078.78	64.66	70.49	7424.48	4720.54	4167.02	3598.33	0.27	6809058.30	433849.62	N 61 24 29.909	E 1 45 39.642
11172.92	64.61	70.90	7464.81	4805.59	4195.14	3678.61	0.40	6809066.87	433874.08	N 61 24 30.201	E 1 45 41.280
11263.03	64.74	71.08	7503.35	4887.03	4221.67	3755.62	0.23	6809074.95	433897.55	N 61 24 30.477	E 1 45 42.852
11354.31	64.81	70.10	7542.25	4969.58	4249.11	3833.50	0.97	6809083.31	433921.28	N 61 24 30.761	E 1 45 44.440
11445.97	64.78	69.17	7581.29	5052.45	4277.97	3911.25	0.92	6809092.11	433944.97	N 61 24 31.060	E 1 45 46.026
11537.39	64.76	68.31	7620.26	5135.02	4307.96	3988.32	0.85	6809101.24	433968.45	N 61 24 31.370	E 1 45 47.597
11627.95	64.81	67.27	7658.84	5216.74	4338.93	4064.17	1.04	6809110.68	433991.56	N 61 24 31.689	E 1 45 49.143
11720.25	64.81	66.30	7698.12	5299.93	4371.85	4140.93	0.95	6809120.71	434014.95	N 61 24 32.027	E 1 45 50.707
11814.27	64.63	66.08	7738.27	5384.53	4406.17	4218.70	0.29	6809131.17	434038.65	N 61 24 32.379	E 1 45 52.291
11908.09	64.58	66.36	7778.51	5468.87	4440.35	4296.26	0.27	6809141.58	434062.28	N 61 24 32.730	E 1 45 53.871
12002.81	64.42	66.81	7819.29	5554.00	4474.32	4374.72	0.46	6809151.93	434086.18	N 61 24 33.079	E 1 45 55.469
12098.40	64.54	67.25	7860.47	5639.95	4507.98	4454.14	0.43	6809162.19	434110.38	N 61 24 33.426	E 1 45 57.087
12190.98	64.54	67.65	7900.27	5723.29	4540.04	4531.34	0.39				

12475.39	64.52	68.56	8022.53	5979.49	4636.29	4769.40	0.49	6809201.29	434206.44	N 61 24 34.747	E 1 46 3.513
12564.22	64.52	68.65	8060.75	6059.55	4665.55	4844.07	0.09	6809210.20	434229.19	N 61 24 35.049	E 1 46 5.035
12657.71	64.56	68.97	8100.94	6143.84	4696.06	4922.77	0.31	6809219.50	434253.17	N 61 24 35.364	E 1 46 6.640
12750.41	64.63	69.17	8140.71	6227.47	4725.97	5000.98	0.21	6809228.61	434277.00	N 61 24 35.673	E 1 46 8.235
12841.48	64.54	69.79	8179.79	6309.65	4754.80	5078.02	0.62	6809237.39	434300.48	N 61 24 35.971	E 1 46 9.806
12938.58	64.32	71.94	8221.70	6397.22	4783.51	5160.76	2.01	6809246.14	434325.69	N 61 24 36.269	E 1 46 11.495
13033.78	64.73	73.18	8262.65	6483.16	4809.27	5242.75	1.25	6809253.99	434350.67	N 61 24 36.538	E 1 46 13.169
13127.31	65.58	73.07	8301.95	6568.01	4833.91	5323.97	0.92	6809261.50	434375.42	N 61 24 36.796	E 1 46 14.828
13223.30	66.55	74.62	8340.90	6655.69	4858.31	5408.24	1.79	6809268.93	434401.09	N 61 24 37.052	E 1 46 16.549
13317.33	67.85	73.47	8377.33	6742.31	4882.14	5491.58	1.78	6809276.19	434426.49	N 61 24 37.302	E 1 46 18.252
13408.76	68.52	71.54	8411.31	6827.18	4907.66	5572.53	2.09	6809283.97	434451.15	N 61 24 37.568	E 1 46 19.905
13501.38	68.54	68.80	8445.22	6913.32	4936.90	5653.60	2.75	6809292.88	434475.85	N 61 24 37.871	E 1 46 21.558
13592.74	67.57	65.06	8479.37	6997.73	4970.09	5731.55	3.94	6809302.99	434499.60	N 61 24 38.212	E 1 46 23.147
13687.67	65.42	63.66	8517.23	7084.03	5007.75	5810.02	2.64	6809314.47	434523.52	N 61 24 38.597	E 1 46 24.744
13780.12	64.57	63.79	8556.31	7166.96	5044.84	5885.15	0.93	6809325.77	434546.41	N 61 24 38.976	E 1 46 26.273
13868.96	64.11	64.53	8594.78	7246.32	5079.74	5957.22	0.91	6809336.40	434568.37	N 61 24 39.333	E 1 46 27.740
13965.46	64.42	66.20	8636.68	7332.68	5115.97	6036.23	1.59	6809347.44	434592.44	N 61 24 39.705	E 1 46 29.349
14060.47	64.50	66.77	8677.65	7418.02	5150.17	6114.84	0.55	6809357.86	434616.39	N 61 24 40.056	E 1 46 30.951
14153.52	64.30	66.92	8717.85	7501.62	5183.17	6192.00	0.26	6809367.92	434639.90	N 61 24 40.395	E 1 46 32.523
14245.00	64.24	67.01	8757.57	7583.72	5215.42	6267.84	0.11	6809377.74	434663.01	N 61 24 40.726	E 1 46 34.068
14339.05	64.19	67.16	8798.48	7668.11	5248.39	6345.84	0.15	6809387.79	434686.78	N 61 24 41.065	E 1 46 35.658
14432.79	64.18	67.19	8839.30	7752.21	5281.13	6423.62	0.03	6809397.76	434710.47	N 61 24 41.402	E 1 46 37.243
14523.70	64.38	66.88	8878.75	7833.82	5313.08	6499.03	0.38	6809407.50	434733.45	N 61 24 41.730	E 1 46 38.779
14617.82	64.23	66.94	8919.56	7918.32	5346.34	6577.05	0.17	6809417.63	434757.22	N 61 24 42.072	E 1 46 40.369
14710.72	64.05	66.94	8960.08	8001.60	5379.09	6653.96	0.19	6809427.61	434780.66	N 61 24 42.409	E 1 46 41.937
14805.83	63.95	68.14	9001.78	8086.84	5411.75	6732.96	1.14	6809437.56	434804.73	N 61 24 42.745	E 1 46 43.547
14892.68	64.12	69.03	9039.80	8164.79	5440.26	6805.65	0.94	6809446.25	434826.88	N 61 24 43.039	E 1 46 45.029
14983.06	64.16	68.91	9079.22	8246.02	5469.44	6881.57	0.13	6809455.14	434850.01	N 61 24 43.340	E 1 46 46.577
15075.39	64.20	68.78	9119.44	8329.01	5499.44	6959.08	0.13	6809464.28	434873.63	N 61 24 43.650	E 1 46 48.158
15168.61	64.17	68.64	9160.03	8412.80	5529.91	7037.27	0.14	6809473.56	434897.45	N 61 24 43.964	E 1 46 49.752
15259.07	64.28	68.58	9199.37	8494.13	5559.62	7113.12	0.14	6809482.62	434920.56	N 61 24 44.271	E 1 46 51.299
15353.78	64.05	68.56	9240.64	8579.23	5590.76	7192.47	0.24	6809492.11	434944.74	N 61 24 44.592	E 1 46 52.917
15437.99	63.73	68.01	9277.70	8654.70	5618.74	7262.72	0.70	6809500.63	434966.14	N 61 24 44.880	E 1 46 54.350
15531.67	63.79	68.00	9319.12	8738.53	5650.21	7340.63	0.06	6809510.22	434989.88	N 61 24 45.204	E 1 46 55.938
15622.18	64.10	68.36	9358.87	8819.68	5680.43	7416.11	0.49	6809519.43	435012.88	N 61 24 45.516	E 1 46 57.477
15712.65	64.45	69.46	9398.14	8901.07	5709.76	7492.16	1.16	6809528.36	435036.05	N 61 24 45.818	E 1 46 59.028
15802.87	64.36	70.88	9437.12	8982.40	5737.36	7568.69	1.42	6809536.77	435059.37	N 61 24 46.104	E 1 47 0.589
15898.08	64.55	72.10	9478.18	9068.29	5764.63	7650.15	1.17	6809545.08	435084.19	N 61 24 46.388	E 1 47 2.252
15990.03	65.05	70.22	9517.33	9151.48	5791.50	7728.89	1.93	6809553.27	435108.18	N 61 24 46.666	E 1 47 3.859
16028.80	65.01	69.40	9533.70	9186.60	5803.63	7761.87	1.92	6809556.97	435118.23	N 61 24 46.792	E 1 47 4.532
16149.61	64.92	67.80	9584.82	9295.88	5843.56	7863.78	1.20	6809569.13	435149.28	N 61 24 47.204	E 1 47 6.611
16239.85	63.15	68.00	9624.33	9376.81	5874.09	7938.95	1.97	6809578.43	435172.19	N 61 24 47.518	E 1 47 8.143
16332.54	62.27	68.63	9666.83	9459.02	5904.52	8015.49	1.13	6809587.71	435195.51	N 61 24 47.832	E 1 47 9.704
16423.29	62.25	68.93	9709.07	9539.23	5933.60	8090.36	0.29	6809596.57	435218.32	N 61 24 48.132	E 1 47 11.231
16520.71	62.23	69.24	9754.45	9625.33	5964.37	8170.89	0.28	6809605.94	435242.86	N 61 24 48.449	E 1 47 12.873
16611.59	62.71	68.91	9796.45	9705.82	5993.15	8246.17	0.62	6809614.71	435265.80	N 61 24 48.746	E 1 47 14.409
16702.44	62.90	69.20	9837.97	9786.53	6022.04	8321.63	0.35	6809623.51	435288.79	N 61 24 49.045	E 1 47 15.948
16803.04	62.87	69.67	9883.82	9875.99	6053.49	8405.47	0.42	6809633.10	435314.33	N 61 24 49.370	E 1 47 17.658
16895.93	62.77	69.70	9926.25	9958.57	6082.18	8482.96	0.11	6809641.84	435337.95	N 61 24 49.666	E 1 47 19.239
16985.87	62.75	70.48	9967.42	10038.49	6109.41	8558.15	0.77	6809650.14	435360.85	N 61 24 49.948	E 1 47 20.773
17082.47	62.69	71.10	10011.70	10124.33	6137.66	8639.22	0.57	6809658.74	435385.56	N 61 24 50.241	E 1 47 22.428
17173.17	62.60	70.93	10053.37	10204.88	6163.87	8715.40	0.19	6809666.73	435408.77	N 61 24 50.513	E 1 47 23.983
17268.63	60.30	70.06	10098.99	10288.70	6191.86	8794.44	2.54	6809675.26	435432.85	N 61 24 50.803	E 1 47 25.596
17360.77	57.86	69.90	10146.34	10367.70	6218.92	8868.70	2.65	6809683.50	435455.48	N 61 24 51.083	E 1 47 27.111
17456.05	56.22	69.99	10198.17	10447.59	6246.33	8943.79	1.72	6809691.86	435478.36	N 61 24 51.366	E 1 47 28.644
17546.43	54.79	70.30	10249.36	10522.05	6271.63	9013.85	1.61	6809699.56	435499.71	N 61 24 51.628	E 1 47 30.073
17639.93	54.99	70.93	10303.13	10598.51	6297.02	9086.00	0.59	6809707.30	435521.69	N 61 24 51.891	E 1 47 31.546
17735.09	55.01	71.60	10357.71	10676.46	6322.05	9159.82	0.58	6809714.93	435544.18	N 61 24 52.151	E 1 47 33.053
17824.63	54.60	71.83	10409.32	10749.63	6345.01	9229.30	0.50	6809721.92	435565.35	N 61 24 52.390	E 1 47 34.471
17917.55	52.87	71.32	10464.28	10824.55	6368.69	9300.38	1.91	6809729.14	435587.01	N 61 24 52.636	E 1 47 35.922
17974.25	51.74	71.74	10498.95	10869.41	6382.90	9342.93	2.08	6809733.47	435599.97	N 61 24 52.784	E 1 47 36.791
18052.00	51.74	71.74	10547.10	10930.46	6402.03	9400.91	0.00	6809739.30	435617.64	N 61 24 52.982	E 1 47 37.975

Survey Type: Definitive Survey

Survey Error Model: SLB ISCWSA version 24 *** 3-D 73.85% Confidence 2.0000 sigma

Surveying Prog:

MD From (ft)	MD To (ft)	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	697.00	Act-Stns	SLB_PHOTO-GMS-Depth Only	M75 -> 211/19a-M75
697.00	4464.00	Act-Stns	SLB_PHOTO-GMS	M75 -> 211/19a-M75
4464.00	4922.05	Act-Stns	SLB_MWD+SAG	M75 -> 211/19a-M75
4922.05	18052.00	Act-Stns	SLB_MWD+GMAG	M75 -> 211/19a-M75

APPENDIX 2 – SCHLUMBERGER LWD REPORT

The final Schlumberger EOWR for 211/19a-M75 / 33/9-20S can be seen overleaf.



211/19a-M75/33/9-20S

Blämann

Murchison Platform

Drilling & Measurements

END OF WELL REPORT

Report Prepared By:	Scott Mabon (Cell Manager)	Date:	_____
Approved By:	Kenneth Melville (Drilling Services Manager)	Date:	_____
Client Approval:	_____	Date:	_____

Contents

1. QUALITY, HEALTH, SAFETY, & ENVIRONMENT	3
SCHLUMBERGER QHSE POLICY	4
1.1. SAFETY STATISTICS	4
2. INTRODUCTION & OVERVIEW	5
INTRODUCTION & OVERVIEW	6
3. WELL DATA	7
WELL REFERENCE DATA	8
4. PERSONNEL	9
PERSONNEL	10
5. DRILLING SUMMARY	11
SERVICES PROVIDED	12
6. PERFORMANCE STATISTICS	16
PERFORMANCE DATA	17
APPENDIX A	18
DD RUN SUMMARIES & PERFORMANCES	19
BHA SCHEMATICS	24
APPENDIX B	26
DEFINITIVE SURVEY LISTING	27
PLAN VS ACTUAL WELL TRAJECTORY	30
APPENDIX C	31
MWD/LWD RUN SUMMARIES	32

Any questions about this report should be directed to the Drilling Services Manager.

Name: Ken Melville
 Address: Unit 8, Kirkton Avenue, Pitmedden Industrial Estate, Dyce, Aberdeen, United Kingdom.
 Phone: 01224-801128
 Fax: 01224-724800
 Email: kmelvill@slb.com

1. Quality, Health, Safety, & Environment

SCHLUMBERGER QHSE POLICY

The long-term business success of Schlumberger depends on our ability to continuously improve our products and services while protecting our people and the environment in which they work and live. It is a commitment, which is in the best interest of our customers, our employees, and our stockholders.

In order to implement this commitment, we use several tools to monitor our operations:

i. QUEST

QUEST is a global Schlumberger data capture and reporting tool, for QHSE management. It achieves this through:

- Identification and reporting of all quality, health, safety, and environmental hazards (unsafe acts, incidents, accidents, near misses, equipment failures, and business risks)
- Identification of root causes
- Assessment of associated risks
- Implementation of corrective actions to reduce the risks to as low as reasonably practicable.

ii. LPT (Loss Prevention Team)

The Loss Prevention Team is a proactive team of employees that assists in the prevention and reduction of loss or damage to persons, property or the environment. It achieves this through shared and specific responsibilities with management and offshore Personnel.

Some of the specific objectives include: improving HSE awareness, encouraging active participation in the Risk identification program, communicating regularly to the work force, reviewing identified hazards, and suggesting remedial actions.

1.1. SAFETY STATISTICS

Stop Cards Submitted	20
Safety Meetings held	5
Lost Time Accidents	0
Lost Time Incidents	0
Near Misses	0

2. Introduction & Overview

INTRODUCTION & OVERVIEW

Well M75 was drilled from slot number 23, previously well M31.

The well was side tracked out of the 13 ³/₈" casing at circa 4550 ft MDRKB. To facilitate the kick off, a window was milled in the 13 ³/₈" casing via a Trackmaster Whipstock.

Well M31 had previously been abandoned and a 13 " scraper assembly was run prior to setting the Trackmaster whipstock.

The 12 ¹/₄" hole was then drilled from ±4,600 ft to section TD at ±16,100 ft using a Rotary Steerable System (RSS) assembly and MI Versaclean OBM. Real time GR & Resistivity data was collected while drilling with no further logging required in the 12 ¹/₄" section.

A Rotary Steerable System (RSS) 8 ¹/₂" BHA was run with real time LWD including PWD, GR, Resistivity and Neutron Density data which was collected while drilling. This section was planned to be drilled in one run to TD at ±18,850ft.

The well was estimated to penetrate the top Brent Gp reservoir at 10000 ft TVD MSL (mean sea level = SS), 213 ft TVD above the estimated oil-water contact (OWC) at 10213 ft TVD MSL. The reservoir quality was assumed to be moderate in the Tarbert/Ness Fms reservoir units, but excellent in the Etive Fm if encountered above the OWC as expected. Reservoir pressure was expected to be between 3865psi to 4882psi in the Tarbert and 6042psi, to as high as, 6270psi in the Etive Formations.

The main uncertainties in the prospect risking were related to reservoir in Lower Brent Gp and trap in Upper Brent Gp. The prospect was dependent on that fault between the Blåmann prospect and the 33/9-6 Delta discovery is sealing.

3. Well Data

WELL REFERENCE DATA

Field: Blämann Prospect
Well Name: 211/19a-M75/33/9-20S
Well Type: Exploration - Oil Producer

Field Reference

Grid Coordinate System UTM Zone 31 on ED50 Datum

Surface Location (Slot#23)

Latitude: 61° 23' 48.260" N
Longitude: 01° 44' 27.249" E

Rig Contractor: KCA Drilling UK Limited
Rig Name: Murchison
Rig Type: Platform
Water Depth: 512 ft
Drill Floor Elevation: 185 ft

Total G: 1002.07 mg
Total H: 51166.88 nT
Magnetic Dip: 73.386°
Magnetic Declination: -3.38°
Grid Correction: -1.105°
Total Correction: -2.275°
North Reference: Grid North

4. Personnel

PERSONNEL

The following personnel were involved in MWD/LWD operations, on this project:

Name	Job Function	Date to Rig	Date from Rig
Peter Bisset	MWD	17 th July 06	3 rd August 06
Scott Mabon	LWD	20 th July 06	3 rd August 06
Andy Lea	LWD	3 rd August 06	10 th August 06
Akikat Makhmotov	MWD	3 rd August 06	24 th August 06
Scott Mabon	LWD	10 th August 06	19 th August 06
Scott Lawrie	LWD	19 th August 06	1 st September 06
James Pratt	MWD	24 th August 06	1 st September 06

The following personnel were involved in Directional Drilling operations, on this project:

Name	Job Function	Date to Rig	Date from Rig
Georges Loustale	Directional Driller	17 th July 06	7 th August 06
Laurence Turner	Directional Driller	20 th July 06	10 th August 06
Andrew Farmer	Directional Driller	7 th August 06	28 th August 06
Synnové Bergh	Directional Driller	10 th August 06	19 th August 06
Laurence Turner	Directional Driller	18 th August 06	1 st September 06

The following personnel were involved in PERFORM operations, on this project:

Name	Job Function	Date to Rig	Date from Rig
N/A			

5. Drilling Summary

SERVICES PROVIDED

Measurements While Drilling (MWD) Services:

- MWD Toolface
- MWD Surveys
- MWD Continuous Direction & Inclination
- MWD Real Time Gamma Ray
- MWD Basic Shocks

Logging While Drilling (LWD) Services:

- VISION Service
- LWD Gamma Ray
- LWD Resistivity
- LWD Density and Neutron Porosity
- VISION Caliper
- Ultrasonic Caliper

Directional Drilling Services:

- PowerDrive X5 Rotary Steerable System
- PowerDrive Xtra Rotary Steerable System

Drilling Performance Services:

- APWD – Annular Pressure While Drilling

Other Services:

- Surveying – In-Field Referencing
- InterACT Data Transmission

12 1/4" HOLE SECTION

MWD/LWD Report

SECTION SUMMARY

BHA #	MWD Run#	Tools	Size	Logging Mode Depths (ft)		Mud Type	Date	
				Drilling	Reaming/Repeat Section		From	To
2	1	PowerPulse	8 1/4"	4550 – 4591 ft	-	Versaclean OBM	24-Jul-06	26-Jul-06
3	2	PowerPulse, ARC	8 1/4"	4591 – 16100 ft	-	Versaclean OBM	26-Jul-06	08-Aug-06

ANTICIPATED PROBLEMS

Kicking off from parent Well M31.

Casing wear.

Hole cleaning.

Lost circulation.

Section TD

ACTUAL / EXECUTION

The kick off from M31 presented no problems

ROP was limited to 60 ft/hr towards the end of the hole section in order to control ECD (maintain below 13.5ppg)

MWD signal problems were encountered due to leaking pulsation dampeners on the rig mud pumps. Good signal was restored when fully charged, but leaked pressure. The dampeners were repaired for the next hole section.

MWD Run #1 4550 – 4591 ft MDBRT

The PowerPulse MWD tool was made up to the MCBPV and successfully shallow hole tested at 600gpm. The whipstock and packer assembly was made up to the mill and run in hole. The whipstock was run to setting depth of 4584 ft, where the whipstock was orientated to a toolface of 66 degrees right of high side. The mill was sheared from the whipstock and the well displaced to Versaclean OBM. The window milling commenced. The window milling was completed with the top of the window at 4548 ft and the bottom of the window at 4571 ft. A further 20ft of rathole was drilled to 4591 ft. The MWD tool turned on and functioned well with very little shocks

observed. After circulating hole clean a FIT was performed successfully to 13.5 ppg EMW. At surface the Lead, Follow and Dress mills were found to be 5/16 in., 3/8 in. and 5/16 in. under gauge respectively.

MWD Run #2 4591 – 16100 ft MDBRT

After successfully cutting the casing window, the PowerDrive rotary steerable drilling assembly was made up and surface tested. A good test was achieved and the assembly run in hole.

Drilling of the 12 ¼ in section continued with the requirement to build and turn the well path, which was achieved without incident.

Issues surrounding power supply to the rig dogged the drilling of the section. The loss of mud pumps was common after connections, and occasionally whilst drilling ahead. On one occasion, a trip back to the shoe was required to change out the blower motor on the top drive. Real time communications were lost to the PowerDrive, but did not prove detrimental to the run with directional control still possible.

When nearing the end of the section, MWD signal problems created poor data in real time. The signal problems existed due to massive pump noise, later found to be the result of pressure loss in the pulsation dampeners. The dampeners were recharged twice, but on both occasions lost pressure within a couple of hours. The dampeners were to be repaired before drilling the 8 ½ in hole section.

At TD two bottoms up circulations were performed before pumping out of hole to the shoe. During the trip out of hole it was planned to circulate at 2 stages, 10000 ft & 8000 ft. When breaking circulation at the first depth no returns were gained when pumping. The flow was staged up, but with the same result. The out come was the same when staging up the flow at 8000 ft.

The trip out of open hole then became increasingly difficult with over pulls recorded on each stand from 6450 ft to 5700 ft. Circulation was established which produced large amounts of fines at the shakers.

On entering the casing window no over pulls were observed. The drill line was slip & cut, then pulling out of hole continued, and the drilling assembly laid down.

8 1/2" HOLE SECTION

MWD/LWD Report

SECTION SUMMARY

BHA #	MWD Run#	Tools	Size	Logging Mode Depths (ft)		Mud Type	Date	
				Drilling	Reaming/Repeat Section		From	To
x	3	PowerPulse, ARC, ADN	6 3/4"	16100-19825	-	Versaclean OBM	19-Aug-06	31-Aug-06

ANTICIPATED PROBLEMS

Casing wear.

Differential sticking.

Hole cleaning.

Faulting.

Lost circulation.

ACTUAL / EXECUTION

MWD Run #3 16100 – 18052 ft MDBRT

TA successful surface test was performed on the tools before RIH. Tagged top of cement at 15618 ft. Test casing to 3500 psi. Drilled out cement and cleaned out rat hole with 350 gpm: good, hard cement. With Powerdrive set in neutral begin to drill new formation. Initially flow rate is restricted by ECD which is reported as 14.55 ppg for only 375 gpm. 15 ppg was the upper limit set. Gradually stage up flow to 450 gpm while drilling ahead, ECD is 14.66 ppg. At 16317 ft, prior to a connection, high torque stalled the drill string. Torque characteristic was smooth in nature but very high. Pulled back into shoe to circulate and condition mud to correct oil/water ratio. Continued to drill with torque around 22-23k. Picked off bottom on occasion to circulate to reduce ECD to below 14.9ppg. Top of pay zone came in late then drilled into fault and incurred mud losses. Circulated LCM and clean hole. The decision was then made to plug & abandon. It was found that the batteries in the ARC tool had been exhausted during this run.

6. Performance Statistics

PERFORMANCE DATA

12 1/4in. Hole Section

Service	Drilled		Logged		Failures
	From	To	From	To	
MWD D&I	4591 ft	16100 ft	N/A	N/A	No
MWD Gamma Ray	4591 ft	16100 ft	4560 ft	16039 ft	No
LWD Resistivity	4591 ft	16100 ft	4571 ft	16061 ft	No
LWD Gamma Ray	4591 ft	16100 ft	4560 ft	16061 ft	No
APWD	4591 ft	16100 ft	4571 ft	16064 ft	No

8 1/2in. Hole Section

Service	Drilled		Logged		Failures
	From	To	From	To	
MWD D&I	16100 ft	18052 ft	N/A	N/A	No
MWD Gamma Ray	16100 ft	18052 ft	16035 ft	17987 ft	
LWD Resistivity	16100 ft	18052 ft	16063 ft	18015 ft	No
LWD Gamma Ray	16100 ft	18052 ft	16062 ft	18015 ft	No
LWD Density & Porosity	16100 ft	18052 ft	16008 ft	17956 ft	No
APWD	16100 ft	18052 ft	16065 ft	18017 ft	No

Cumulative

Service	Drilled		Logged		Failures
	From	To	From	To	
MWD D&I	4591 ft	18052 ft	N/A	N/A	No
MWD Gamma Ray	4591 ft	18052 ft	4560 ft	17987 ft	No
LWD Resistivity	4591 ft	18052 ft	4571 ft	18015 ft	No
LWD Gamma Ray	4591 ft	18052 ft	4560 ft	18015 ft	No
LWD Density & Porosity	16100 ft	18052 ft	16008 ft	17956 ft	No
APWD	4591 ft	18052 ft	4571 ft	18017 ft	No

Appendix A

DD Run Summaries & Performances

BHA Schematic



BHA PERFORMANCE REPORT

211/19a-M75

BHA # 1

YEAR: 2006		COUNTRY: UK North Sea		BHA		Rotary Steerable		Page # of 3		Units: Feet		Inc Hold		Max Dis/Built/drop		Parameters		Formation / Comments	
CUST: C.N.R.		ENG: G. Lousible, L. Turner		DATE		DEPTH		Inc.		Azi		TVD		No		Rot. Slid			
WELL: 211/19a-M75		CO. REP: P. Thomson		IN 27-Jul		4464.0		49.00"		336.10"		4056.0		VOS		psi			
RIG: Munchison		LOCN: UK North Sea		OUT 08-Aug		16100		65.0"		69.2"		9564.0		pot/100		in/dchy/100			

YEAR: 2006		COUNTRY: UK nNorth Sea		BHA		Rotary Steerable		Page #2 of 3		Units: Feet		Inc Hold			
CUST: C.N.R. WELL: 211/19a-M75 RIG: Munchison		ENG: G.Louisale, L.Turner CO. REP: P.Thomson LOCN: UK nNorth Sea		DATE DEPTH INCL AZI TVD IN 27-Jul 4464 49.07 336.07 4056.0 OUT 08-Aug 16100 65.07 69.27 9564.0											
OPERATION SUMMARY:															
The bottom Hole Assembly was made up and the tools successfully tested on surface. The string was run in hole filling up the pipe every 10 stands. Prior to entering open hole, the PowerDrive was set to 90 deg toolface (TF) at 100% proportion. With the pumps switched off, the bit passed through the whipstock without resistance. Once 5 ft off bottom the pumps were started, the drilling commenced at low RPM to avoid damaging the LWD tools across the whipstock face, also to avoid washing away the very soft formation.															
Drilling continued at 80 fthr with 1 Klbs weight on bit, revs were gradually increased to 130 rpm. After 5 stands drilled, the magnetic interference no longer had an effect, and good surveys were obtained. The Powerdrive was reset first to 80%, and then to 50% proportion as the DLS was between 4 to 5 instead of the required 3 deg/100 ft. On two occasions the assembly increased inc & azi, possibly due to tracking stringers, but responded well to correction prior to going back to normal trends.															
At TD the well was circulated 7x bottoms up before POOH. Problems on the trip were experienced, packing off losses, up drag and cutting material almost forming a sludge on the low side. Once the assembly was around to 50° inclination full circulation was regained. From this point there were no further problems POOH to surface.															
Remarks and Recommendations:															
The PDC bit and the assembly performed extremely well.															
The dogleg capability for the assembly appears to be in the order of 4 to 5 deg/100 ft in the upper formations and the Shetland group.															
The penetrations rates were restricted to a maximum of 100 fthr due to the cuttings handling system.															
The communication from the PowerDrive was intermittent from 8500' to 10900', beyond 10900' it was only working on few occasions to 12050' and then was lost completely. The PowerDrive still responded to downlinks but there was no Short-Hop codes to confirm settings.															
DEPTH (ft)	Inc.	Azi	TVD (ft)	DLS Build	Turn	Ad Slid	Slid %	Slid hrs	TF	Type	No	Max DLS Build/ drop	Parameters	Formation / Comments	
10762.6	64.12	67.49	7031.4	0.3	-0.1	-0.1	91	-	15	-	90	PD	0.7	ROP 90	- fthr Claystone
10757.3	64.15	67.90	7014.2	0.5	-0.1	0.5	91	-	15	-	90	PD	3.3	WOB 10	- Klbs Claystone
10349.9	64.40	68.36	7111.4	0.5	0.3	0.5	93	-	15	-	90	PD	3.5	RPM 140	- fthr Claystone
10336.5	64.65	68.44	7148.7	0.6	0.3	0.6	87	-	15	-	90	PD	3.9	TRQ 12	- Klbs Claystone
10332.7	64.56	68.13	7169.9	0.3	-0.1	0.3	96	-	15	-	90	PD	1.9	Flow 880	- gpm Claystone
10322.0	64.63	69.31	7227.8	0.2	0.1	0.2	88	-	15	-	90	PD	1.3	PP 3660	- psi Claystone
10714.4	64.66	69.57	7267.8	0.2	0.0	0.1	93	-	15	-	90	PD	0.4	ROP 90	- fthr Claystone
10708.8	64.66	70.49	7424.2	0.3	-0.1	0.3	90	-	15	-	90	PD	2.1	WOB 8	- Klbs Claystone
10694.2	64.55	69.66	7306.3	0.3	-0.1	0.3	93	-	15	-	90	PD	2.0	RPM 140	- fthr Claystone
11078.8	64.54	70.25	7365.3	0.3	-0.1	0.3	91	-	15	-	90	PD	1.9	TRQ 12	- Klbs Claystone
11172.9	64.61	70.90	7464.5	0.4	-0.1	0.4	94	-	15	-	90	PD	2.6	Flow 860	- gpm Claystone
11263.0	64.74	71.08	7503.0	0.2	0.1	0.2	90	-	15	-	90	PD	1.8	ROP 90	- fthr Claystone
11354.9	64.81	70.10	7541.9	1.0	0.1	-1.1	92	-	0	-	0	PD	Inc Hold	WOB 8	- Klbs Claystone
11446.0	64.81	68.17	7561.0	0.9	0.0	-1.0	92	-	0	-	0	PD	Inc Hold	RPM 140	- fthr Claystone
11537.4	64.78	68.31	7620.0	0.9	0.0	-0.9	91	-	0	-	0	PD	Inc Hold	TRQ 12	- Klbs Claystone
11628.0	64.81	67.27	7658.5	1.0	0.1	-1.1	92	-	0	-	0	PD	Inc Hold	Flow 880	- gpm Claystone
11720.3	64.81	66.30	7697.8	1.0	0.0	-1.1	92	-	15	-	90	PD	6.3	PP 3625	- psi Claystone
11814.3	64.63	66.08	7738.0	0.3	-0.2	-0.2	94	-	15	-	90	PD	1.9	ROP 90	- fthr Claystone
11906.1	64.58	66.36	7778.2	0.3	-0.1	0.3	94	-	15	-	90	PD	1.8	WOB 10	- Klbs Claystone
12002.8	64.42	66.81	7819.0	0.5	-0.2	0.5	96	-	15	-	90	PD	3.1	RPM 140	- fthr Claystone
12098.4	64.54	67.25	7860.2	0.4	0.1	0.5	96	-	15	-	90	PD	2.9	TRQ 12	- Klbs Claystone
12191.0	64.54	67.65	7900.0	0.4	0.0	0.4	93	-	15	-	90	PD	2.6	Flow 880	- gpm Claystone
12285.8	64.59	67.81	7940.7	0.2	0.1	0.2	96	-	15	-	90	PD	1.1	PP 4000	- psi Claystone
12380.3	64.50	68.04	7981.3	0.2	-0.1	0.2	96	-	15	-	90	PD	1.6	ROP 70	- fthr Claystone
12475.4	64.52	68.56	8022.2	0.5	0.0	0.5	95	-	15	-	90	PD	3.3	WOB 6	- Klbs Claystone
12564.2	64.52	68.65	8060.4	0.1	0.0	0.1	89	-	15	-	90	PD	0.6	RPM 140	- fthr Claystone
12657.7	64.56	68.97	8100.6	0.3	0.0	0.3	93	-	15	-	90	PD	2.1	TRQ 15	- gpm Claystone
12750.4	64.63	69.17	8140.4	0.2	0.1	0.2	93	-	15	-	90	PD	1.4	Flow 880	- gpm Claystone
12841.5	64.54	69.79	8179.5	0.6	-0.1	0.7	91	-	15	-	90	PD	4.2	ROP 70	- fthr Claystone
12938.6	64.32	71.94	8221.4	2.0	-0.2	2.2	97	-	15	-	90	PD	13.4	ROP 70	- fthr Claystone
13033.8	64.73	73.18	8262.3	1.3	0.4	1.3	96	-	0	-	0	PD	Inc Hold	WOB 10	- Klbs Claystone
13127.3	65.58	73.07	8301.6	0.9	0.9	-0.1	91	-	0	-	0	PD	Inc Hold	RPM 140	- fthr Claystone
13223.3	66.65	74.62	8340.6	1.8	1.0	1.6	96	-	0	-	0	PD	4.5	Flow 865	- gpm Claystone
13317.3	67.65	73.47	8377.0	1.8	1.4	-1.2	94	-	40	-	247	PD	Inc Hold	TRQ 16	- Klbs Claystone
13408.8	68.82	71.64	8411.0	2.1	0.7	-2.1	91	-	60	-	225	PD	3.5	Flow 865	- gpm Claystone
13501.4	68.54	68.60	8444.9	2.8	0.0	-3.0	93	-	60	-	228	PD	4.6	ROP 70	- fthr Claystone
13592.7	67.57	65.66	8479.0	3.9	-1.1	-4.1	91	-	100	-	130	PD	3.9	WOB 10	- Klbs Claystone
13687.7	65.42	63.66	8516.9	2.6	-2.3	-1.5	95	-	40	-	135	PD	6.6	RPM 140	- fthr Claystone
13780.1	64.57	63.79	8556.0	0.9	-0.9	0.1	92	-	40	-	135	PD	2.3	TRQ 16	- Klbs Claystone
13869.0	64.11	64.53	8594.4	0.9	-0.5	0.8	89	-	30	-	90	PD	3.0	Flow 865	- gpm Claystone
13965.5	64.42	66.20	8636.3	1.6	0.3	1.7	97	-	30	-	90	PD	5.3	PP 4140	- psi Claystone
14060.5	64.50	66.77	8677.3	0.5	0.1	0.6	96	-	15	-	90	PD	3.7	ROP 70	- fthr Claystone
14153.5	64.30	66.92	8717.5	0.3	-0.2	0.2	93	-	15	-	90	PD	1.7	WOB 12	- Klbs Claystone
14245.0	64.24	67.01	8757.2	0.1	-0.1	0.1	91	-	15	-	90	PD	0.7	RPM 140	- fthr Claystone
14339.1	64.19	67.16	8798.1	0.2	-0.1	0.2	94	-	15	-	90	PD	1.0	TRQ 18	- Klbs Claystone
14432.8	64.18	67.19	8839.0	0.0	0.0	0.0	94	-	15	-	90	PD	0.2	Flow 868	- gpm Claystone
14523.7	64.38	66.88	8878.4	0.4	0.2	-0.3	91	-	15	-	90	PD	2.5	PP 4290	- psi Claystone
14617.8	64.23	66.94	8919.2	0.2	-0.2	0.1	94	-	15	-	90	PD	1.1	ROP 75	- fthr Claystone
14710.7	64.05	66.94	8959.7	0.2	-0.2	0.3	93	-	30	-	90	PD	0.6	WOB 10	- Klbs Claystone
14805.8	63.95	68.14	9001.4	1.1	-0.1	1.0	96	-	30	-	90	PD	3.8	RPM 140	- fthr Claystone
14892.7	64.12	69.03	9039.5	0.9	0.2	-1.0	87	-	15	-	90	PD	6.3	TRQ 18	- Klbs Claystone
14983.1	64.16	68.91	9078.9	0.1	0.0	-0.1	90	-	15	-	90	PD	0.8	Flow 833	- gpm Claystone
15075.4	64.20	68.78	9119.1	0.1	0.0	-0.1	92	-	15	-	90	PD	0.9	PP 4160	- psi Claystone
15168.6	64.17	68.64	9159.7	0.1	0.0	-0.2	93	-	15	-	90	PD	0.9	ROP 60	- fthr Claystone
15259.1	64.28	68.58	9199.0	0.1	0.1	0.1	90	-	15	-	90	PD	0.9	WOB 12	- Klbs Claystone
15353.8	64.05	68.56	9240.3	0.2	-0.2	0.0	96	-	15	-	90	PD	1.6	RPM 140	- fthr Claystone
15438.0	63.73	68.01	9277.4	0.7	-0.4	-0.7	94	-	15	-	90	PD	4.7	TRQ 18	- Klbs Claystone
15531.7	63.79	68.00	9318.8	0.1	0.1	0.0	94	-	15	-	90	PD	0.4	Flow 833	- gpm Claystone
15622.2	64.10	68.36	9368.5	0.5	0.3	0.4	91	-	15	-	90	PD	3.3	PP 4220	- psi Claystone

[illegible]



BHA PERFORMANCE REPORT

211/19a-M75

BHA # 4

[illegible]

YEAR: 2006	COUNTRY: UK nNorth Sea	BHA Rotary Steerable	Page #2 of 3															Units: Feet	Inc Hold							
CUST : CNR, WELL : 211/19a-M75 RIG : Murchison	ENG: A. Farmer, L. Turner, D. Madden CO. REP: K. Brown, P. Thompson LOCN: UK nNorth Sea	DATE 24-Aug	DEPTH 16100	INCL 85.0°	AZI 69.2°	TVD 9564.0	DEPTH (ft)	Inc.	Azi	TVD (ft)	DLS /100	Build /100	Turn /100	Ad (ft)	Slid (ft)	Slid %	Slid hrs	TF	Type	No VGS	Max DLS pot /100	Build/ drop /100	Parameters Rot Slid	Formation/ Comments		
		OUT 31-Aug	18052	50.2°	71.5°	10549.9																				
OPERATION SUMMARY: A successful surface test was performed on the tools before RH. Tagged top of cement at 15618 ft. Test casing to 3500 psi. Drilled out cement and cleaned out rat hole with 350 gpm. good, hard cement. With Powerdrive set in neutral begin to drill new formation. Initially flow rate is restricted by ECD which is reported as 14.55 ppg for only 375 gpm. 15 ppg was the upper limit set. Gradually stage up flow to 450 gpm while drilling ahead. ECD is 14.66 ppg. At 16317 ft. prior to a connection, high torque stalled the drill string. Torque characteristic was smooth in nature but very high. Pulled back into shoe to circulate and condition mud to correct oil/water ratio. Continued to drill with torque around 22-23k. Picked off bottom on occasion to circulate to reduce ECD to below 14.9ppg. Top of pay zone came in late then drilled into fault and incurred mud losses. Circulated LCM and clean hole. The decision was then made to plug & abandon. Remarks and Recommendations: The contamination of the OBM system at the beginning of the section was thought to have come from the cement job. It was noted that after putting the PowerDrive into 0° 1% the PowerDrive inclination was lost. The pipe lally seemed to be wrong so there were a lot of depth corrections. Rig electrical power is still a problem when shutting down with out warning.																										

#####

**CNR International
211/19a-M75
Murchison Platform
Murchison
M31RD (M75)
RSS #1 BHA 12 1/4" Hole X5 GR/RES**

	Cum. Len. (ft)
Crossover	449.88
6 5/8" HWDP (3 joints)	414.38
Accelerator cw Standoff	323.63
6 5/8" HWDP (2 joints)	290.88
Hydraulic Jar cw Standoff	231.07
6 5/8" HWDP (2 joints)	199.87
Crossover	138.09
8" NM Flex Collar (2 joints)	135.01
PowerPulse MWD	77.97
ARC8, GR/RES/APWD	49.70
Flex	30.50
PowerDrive X5 900	20.86

BHA DESCRIPTION

ELEMENT	LENGTH (ft)	OD (in)	ID (in)	MAX OD (in)
12 1/4 " Bit	0.94	12.25	3.25	12.25
PowerDrive X5 900	19.92	9.25	3.00	12.00
Flex	9.64	6.63	3.50	8.00
ARC8, GR/RES/APWD	19.20	8.25	2.81	9.10
PowerPulse MWD	28.27	8.25	5.11	8.41
8" NM Flex Collar (2 joints)	57.04	8.00	2.81	8.00
Crossover	3.08	8.00	2.81	8.00
6 5/8" HWDP (2 joints)	61.78	6.63	4.50	8.00
Hydraulic Jar cw Standoff	31.20	8.00	3.00	8.16
6 5/8" HWDP (2 joints)	59.81	6.63	4.50	8.00
Accelerator cw Standoff	32.75	8.00	3.00	8.00
6 5/8" HWDP (3 joints)	90.75	6.63	4.50	8.00
Crossover	4.50	8.00	2.81	8.00
5-1/2 " 21.90 DPS, Premiur	31.00	5.36	4.78	7.50

Bit to Gamma Ray Sensor = 61.53 ft

Bit to Resistivity Sensor = 37.67 ft

Bit to Direction & Inclination Sensor = 61.53 ft

DRILLING OVERVIEW

Depth in:	4464.00'	Depth out:	16100.00'
Inclination in:	49.00°	To:	65.00°
Direction in:	336.00°	To:	69.20°
Total Drilled	11636.00'	Dogleg:	

Schlumberger

Quality Control

Created by: Administrator Date:

05/08/2006

Checked by: Date:

CNR International
211/19-M12, M31, M31RD
Murchison Platform
Murchison
M31RD (M75)
RSS BHA 8 1/2" Hole X5 Triple Combo

	Cum. Len. (ft)
Crossover	3568.14
5" 19.50 DPS, Premium (95 joints)	3536.10
5" HWDP (9 joints)	561.32
Accelerator cw Standoff	289.54
5" HWDP (2 joints)	256.42
Jar cw Standoff	194.23
2 x 5" NMHWDP (2 joints)	162.52
VDN-6 w/ 8"1/4 Stabilizer DENS	101.82
PowerPulse MWD	81.10
ILS	53.69
ARC6, GR/RES/APWD	48.75
Flex Joint	29.91
8 7/32" Receiver Stabilizer	20.44
PowerDrive	14.71

BHA DESCRIPTION

ELEMENT	LENGTH (ft)	OD (in)	ID (in)	MAX OD (in)
8 1/2 " Bit	1.23	8.50	2.25	8.50
PowerDrive	13.48	6.75	2.63	8.10
8 7/32" Receiver Stabilizer	5.73	6.50	2.81	8.22
Flex Joint	9.47	6.75	2.81	6.75
ARC6, GR/RES/APWD	18.84	6.75	2.81	7.50
ILS	4.94	6.88	3.25	8.19
PowerPulse MWD	27.41	6.75	5.11	6.88
VDN-6 w/ 8"1/4 Stabilizer C	20.72	6.75	2.25	8.25
2 x 5" NMHWDP (2 joints)	60.70	5.00	3.00	6.50
Jar cw Standoff	31.71	6.50	2.25	6.63
5" HWDP (2 joints)	62.19	5.00	3.00	6.50
Accelerator cw Standoff	33.12	6.50	2.75	6.50
5" HWDP (9 joints)	271.78	5.00	3.00	6.50
5" 19.50 DPS, Premium (95 joints)	2974.78	4.86	4.28	6.63
Crossover	1.04	6.75	2.81	6.75
5-1/2 " 21.90 DPS, Premium	31.00	5.36	4.78	7.50

Bit to Direction & Inclination Sensor = 65.52 ft
 Bit to RAB Gamma Ray Sensor = 37.08 ft
 Bit to RAB Resistivity Sensor = 36.83 ft

DRILLING OVERVIEW

Depth in: 16100.00' Depth out: 0.00'

Inclination in: 65.00° To:

Direction in: 69.20° To:

Total Drilled -16100.00' Dogleg:

Schlumberger

Quality Control

Created by: Administrator Date: 25/08/2006
 Checked by: Date:

Appendix B

Definitive Survey Listing
Plan Vs Actual Well Trajectory

211/19a-M75 / 33/9-20S Survey Report

Report Date: September 5, 2006
 Client: CNR International
 Field: Murchison/Blamann Prospect
 Structure / Slot: Murchison Platform / 23
 Well: 211/19-M75 / 33/9-20S
 Borehole: M75
 UWI/API#:
 Survey Name / Date: 211/19a-M75 / September 5, 2006
 Tort / AHD / DDI / ERD ratio: 210.739° / 13188.66 ft / 6.677 / 1.250
 Grid Coordinate System: UTM Zone 31 on ED50 Datum
 Location Lat/Long: N 61 23 48.260, E 1 44 27.249
 Location Grid N/E Y/X: N 6807790.240 m, E 432751.200 m
 Grid Convergence Angle: -1.10547288°
 Grid Scale Factor: 0.99965540

Survey / DLS Computation Method: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 71.880°
 Vertical Section Origin: N 5.280 ft, W 6.660 ft
 TVD Reference Datum: Rotary Table
 TVD Reference Elevation: 185.0 ft relative to MSL
 Sea Bed / Ground Level Elevation: -512.000 ft relative to MSL
 Magnetic Declination: -3.033°
 Total Field Strength: 50951.552 nT
 Magnetic Dip: 73.471°
 Declination Date: September 05, 2006
 Magnetic Declination Model: BGGM 2006
 North Reference: Grid North
 Total Corr Mag North -> Grid North: -1.928°
 Local Coordinates Referenced To: Structure Reference Point

Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	5.28	-6.66	0.00	6807790.24	432751.20	N 61 23 48.260	E 1 44 27.249
	582.00	0.00	0.00	582.00	0.00	5.28	-6.66	0.00	6807790.24	432751.20	N 61 23 48.260	E 1 44 27.249
	650.00	0.10	85.33	650.00	0.06	5.29	-6.60	0.15	6807790.24	432751.22	N 61 23 48.260	E 1 44 27.250
	697.00	0.80	107.37	697.00	0.36	5.19	-6.25	1.51	6807790.21	432751.33	N 61 23 48.259	E 1 44 27.257
	700.00	0.85	107.53	700.00	0.40	5.18	-6.21	1.67	6807790.21	432751.34	N 61 23 48.259	E 1 44 27.258
	750.00	1.15	94.82	749.99	1.16	5.03	-5.35	0.74	6807790.16	432751.60	N 61 23 48.257	E 1 44 27.276
	797.00	1.03	79.56	796.98	2.02	5.06	-4.47	0.67	6807790.17	432751.87	N 61 23 48.258	E 1 44 27.294
	850.00	1.13	51.53	849.97	2.98	5.48	-3.59	1.00	6807790.30	432752.14	N 61 23 48.262	E 1 44 27.312
	900.00	1.53	35.87	899.96	3.98	6.32	-2.81	1.07	6807790.56	432752.37	N 61 23 48.271	E 1 44 27.327
	1000.00	1.92	17.85	999.91	6.04	9.00	-1.52	0.66	6807791.37	432752.77	N 61 23 48.297	E 1 44 27.353
	1050.00	2.17	12.07	1049.88	7.01	10.72	-1.06	0.65	6807791.90	432752.91	N 61 23 48.314	E 1 44 27.362
	1100.00	2.48	10.38	1099.84	8.00	12.71	-0.67	0.63	6807792.50	432753.03	N 61 23 48.334	E 1 44 27.369
	1150.00	2.65	352.05	1149.79	8.72	14.92	-0.64	1.67	6807793.18	432753.04	N 61 23 48.356	E 1 44 27.369
	1200.00	2.92	344.37	1199.73	8.98	17.29	-1.14	0.92	6807793.90	432752.88	N 61 23 48.379	E 1 44 27.357
	1250.00	3.35	341.23	1249.66	9.02	19.90	-1.95	0.93	6807794.69	432752.64	N 61 23 48.404	E 1 44 27.340
	1300.00	3.95	344.35	1299.56	9.08	22.94	-2.89	1.26	6807795.62	432752.35	N 61 23 48.434	E 1 44 27.319
	1350.00	4.58	348.03	1349.42	9.37	26.55	-3.77	1.37	6807796.72	432752.08	N 61 23 48.470	E 1 44 27.300
	1400.00	5.17	343.13	1399.24	9.63	30.66	-4.83	1.44	6807797.97	432751.76	N 61 23 48.510	E 1 44 27.276
	1450.00	6.12	338.83	1448.99	9.54	35.31	-6.45	2.08	6807799.39	432751.26	N 61 23 48.555	E 1 44 27.241
	1500.00	6.68	337.52	1498.68	9.18	40.48	-8.52	1.16	6807800.96	432750.63	N 61 23 48.606	E 1 44 27.197
	1550.00	7.70	339.30	1548.29	8.80	46.30	-10.82	2.09	6807802.74	432749.93	N 61 23 48.663	E 1 44 27.147
	1595.00	8.24	337.82	1592.85	8.44	52.10	-13.10	1.28	6807804.51	432749.24	N 61 23 48.719	E 1 44 27.098
	1650.00	8.88	337.53	1647.24	7.84	59.68	-16.21	1.17	6807806.81	432748.29	N 61 23 48.793	E 1 44 27.031
	1700.00	9.43	336.63	1696.60	7.17	67.00	-19.31	1.14	6807809.05	432747.35	N 61 23 48.865	E 1 44 26.965
	1750.00	9.57	335.40	1745.92	6.33	74.54	-22.67	0.49	6807811.34	432746.32	N 61 23 48.938	E 1 44 26.893
	1800.00	9.80	335.47	1795.21	5.38	82.19	-26.16	0.46	6807813.67	432745.26	N 61 23 49.013	E 1 44 26.818
	1900.00	10.30	335.25	1893.67	3.40	98.05	-33.44	0.50	6807818.51	432743.04	N 61 23 49.168	E 1 44 26.662
	2000.00	11.35	335.32	1991.89	1.24	115.11	-41.29	1.05	6807823.70	432740.65	N 61 23 49.334	E 1 44 26.494
	2100.00	12.30	335.57	2089.77	-1.05	133.75	-49.81	0.95	6807829.38	432738.05	N 61 23 49.516	E 1 44 26.312
	2200.00	13.10	336.30	2187.32	-3.32	153.83	-58.77	0.82	6807835.50	432735.32	N 61 23 49.712	E 1 44 26.120
	2300.00	13.90	335.35	2284.56	-5.79	175.12	-68.33	0.83	6807841.99	432732.41	N 61 23 49.920	E 1 44 25.915
	2400.00	15.05	334.47	2381.38	-8.83	197.76	-78.94	1.17	6807848.89	432729.18	N 61 23 50.141	E 1 44 25.689
	2500.00	16.20	334.20	2477.68	-12.37	222.03	-90.61	1.15	6807856.28	432725.62	N 61 23 50.377	E 1 44 25.439
	2558.00	17.50	334.10	2533.19	-14.63	237.16	-97.94	2.24	6807860.89	432723.39	N 61 23 50.525	E 1 44 25.283
	2653.00	18.80	334.10	2623.46	-18.64	263.78	-110.86	1.37	6807869.00	432719.45	N 61 23 50.785	E 1 44 25.007
	2749.00	20.00	334.10	2714.01	-22.95	292.47	-124.79	1.25	6807877.74	432715.21	N 61 23 51.064	E 1 44 24.710
	2844.00	21.25	334.10	2802.92	-27.48	322.57	-139.41	1.32	6807886.91	432710.75	N 61 23 51.358	E 1 44 24.398
	2939.00	23.00	334.10	2890.92	-32.33	354.75	-155.04	1.84	6807896.72	432705.99	N 61 23 51.672	E 1 44 24.064
	3035.00	24.75	334.60	2978.70	-37.41	389.78	-171.85	1.84	6807907.39	432700.87	N 61 23 52.013	E 1 44 23.705
	3130.00	26.50	335.10	3064.36	-42.44	426.97	-189.30	1.86	6807918.73	432695.55	N 61 23 52.376	E 1 44 23.332
	3225.00	28.75	334.60	3148.52	-47.83	466.84	-208.03	2.38	6807930.87	432689.84	N 61 23 52.765	E 1 44 22.931
	3321.00	31.00	334.10	3231.76	-54.11	509.94	-228.73	2.36	6807944.01	432683.54	N 61 23 53.185	E 1 44 22.489
	3416.00	33.00	335.10	3312.32	-60.47	555.42	-250.31	2.18	6807957.86	432676.96	N 61 23 53.629	E 1 44 22.028
	3511.00	35.50	335.60	3390.84	-66.55	604.01	-272.60	2.65	6807972.67	432670.17	N 61 23 54.103	E 1 44 21.551
	3606.00	38.00	335.85	3466.95	-72.64	655.82	-295.97	2.64	6807988.46	432663.05	N 61 23 54.609	E 1 44 21.051
	3707.00	40.75	336.10	3545.02	-79.22	714.34	-322.05	2.73	6808006.29	432655.10	N 61 23 55.180	E 1 44 20.492
	3797.00	43.25	335.60	3611.90	-85.56	769.28	-346.69	2.80	6808023.03	432647.60	N 61 23 55.716	E 1 44 19.964
	3892.00	45.75	335.35	3679.65	-92.99	829.86	-374.33	2.64	6808041.48	432639.17	N 61 23 56.307	E 1 44 19.373
	3988.00	48.50	334.60	3744.96	-101.45	893.59	-404.10	2.92	6808060.90	432630.10	N 61 23 56.929	E 1 44 18.736
	4083.00	50.00	335.10	3806.97	-110.26	958.74	-434.68	1.63	6808080.75	432620.79	N 61 23 57.564	E 1 44 18.083
	4178.00	49.50	334.10	3868.36	-119.44	1024.24	-465.78	0.96	6808100.71	432611.31	N 61 23 58.203	E 1 44 17.418
	4274.00	49.00	336.60	3931.03	-127.72	1090.32	-496.11	2.04	6808120.85	432602.07	N 61 23 58.848	E 1 44 16.769
	4369.00	49.00	334.60	3993.36	-135.56	1155.61	-525.72	1.59	6808140.74	432593.04	N 61 23 59.485	E 1 44 16.135
	4464.00	49.00	336.10	4055.68	-143.71	1220.77	-555.63	1.19	6808160.59	432583.93	N 61 24 0.121	E 1 44 15.495
	4641.44	47.72	340.00	4173.61	-152.61	1343.70	-605.22	1.79	6808198.05	432568.82	N 61 24 1.322	E 1 44 14.428
	4735.82	48.01	345.50	4236.95	-151.54	1410.49	-625.95	4.33	6808218.40	432562.51	N 61 24 1.975	E 1 44 13.976
	4830.98	48.16	350.89	4300.55	-143.76	1479.76	-640.42	4.22	6808239.51	432558.10	N 61 24 2.654	E 1 44 13.651

4922.05	47.61	354.56	4361.63	-131.06	1546.75	-648.98	3.05	6808259.92	432555.49	N 61 24 3.312	E 1 44 13.448
5012.39	46.57	357.88	4423.15	-114.69	1612.75	-653.36	2.93	6808280.03	432554.15	N 61 24 3.961	E 1 44 13.332
5110.52	45.44	3.30	4491.33	-92.09	1683.29	-652.67	4.14	6808301.52	432554.37	N 61 24 4.656	E 1 44 13.319
5203.15	45.43	6.62	4556.34	-66.23	1749.02	-646.96	2.55	6808321.55	432556.10	N 61 24 5.304	E 1 44 13.410
5294.89	45.54	9.04	4620.67	-37.61	1813.82	-638.05	1.88	6808341.29	432558.82	N 61 24 5.944	E 1 44 13.567
5395.98	45.78	12.09	4691.33	-2.91	1884.88	-624.79	2.17	6808362.94	432562.86	N 61 24 6.646	E 1 44 13.811
5491.62	45.64	14.48	4758.12	32.76	1951.50	-609.06	1.79	6808383.24	432567.65	N 61 24 7.304	E 1 44 14.107
5582.40	45.79	17.15	4821.51	69.03	2014.01	-591.35	2.11	6808402.29	432573.05	N 61 24 7.923	E 1 44 14.446
5676.81	46.01	20.89	4887.22	109.96	2078.08	-569.26	2.85	6808421.81	432579.78	N 61 24 8.558	E 1 44 14.874
5772.10	46.33	24.73	4953.22	154.98	2141.42	-542.62	2.93	6808441.11	432587.90	N 61 24 9.187	E 1 44 15.396
5864.56	46.75	28.87	5016.84	202.36	2201.30	-512.36	3.28	6808459.35	432597.12	N 61 24 9.782	E 1 44 15.994
5955.58	47.37	32.35	5078.85	252.43	2258.62	-478.44	2.88	6808476.82	432607.45	N 61 24 10.353	E 1 44 16.668
6052.51	48.74	35.46	5143.65	309.26	2318.43	-438.21	2.77	6808495.04	432619.71	N 61 24 10.949	E 1 44 17.470
6144.00	50.20	39.95	5203.12	366.78	2373.40	-395.68	4.06	6808511.79	432632.67	N 61 24 11.498	E 1 44 18.322
6245.84	51.66	43.77	5267.32	435.23	2432.25	-342.92	3.25	6808529.72	432648.74	N 61 24 12.088	E 1 44 19.382
6341.63	53.34	48.22	5325.65	503.58	2485.00	-288.26	4.08	6808545.80	432665.40	N 61 24 12.618	E 1 44 20.483
6432.46	55.07	52.30	5378.79	572.05	2532.06	-231.61	4.11	6808560.14	432682.66	N 61 24 13.092	E 1 44 21.628
6530.14	56.93	56.45	5433.42	649.26	2579.18	-165.79	4.00	6808574.49	432702.71	N 61 24 13.568	E 1 44 22.961
6624.50	59.11	59.59	5483.40	726.96	2621.54	-97.91	3.65	6808587.40	432723.40	N 61 24 13.998	E 1 44 24.338
6718.87	61.19	62.27	5530.38	807.31	2661.28	-26.37	3.31	6808599.51	432745.19	N 61 24 14.403	E 1 44 25.792
6809.18	63.24	64.24	5572.48	886.29	2697.22	44.98	2.98	6808610.46	432766.93	N 61 24 14.770	E 1 44 27.242
6908.01	64.76	65.55	5615.80	974.46	2734.90	125.41	1.95	6808621.94	432791.44	N 61 24 15.156	E 1 44 28.879
7002.00	64.89	64.86	5655.79	1058.94	2770.58	202.63	0.68	6808632.81	432814.97	N 61 24 15.522	E 1 44 30.451
7094.32	64.71	63.77	5695.09	1141.75	2806.78	277.91	1.09	6808643.84	432837.91	N 61 24 15.893	E 1 44 31.983
7185.78	64.28	63.39	5734.48	1223.43	2843.51	351.83	0.60	6808655.03	432860.43	N 61 24 16.268	E 1 44 33.486
7278.54	64.05	64.23	5774.90	1306.09	2880.36	426.75	0.85	6808666.26	432883.26	N 61 24 16.645	E 1 44 35.010
7373.65	64.14	65.06	5816.45	1390.96	2916.99	504.06	0.79	6808677.42	432906.81	N 61 24 17.021	E 1 44 36.583
7466.40	64.12	66.11	5856.92	1473.91	2951.49	580.05	1.02	6808687.93	432929.97	N 61 24 17.375	E 1 44 38.130
7559.13	64.23	67.06	5897.32	1557.02	2984.65	656.65	0.93	6808698.04	432953.31	N 61 24 17.716	E 1 44 39.690
7651.38	64.25	67.10	5937.41	1639.81	3017.01	733.17	0.04	6808707.90	432976.62	N 61 24 18.049	E 1 44 41.249
7743.91	64.23	67.11	5977.62	1722.86	3049.43	809.94	0.02	6808717.78	433000.01	N 61 24 18.383	E 1 44 42.813
7845.79	64.34	66.87	6021.83	1814.31	3085.31	894.43	0.24	6808728.71	433025.76	N 61 24 18.752	E 1 44 44.534
7935.59	64.52	66.79	6060.59	1895.00	3117.18	968.90	0.22	6808738.42	433048.45	N 61 24 19.080	E 1 44 46.051
8032.91	64.10	66.59	6102.78	1982.34	3151.89	1049.44	0.47	6808748.99	433072.99	N 61 24 19.436	E 1 44 47.691
8126.24	64.14	66.69	6143.51	2065.96	3185.18	1126.53	0.11	6808759.14	433096.48	N 61 24 19.779	E 1 44 49.261
8220.20	64.12	67.38	6184.51	2150.20	3218.17	1204.37	0.66	6808769.19	433120.20	N 61 24 20.118	E 1 44 50.847
8313.51	64.19	68.41	6225.19	2233.98	3249.77	1282.17	1.00	6808778.82	433143.90	N 61 24 20.444	E 1 44 52.432
8406.79	64.08	68.78	6265.88	2317.77	3280.40	1360.32	0.38	6808788.15	433167.71	N 61 24 20.760	E 1 44 54.025
8503.66	64.12	68.99	6308.20	2404.80	3311.79	1441.61	0.20	6808797.72	433192.48	N 61 24 21.085	E 1 44 55.682
8596.35	64.10	69.10	6348.67	2488.08	3341.61	1519.48	0.11	6808806.80	433216.21	N 61 24 21.393	E 1 44 57.270
8689.48	64.10	69.24	6389.35	2571.76	3371.41	1597.78	0.14	6808815.88	433240.07	N 61 24 21.701	E 1 44 58.866
8781.56	64.27	69.23	6429.45	2654.56	3400.79	1675.28	0.18	6808824.83	433263.68	N 61 24 22.005	E 1 45 0.446
8878.31	64.13	69.40	6471.56	2741.58	3431.56	1756.78	0.21	6808834.21	433288.51	N 61 24 22.323	E 1 45 2.108
8973.53	64.31	69.49	6512.97	2827.25	3461.67	1837.06	0.21	6808843.38	433312.97	N 61 24 22.635	E 1 45 3.745
9068.15	64.15	69.12	6554.11	2912.37	3491.78	1916.77	0.39	6808852.56	433337.26	N 61 24 22.946	E 1 45 5.370
9162.87	64.28	68.43	6595.31	2997.54	3522.66	1996.27	0.67	6808861.97	433361.48	N 61 24 23.265	E 1 45 6.991
9251.37	64.33	67.72	6633.68	3077.11	3552.43	2070.25	0.73	6808871.04	433384.03	N 61 24 23.572	E 1 45 8.498
9347.03	64.35	67.18	6675.11	3163.08	3585.50	2149.89	0.51	6808881.11	433408.29	N 61 24 23.913	E 1 45 10.121
9437.46	64.30	66.47	6714.29	3244.26	3617.57	2224.81	0.71	6808890.89	433431.12	N 61 24 24.243	E 1 45 11.647
9522.53	64.18	66.52	6751.26	3320.54	3648.13	2295.07	0.15	6808900.20	433452.53	N 61 24 24.557	E 1 45 13.078
9614.79	64.22	66.53	6791.41	3403.24	3681.22	2371.26	0.04	6808910.28	433475.74	N 61 24 24.897	E 1 45 14.630
9707.63	64.14	66.83	6831.85	3486.47	3714.30	2448.00	0.30	6808920.36	433499.12	N 61 24 25.237	E 1 45 16.193
9802.71	64.16	67.05	6873.30	3571.71	3747.82	2526.73	0.21	6808930.57	433523.11	N 61 24 25.582	E 1 45 17.797
9888.66	64.19	67.18	6910.75	3648.81	3777.90	2598.01	0.14	6808939.74	433544.83	N 61 24 25.891	E 1 45 19.249
9982.27	64.20	67.20	6951.50	3732.81	3810.57	2675.69	0.02	6808949.69	433568.50	N 61 24 26.227	E 1 45 20.832
10074.57	64.12	67.49	6991.73	3815.62	3842.57	2752.35	0.30	6808959.44	433591.86	N 61 24 26.557	E 1 45 22.394
10165.98	64.07	67.40	7031.66	3897.60	3874.11	2828.29	0.10	6808969.05	433615.00	N 61 24 26.881	E 1 45 23.941
10257.30	64.15	67.90	7071.54	3979.53	3905.35	2904.27	0.50	6808978.57	433638.15	N 61 24 27.203	E 1 45 25.489
10349.90	64.40	68.36	7111.73	4062.77	3936.43	2981.69	0.52	6808988.04	433661.74	N 61 24 27.524	E 1 45 27.067
10436.50	64.65	68.84	7148.98	4140.82	3964.95	3054.48	0.58	6808996.73	433683.91	N 61 24 27.818	E 1 45 28.551
10532.66	64.56	69.13	7190.22	4227.58	3996.10	3135.57	0.29	6809006.22	433708.62	N 61 24 28.140	E 1 45 30.204
10621.02	64.63	69.31	7228.12	4307.31	4024.42	3210.19	0.20	6809014.85	433731.36	N 61 24 28.433	E 1 45 31.726
10714.44	64.66	69.37	7268.13	4391.65	4054.21	3289.19	0.07	6809023.93	433755.43	N 61 24 28.741	E 1 45 33.337
10804.21	64.55	69.66	7306.63	4472.67	4082.59	3365.15	0.32	6809032.57	433778.58	N 61 24 29.034	E 1 45 34.886
10897.56	64.60	69.97	7346.70	4556.93	4111.68	3444.28	0.30	6809041.44	433802.69	N 61 24 29.336	E 1 45 36.500
10988.23	64.54	70.25	7385.64	4638.77	4139.54	3521.29	0.29	6809049.93	433826.15	N 61 24 29.624	E 1 45 38.071
11078.78	64.66	70.49	7424.48	4720.54	4167.02	3598.33	0.27	6809058.30	433849.62	N 61 24 29.909	E 1 45 39.642
11172.92	64.61	70.90	7464.81	4805.59	4195.14	3678.61	0.40	6809066.87	433874.08	N 61 24 30.201	E 1 45 41.280
11263.03	64.74	71.08	7503.35	4887.03	4221.67	3755.62	0.23	6809074.95	433897.55	N 61 24 30.477	E 1 45 42.852
11354.31	64.81	70.10	7542.25	4969.58	4249.11	3833.50	0.97	6809083.31	433921.28	N 61 24 30.761	E 1 45 44.440
11445.97	64.78	69.17	7581.29	5052.45	4277.97	3911.25	0.92	6809092.11	433944.97	N 61 24 31.060	E 1 45 46.026
11537.39	64.76	68.31	7620.26	5135.02	4307.96	3988.32	0.85	6809101.24	433968.45	N 61 24 31.370	E 1 45 47.597
11627.95	64.81	67.27	7658.84	5216.74	4338.93	4064.17	1.04	6809110.68	433991.56	N 61 24 31.689	E 1 45 49.143
11720.25	64.81	66.30	7698.12	5299.93	4371.85	4140.93	0.95	6809120.71	434014.95	N 61 24 32.027	E 1 45 50.707
11814.27	64.63	66.08	7738.27	5384.53	4406.17	4218.70	0.29	6809131.17	434038.65	N 61 24 32.379	E 1 45 52.291
11908.09	64.58	66.36	7778.51	5468.87	4440.35	4296.26	0.27	6809141.58	434062.28	N 61 24 32.730	E 1 45 53.871
12002.81	64.42	66.81	7819.29	5554.00	4474.32	4374.72	0.46	6809151.93	434086.18	N 61 24 33.079	E 1 45 55.469
12098.40	64.54	67.25	7860.47	5639.95	4507.98	4454.14	0.43	6809162.19	434110.38	N 61 24 33.426	E 1 45 57.087
12190.98	64.54	67.65	7900.27	5723.29	4540.04	4531.34	0.39				

12475.39	64.52	68.56	8022.53	5979.49	4636.29	4769.40	0.49	6809201.29	434206.44	N 61 24 34.747	E 1 46 3.513
12564.22	64.52	68.65	8060.75	6059.55	4665.55	4844.07	0.09	6809210.20	434229.19	N 61 24 35.049	E 1 46 5.035
12657.71	64.56	68.97	8100.94	6143.84	4696.06	4922.77	0.31	6809219.50	434253.17	N 61 24 35.364	E 1 46 6.640
12750.41	64.63	69.17	8140.71	6227.47	4725.97	5000.98	0.21	6809228.61	434277.00	N 61 24 35.673	E 1 46 8.235
12841.48	64.54	69.79	8179.79	6309.65	4754.80	5078.02	0.62	6809237.39	434300.48	N 61 24 35.971	E 1 46 9.806
12938.58	64.32	71.94	8221.70	6397.22	4783.51	5160.76	2.01	6809246.14	434325.69	N 61 24 36.269	E 1 46 11.495
13033.78	64.73	73.18	8262.65	6483.16	4809.27	5242.75	1.25	6809253.99	434350.67	N 61 24 36.538	E 1 46 13.169
13127.31	65.58	73.07	8301.95	6568.01	4833.91	5323.97	0.92	6809261.50	434375.42	N 61 24 36.796	E 1 46 14.828
13223.30	66.55	74.62	8340.90	6655.69	4858.31	5408.24	1.79	6809268.93	434401.09	N 61 24 37.052	E 1 46 16.549
13317.33	67.85	73.47	8377.33	6742.31	4882.14	5491.58	1.78	6809276.19	434426.49	N 61 24 37.302	E 1 46 18.252
13408.76	68.52	71.54	8411.31	6827.18	4907.66	5572.53	2.09	6809283.97	434451.15	N 61 24 37.568	E 1 46 19.905
13501.38	68.54	68.80	8445.22	6913.32	4936.90	5653.60	2.75	6809292.88	434475.85	N 61 24 37.871	E 1 46 21.558
13592.74	67.57	65.06	8479.37	6997.73	4970.09	5731.55	3.94	6809302.99	434499.60	N 61 24 38.212	E 1 46 23.147
13687.67	65.42	63.66	8517.23	7084.03	5007.75	5810.02	2.64	6809314.47	434523.52	N 61 24 38.597	E 1 46 24.744
13780.12	64.57	63.79	8556.31	7166.96	5044.84	5885.15	0.93	6809325.77	434546.41	N 61 24 38.976	E 1 46 26.273
13868.96	64.11	64.53	8594.78	7246.32	5079.74	5957.22	0.91	6809336.40	434568.37	N 61 24 39.333	E 1 46 27.740
13965.46	64.42	66.20	8636.68	7332.68	5115.97	6036.23	1.59	6809347.44	434592.44	N 61 24 39.705	E 1 46 29.349
14060.47	64.50	66.77	8677.65	7418.02	5150.17	6114.84	0.55	6809357.86	434616.39	N 61 24 40.056	E 1 46 30.951
14153.52	64.30	66.92	8717.85	7501.62	5183.17	6192.00	0.26	6809367.92	434639.90	N 61 24 40.395	E 1 46 32.523
14245.00	64.24	67.01	8757.57	7583.72	5215.42	6267.84	0.11	6809377.74	434663.01	N 61 24 40.726	E 1 46 34.068
14339.05	64.19	67.16	8798.48	7668.11	5248.39	6345.84	0.15	6809387.79	434686.78	N 61 24 41.065	E 1 46 35.658
14432.79	64.18	67.19	8839.30	7752.21	5281.13	6423.62	0.03	6809397.76	434710.47	N 61 24 41.402	E 1 46 37.243
14523.70	64.38	66.88	8878.75	7833.82	5313.08	6499.03	0.38	6809407.50	434733.45	N 61 24 41.730	E 1 46 38.779
14617.82	64.23	66.94	8919.56	7918.32	5346.34	6577.05	0.17	6809417.63	434757.22	N 61 24 42.072	E 1 46 40.369
14710.72	64.05	66.94	8960.08	8001.60	5379.09	6653.96	0.19	6809427.61	434780.66	N 61 24 42.409	E 1 46 41.937
14805.83	63.95	68.14	9001.78	8086.84	5411.75	6732.96	1.14	6809437.56	434804.73	N 61 24 42.745	E 1 46 43.547
14892.68	64.12	69.03	9039.80	8164.79	5440.26	6805.65	0.94	6809446.25	434826.88	N 61 24 43.039	E 1 46 45.029
14983.06	64.16	68.91	9079.22	8246.02	5469.44	6881.57	0.13	6809455.14	434850.01	N 61 24 43.340	E 1 46 46.577
15075.39	64.20	68.78	9119.44	8329.01	5499.44	6959.08	0.13	6809464.28	434873.63	N 61 24 43.650	E 1 46 48.158
15168.61	64.17	68.64	9160.03	8412.80	5529.91	7037.27	0.14	6809473.56	434897.45	N 61 24 43.964	E 1 46 49.752
15259.07	64.28	68.58	9199.37	8494.13	5559.62	7113.12	0.14	6809482.62	434920.56	N 61 24 44.271	E 1 46 51.299
15353.78	64.05	68.56	9240.64	8579.23	5590.76	7192.47	0.24	6809492.11	434944.74	N 61 24 44.592	E 1 46 52.917
15437.99	63.73	68.01	9277.70	8654.70	5618.74	7262.72	0.70	6809500.63	434966.14	N 61 24 44.880	E 1 46 54.350
15531.67	63.79	68.00	9319.12	8738.53	5650.21	7340.63	0.06	6809510.22	434989.88	N 61 24 45.204	E 1 46 55.938
15622.18	64.10	68.36	9358.87	8819.68	5680.43	7416.11	0.49	6809519.43	435012.88	N 61 24 45.516	E 1 46 57.477
15712.65	64.45	69.46	9398.14	8901.07	5709.76	7492.16	1.16	6809528.36	435036.05	N 61 24 45.818	E 1 46 59.028
15802.87	64.36	70.88	9437.12	8982.40	5737.36	7568.69	1.42	6809536.77	435059.37	N 61 24 46.104	E 1 47 0.589
15898.08	64.55	72.10	9478.18	9068.29	5764.63	7650.15	1.17	6809545.08	435084.19	N 61 24 46.388	E 1 47 2.252
15990.03	65.05	70.22	9517.33	9151.48	5791.50	7728.89	1.93	6809553.27	435108.18	N 61 24 46.666	E 1 47 3.859
16028.80	65.01	69.40	9533.70	9186.60	5803.63	7761.87	1.92	6809556.97	435118.23	N 61 24 46.792	E 1 47 4.532
16149.61	64.92	67.80	9584.82	9295.88	5843.56	7863.78	1.20	6809569.13	435149.28	N 61 24 47.204	E 1 47 6.611
16239.85	63.15	68.00	9624.33	9376.81	5874.09	7938.95	1.97	6809578.43	435172.19	N 61 24 47.518	E 1 47 8.143
16332.54	62.27	68.63	9666.83	9459.02	5904.52	8015.49	1.13	6809587.71	435195.51	N 61 24 47.832	E 1 47 9.704
16423.29	62.25	68.93	9709.07	9539.23	5933.60	8090.36	0.29	6809596.57	435218.32	N 61 24 48.132	E 1 47 11.231
16520.71	62.23	69.24	9754.45	9625.33	5964.37	8170.89	0.28	6809605.94	435242.86	N 61 24 48.449	E 1 47 12.873
16611.59	62.71	68.91	9796.45	9705.82	5993.15	8246.17	0.62	6809614.71	435265.80	N 61 24 48.746	E 1 47 14.409
16702.44	62.90	69.20	9837.97	9786.53	6022.04	8321.63	0.35	6809623.51	435288.79	N 61 24 49.045	E 1 47 15.948
16803.04	62.87	69.67	9883.82	9875.99	6053.49	8405.47	0.42	6809633.10	435314.33	N 61 24 49.370	E 1 47 17.658
16895.93	62.77	69.70	9926.25	9958.57	6082.18	8482.96	0.11	6809641.84	435337.95	N 61 24 49.666	E 1 47 19.239
16985.87	62.75	70.48	9967.42	10038.49	6109.41	8558.15	0.77	6809650.14	435360.85	N 61 24 49.948	E 1 47 20.773
17082.47	62.69	71.10	10011.70	10124.33	6137.66	8639.22	0.57	6809658.74	435385.56	N 61 24 50.241	E 1 47 22.428
17173.17	62.60	70.93	10053.37	10204.88	6163.87	8715.40	0.19	6809666.73	435408.77	N 61 24 50.513	E 1 47 23.983
17268.63	60.30	70.06	10098.99	10288.70	6191.86	8794.44	2.54	6809675.26	435432.85	N 61 24 50.803	E 1 47 25.596
17360.77	57.86	69.90	10146.34	10367.70	6218.92	8868.70	2.65	6809683.50	435455.48	N 61 24 51.083	E 1 47 27.111
17456.05	56.22	69.99	10198.17	10447.59	6246.33	8943.79	1.72	6809691.86	435478.36	N 61 24 51.366	E 1 47 28.644
17546.43	54.79	70.30	10249.36	10522.05	6271.63	9013.85	1.61	6809699.56	435499.71	N 61 24 51.628	E 1 47 30.073
17639.93	54.99	70.93	10303.13	10598.51	6297.02	9086.00	0.59	6809707.30	435521.69	N 61 24 51.891	E 1 47 31.546
17735.09	55.01	71.60	10357.71	10676.46	6322.05	9159.82	0.58	6809714.93	435544.18	N 61 24 52.151	E 1 47 33.053
17824.63	54.60	71.83	10409.32	10749.63	6345.01	9229.30	0.50	6809721.92	435565.35	N 61 24 52.390	E 1 47 34.471
17917.55	52.87	71.32	10464.28	10824.55	6368.69	9300.38	1.91	6809729.14	435587.01	N 61 24 52.636	E 1 47 35.922
17974.25	51.74	71.74	10498.95	10869.41	6382.90	9342.93	2.08	6809733.47	435599.97	N 61 24 52.784	E 1 47 36.791
18052.00	51.74	71.74	10547.10	10930.46	6402.03	9400.91	0.00	6809739.30	435617.64	N 61 24 52.982	E 1 47 37.975

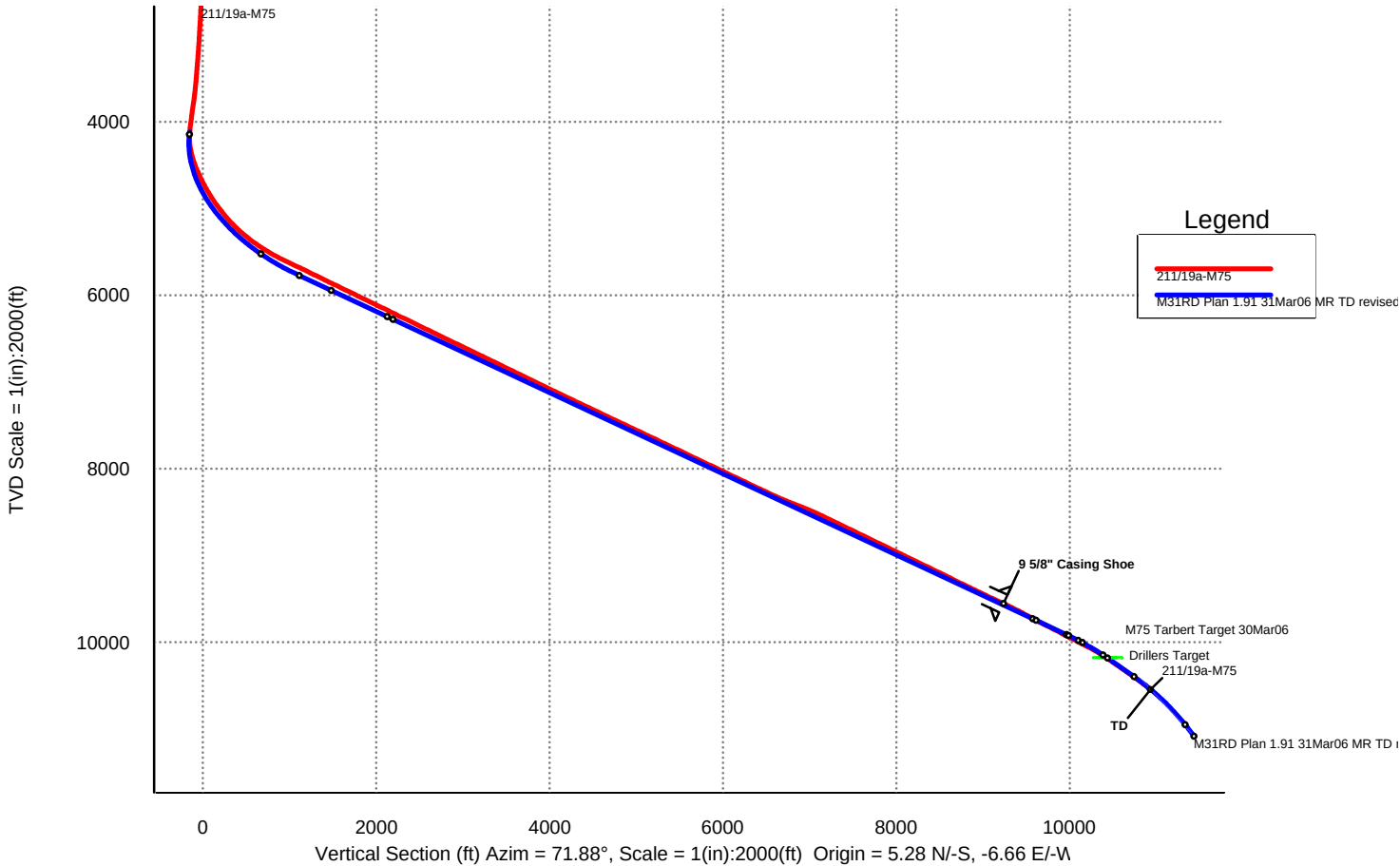
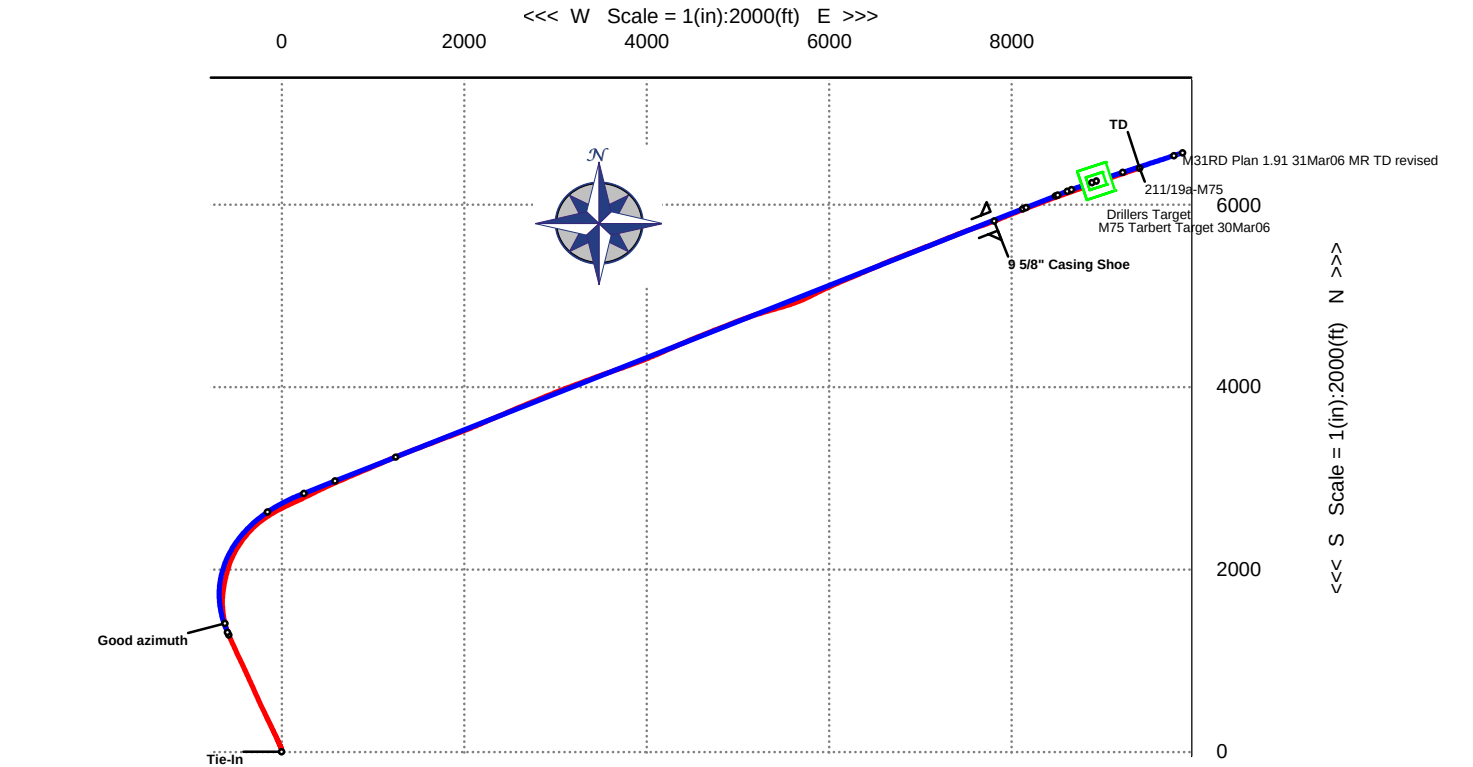
Survey Type: Definitive Survey

Survey Error Model: SLB ISCWSA version 24 *** 3-D 73.85% Confidence 2.0000 sigma

Surveying Prog:

MD From (ft)	MD To (ft)	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	697.00	Act-Stns	SLB_PHOTO-GMS-Depth Only	M75 -> 211/19a-M75
697.00	4464.00	Act-Stns	SLB_PHOTO-GMS	M75 -> 211/19a-M75
4464.00	4922.05	Act-Stns	SLB_MWD+SAG	M75 -> 211/19a-M75
4922.05	18052.00	Act-Stns	SLB_MWD+GMAG	M75 -> 211/19a-M75

WELL 211/19-M75 Plan Vs Actual			FIELD Murchison/Blamann Prospect			STRUCTURE Murchison Platform		
Magnetic Parameters Model: BGGM 2006 Dip: 73.471° Mag Dec: -3.033°			Surface Location Lat: N61 23 48.260 Lon: E1 44 27 249 UTM Zone 31 on ED50 Datum Northing: 6807790.24 m Easting: 432751.20 m Grid Conv: -1.10547288° Scale Fact: 0.9996554002			Miscellaneous Slot: 23 Plan: 211/19a-M75 TVD Ref: Rotary Table (185.00 ft above MSL) Svy Date: September 05, 2006		



Appendix C

MWD/LWD Summaries

CNR International
211/19a-M75

MWD Run Number	Hole Section	MWD & LWD Tool Size	Bit Run Number
1	12 1/4 in.	8 1/4 in.	Mill
Depth	Date	Drift	Azimuth
Start 4550 ft	Start 24-Jul-06	Start 48.00 °	Start 336.00 °
End 4591 ft	End 26-Jul-06	End 49.00 °	End 340.00 °

Run Objective Orient and set whipstock 45 - 70 deg RHS at +/- 4500 ft in parent well M31. Mill window in 13 3/8 in. csg. and 20 ft of new formation. Perform FIT to 14.0 ppg EMW.

Services Provided

PowerPulse: Toolface, Shocks

Result The PowerPulse MWD tool was made up to the MCBPV and shallow hole tested at 600gpm. The whipstock face and packer assembly was made up to the mill and run in hole. The whipstock was run to setting depth of 4584 ft, where it was orientated to 66 deg right of high side. The well was then displaced to 11.8 ppg OBM prior to milling. A window from 4548 ft to 94571 ft was milled along with a 20 ft rathole. The MWD tool turned on and functioned well with very little shock counts observed. After circulating clean a FIT was performed successfully to 13.5 ppg. EMW. At surface the Lead, Follow and Dress mills were found to be 5/16 in., 3/8 in. and 5/16 in. undergauge respectively.

Drilling Parameters			
Avg ROP	6.0 ft/hr	Avg FLOW	600 gpm
Avg RPM	100 rpm	Avg WOB	10 klbs
SP Pressure	1300 psi	Avg TORQ	6 kftlbs

Rig Bit Data		
Rig Bit Number	Mill	IADC
Make	Red Baron	Jets/TFA
Type	TrackMaster	Serial Number

Drilling Fluid Data		
	Lowest	Highest
Mud Weight (ppg)	11.85	11.85
Funnel Viscosity(Sec/Qt)	63	64
Plastic Viscosity (centipoise)	19	19
Yield Point(lb/100ft2)	21	22
Fluid Loss (cc)	-	-
Chloride (mg/l)	37,000	37,500
Sand %	0.1	0.1
Solid %	15.6	15.6
Oil %	56	56
Water %	27	27

BHA Stabilisation			
	Type	Start	End
Mill	Lead	12 1/4 in.	11 15/16 in.
Mill	Follow	12 1/4 in.	11 7/8 in.
Mill	Dress	12 1/4 in.	11 15/16 in.
Stabiliser 3	N/A	N/A	N/A

Downhole Shock Data		
	Highest	Average
Total Downhole MWD Shock	0 k	N/A
MWD Shock Risk	0	0
LWD Shock Risk	N/A	N/A

Formation Evaluation Log Highlights

Formation logging tools not run during the setting of whipstock / milling casing window.

MWD & LWD Tool Data

MWD Tool Type	PowerPulse	MWD Tool No.	MEA-1358	Bit-Survey Depth (ft)	110.39
MWD Frame ID	982-984	MWD Collar	DE-FP70	Bit-Gamma Ray Depth (ft)	-
Tool Face Angle (deg.)	188.3	CDR Tool No.	-	Bit-Resistivity Depth (ft)	-
Transmission Rate (bps)	3	ADN Tool No.	-	Bit-Density Depth (ft)	-
Modulator Gap (inches)	0.16	ARC Tool No.	-	Bit-Porosity Depth (ft)	-
Turbine Configuration (gpm)	600-1200	GST Tool No.	-	Bit- Pressure Depth (ft)	-

Quick-Check Performance Analysis

MWD - PPL		LWD - ARC		LWD - ADN		LWD - RAB	
Failure	No	Failure	-	Failure	-	Failure	-
Tool Size	8 1/4 in.	Tool Size	-	Tool Size	-	Tool Size	-
Total Footage		Total Footage		Total Footage		Total Footage	
Drilled	41 ft	Drilled	-	Drilled	-	Drilled	-
Logged	0 ft	Logged	-	Logged	-	Logged	-
Pump Time	12.5	Pump Time	-	Pump Time	-	Pump Time	-
Percent (%)	100	Percent (%)	-	Percent (%)	-	Percent (%)	-

CNR International
211/19a-M75

MWD Run Number		Hole Section		MWD & LWD Tool Size		Bit Run Number	
2		12 1/4 in.		8 1/4 in.		1	
Depth		Date		Drift		Azimuth	
Start	4591 ft	Start	26-Jul-06	Start	49.00 °	Start	340.00 °
End	16100 ft	End	08-Aug-06	End	65.00 °	End	69.20 °
Run Objective	Drill 12 1/4" section in single run following the well plan, building inclination from 49° to 67° and turning azimuth from 340° to 060° with 3°/100 DLS. Drill to TD @ ±16100 ft MD.						
Services Provided							
Continuous D&I, Surveys, Downhole Temperature, Stick & Slip, Shocks & Vibrations, Downhole Collar RPM. LWD Gamma Ray & Resistivity, Annular Pressure While Drilling							
Result	The PowerDrive rotary steerable drilling assembly was made up and surface tested before running in hole to drill ahead the 12 1/4in hole section. Drilling of the section was on the whole problem free. Realtime communication with the PowerDrive was lost, but drilling continued with good response from the PowerDrive. Data demodulation from the PowerPulse MWD tool was good throughout the run until problems occurred with pump noise. It was found that the Pulsation dampeners on the pumps were leaking, so required recharging. Signal demodulation after the recharge was good. Th BHA was pumped out of hole but became increasingly difficult with over pulls recorded on each stand from 6450 ft to 5700 ft. Circulation was established which produced large amounts of fines at the shakers.						
Drilling Parameters				Rig Bit Data			
Avg ROP	36.3 ft/hr	Avg FLOW	862 gpm	Rig Bit Number	1	IADC	
Avg RPM	130 rpm	Avg WOB	13 klbs	Make	Smith	Jets/TFA	3 x 15, 3 x 16 / 1.11
SP Pressure	3419 psi	Avg TORQ	6 kftlbs	Type	MRS619PX	Serial Number	JW5554
Drilling Fluid Data				BHA Stabilisation			
		Lowest	Highest		Type	Start	End
Mud Weight (ppg)		11.85	13.05	Stabiliser 1	PowerDrive	12 1/8 in.	12 1/8 in.
Funnel Viscosity(Sec/Qt)		59	64	Stabiliser 2	N/A	N/A	N/A
Plastic Viscosity (centipoise)		19	49	Stabiliser 3	N/A	N/A	N/A
Yield Point(lb/100ft2)		21	22	Stabiliser 4	N/A	N/A	N/A
Fluid Loss (cc)		-	-				
Chloride (mg/l)		37,000	45,000				
Sand %		0.1	0.2				
Solid %		17	27				
Oil %		51.5	56				
Water %		21	27				
				Downhole Shock Data			
					Highest	Average	
				Total Downhole MWD Shock	0 k	N/A	
				MWD Shock Risk	0	0	
				LWD Shock Risk	0	0	
Formation Evaluation Log Highlights							
Balder Fmn 67615 ftMD (5344 ft TVDSS)		Sele Fmn 7030 ft MD (5482.7 ft TVDSS)		Lista Fmn 7120 ftMD (5521.1 ft TVDSS)		Vale Fmn 8210 ftMD (5995 1 ft TVDSS)	
		Shetland Groun 8327 ft MD (6046 1 ft TVDSS)					
MWD & LWD Tool Data							
MWD Tool Type	PowerPulse	MWD Tool No.	MEA-1358	Bit-Survey Depth (ft)		63.17	
MWD Frame ID	982-984	MWD Collar	DE-FP70	Bit-Gamma Ray Depth (ft)		38.63	
Tool Face Angle (deg.)	0	CDR Tool No.	-	Bit-Resistivity Depth (ft)		38.46	
Transmission Rate (bps)	3	ADN Tool No.	-	Bit-Density Depth (ft)		-	
Modulator Gap (inches)	0.16	ARC Tool No.	AREA 8126	Bit-Porosity Depth (ft)		-	
Turbine Configuration (gpm)	600-1200	GST Tool No.	-	Bit- Pressure Depth (ft)		36.13	
Quick-Check Performance Analysis							
MWD - PPL		LWD - ARC		LWD - ADN		LWD - RAB	
Failure	No	Failure	No	Failure	-	Failure	-
Tool Size	8 1/4 in.	Tool Size	8 1/4 in.	Tool Size	-	Tool Size	-
Total Footage		Total Footage		Total Footage		Total Footage	
Drilled	11509 ft	Drilled	11509 ft	Drilled	-	Drilled	-
Logged	11509 ft	Logged	11509 ft	Logged	-	Logged	-
Pump Time	308.3	Pump Time	308.3	Pump Time	-	Pump Time	-
Percent (%)	100	Percent (%)	100	Percent (%)	-	Percent (%)	-

CNR International
211/19a-M75

MWD Run Number	Hole Section	MWD & LWD Tool Size	Bit Run Number
3	8 1/2 in.	6 3/4 in.	2
Depth	Date	Drift	Azimuth
Start 16100 ft	Start 24-Aug-06	Start 65.00 °	Start 69.20 °
End 18052 ft	End 31-Aug-06	End 50.20 °	End 71.50 °

Run Objective Drill 8 1/2" with PowerDrive X5 BHA in single run following the well plan with +/- 2 deg/100 DLS. Intersect the single directional targets and drill to TD @ +/- 18850 ft MD.

Services Provided

Continuous D&I, Surveys, Downhole Temperature, Stick & Slip, Shocks & Vibrations, Downhole Collar RPM.
LWD Gamma Ray, Resistivity, Density & Porosity, Ultrasonic Caliper, Annular Pressure While Drilling

Result TA successful surface test was performed on the tools before RIH. Tagged top of cement at 15618 ft. Test casing to 3500 psi. Drilled out cement and cleaned out rat hole with 350 gpm: good, hard cement. With Powerdrive set in neutral begin to drill new formation. Initially flow rate is restricted by ECD which is reported as 14.55 ppg for only 375 gpm. 15 ppg was the upper limit set. Gradually stage up flow to 450 gpm while drilling ahead, ECD is 14.66 ppg. At 16317 ft, prior to a connection, high torque stalled the drill string. Torque characteristic was smooth in nature but very high. Pulled back into shoe to circulate and condition mud to correct oil/water ratio. Continued to drill with torque around 22-23k. Picked off bottom on occasion to circulate to reduce ECD to below 14.9ppg. Top of pay zone came in late then drilled into fault and incurred mud losses. Circulated LCM and clean

Drilling Parameters			
Avg ROP	40.0 ft/hr	Avg FLOW	530 gpm
Avg RPM	160 rpm	Avg WOB	13 klbs
SP Pressure	3650 psi	Avg TORQ	24 kftlbs

Rig Bit Data			
Rig Bit Number	2	IADC	M322
Make	ReedHycalog	Jets/TFA	6 x 15 / 1.035
Type	RSX162	Serial Number	210901

Drilling Fluid Data		
	Lowest	Highest
Mud Weight (ppg)	12.8	13
Funnel Viscosity(Sec/Qt)	76	78
Plastic Viscosity (centipoise)	40	47
Yield Point(lb/100ft2)	15	15
Fluid Loss (cc)	-	-
Chloride (mg/l)	38,500	40,000
Sand %	0	0
Solid %	24	24
Oil %	52	53
Water %	23	24

BHA Stabilisation			
	Type	Start	End
Stabiliser 1	PowerDrive	8 1/4 in.	8 1/4 in.
Stabiliser 2	ILS	8 3/16 in.	8 3/16 in.
Stabiliser 3	VDN	8 1/4 in.	8 1/4 in.
Stabiliser 4	N/A	N/A	N/A

Downhole Shock Data		
	Highest	Average
Total Downhole MWD Shock	0 k	N/A
MWD Shock Risk	0	0
LWD Shock Risk	0	0

Formation Evaluation Log Highlights

MWD & LWD Tool Data

MWD Tool Type	PowerPulse	MWD Tool No.	MEA-055	Bit-Survey Depth (ft)	67.21
MWD Frame ID	982-984	MWD Collar	AE-Ef01	Bit-Gamma Ray Depth (ft)	65.09
Tool Face Angle (deg.)	0	ARC Tool No.	-	Bit-Resistivity Depth (ft)	37.53
Transmission Rate (bps)	3	ADN Tool No.	ADSE-213	Bit-Density Depth (ft)	92.74
Modulator Gap (inches)	0.09	ADN Tool No.	AREA-230	Bit-Porosity Depth (ft)	95.99
Turbine Configuration (gpm)	300-600	ARC Tool No.	-	Bit- Pressure Depth (ft)	35.20

Quick-Check Performance Analysis

MWD - PPL		LWD - ARC		LWD - ADN		LWD - RAB	
Failure	No	Failure	No	Failure	No	Failure	-
Tool Size	6 3/4 in.	Tool Size	6 3/4 in.	Tool Size	6 3/4 in.	Tool Size	-
Total Footage		Total Footage		Total Footage		Total Footage	
Drilled	1952 ft	Drilled		Drilled		Drilled	-
Logged		Logged		Logged		Logged	-
Pump Time		Pump Time		Pump Time		Pump Time	-
Percent (%)	100	Percent (%)	100	Percent (%)	100	Percent (%)	-