Northern Petroleum (UK) LTD

Composite Log

La Tosca 1

Well Data

Well Name:	La Tosca 1
Country:	Italy
Field:	La Tosca
Status:	Plugged & abandoned
Rig:	Hydro Drilling International HH220 FA Leonardo
Latitude:	44° 33' 28.192" N
Longitude:	12° 00' 51.858" E
Depth Datum:	Rotary Table
Total Depth:	2335 m MD (2258.6 m TVDSS)
BH Latitude:	12º 00' 44.64" E
BH Longitude:	44º 33' 31.116" N
RT Elevation:	10.75m
GL Elevation:	3m
Spud Date:	06 Aug 2012

Partners, Contractors, Geologists

Partners:

Northern Petroleum (UK) Ltd	30%
Orca Exploration	70%

Contractors:

Drilling	Hydro Drilling International
Mudlogging	Baker Hughes
MWD	Baker Hughes
Directional	Baker Hughes
Wireline	Baker Hughes
Mud	Baker Hughes
Cement	Baker Hughes

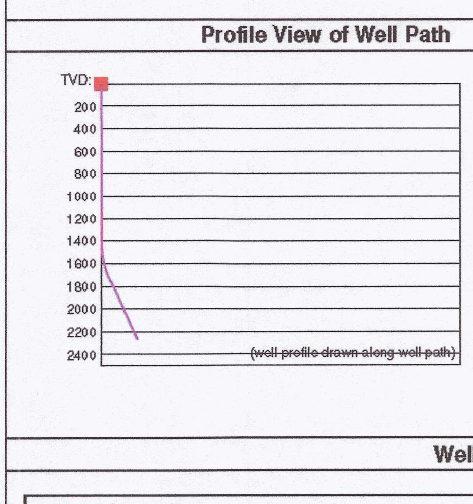
Geologists:

Paolo Martini

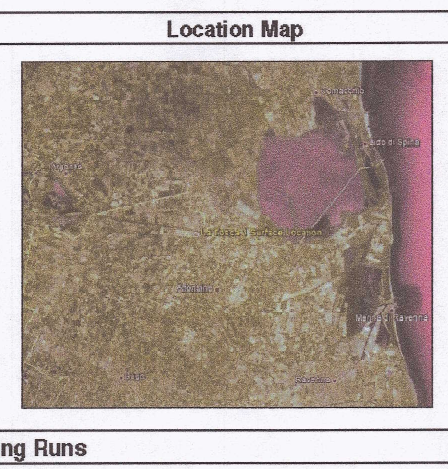
Remarks:

06/08/2012	22	Spud in- RIH 16"Bit; M/Up BHA; Washed 20"C.Pipe to 64mt.; Drilled from 64 to 86mt.
07/08/2012	314	Drilled 16" hole from 314 to 386mt 62m in 6hr 10.03 m/hr
08/08/2012	597	Drilled 16" hole - Top Drive Service- Continue to drill 16" hole.
09/08/2012	610	Drilled to TD (610m), Circulate, Wiper trip to 60m(20" CP), Circulate , POOH 16" Bit -L/out BHA 16" hole, prepare to run 13"3/8csg
10/08/2012	610	RIH 13"3/8 csg- circulate, RIH cementing stinger, performed csg cementing Job, POOH cementing stinger
11/08/2012	610	POOH cement stinger,WOC-removed flow line and Diverter line,released -cut 3"3/8CSG,installed Well H.-welded and tested-OK-
12/08/2012	610	Assembled BOP Stack, Dressed BOP with proper rams, BOP function Test
13/08/2012	610	Test BOP, RIH 12"1/4Bit w/new BHA to 580m, mill csg fl.collar and CMT f580 to 581m- in progress
14/08/2012	782	Drilled CMT, perfor. csg integrity test, changed mud in hole w/new mud type,drilled 5m new formation-perf.LOT- Drilled from 610 to 782 m
15/08/2012	1052	Drilled f782 to 1052m (drilling break f890 to 894m and 894 to911m, flow check-ok-), circulate, wiper trip
16/08/2012	1282	Perform Wiper trip up to CSG Shoe. Drill 12 1/4 phase to 1282m.
17/08/2012	1350	Drilled f/1282 m to 1350 m
18/08/2012	1350	L/Down BHA 12 1/4". R/Up Wireline Baker and test tools. RIH Wireline to record: G. Ray; SP; Sonic; Caliper.
19/08/2012	1350	RIH Csg 9 5/8"47 lb/ft NV-VT L-80 f/407 m to 1344 m, filling up every joint.
20/08/2012	1350	W.O.C
21/08/2012	1422	M/U Directional BHA 8 1/2", RIH to 204 m and performed MWD surface test F =1650 l/min SP = 53 bar. Drilled from 1350 to 1422 m
22/08/2012	1610	Drilled formation from 1422 to 1484 m (in slide mode from 1458 m to 1469 m) Drilled formation from 1484 to 1610 m
23/08/2012	1798	Stuck BHA while sliding, worked free with 36t overpull, never lost circulation
23/08/2012	1798	Drilled from 1610 m to 1687 m (Sliding intervals:1612 -1620 m; 1625.5-1633 m; 1639.5-1647 m; Drilled from 1687 to 1798 m (Sliding intervals:1692 -1701 m; 1705-1715 m; 1720-1728 m; 1758 - 1763 m; 1787.5 - 1791 m; 1796 - 1797.5 m)
24/08/2012	1890	Drilled in rotary mode from 1798 m to 1877 m. Drilled in rotary mode from 1876 m to1890 m.(FR = 1664 l/min; SPP = 120-126 bar;)
25/08/2012	2079	Drilled in rotary mode from 1890 m to 2079m.(FR = 1650-1920 l/min; SPP = 120-160 bar; RPM 40-67).
26/08/2012	2254	Drilled in rotary mode from 2079 m to 2211 m.(FR = 1730-1920 l/min; SPP = 140-160 bar; RPM 60-65). Stopped drilling due to drilling break from 2208 m to 2211. Performed visual flow check and circulated bottom up (FR = 1730 l/min; SPP = 140 bar). Max Tot Gas 0.41%. Drilling in rotary mode from 2211 m to 2254 m (FR = 1730-1920 l/min; SPP = 140-160 bar; RPM 60-65).
27/08/2012	2335	Drilled in rotary mode from 2254 m to 2296 m.(FR = 1730 l/min; SPP = 150 bar). Drilled in rotary mode from 2296 m to 2335 m (TD) - (FR = 1730l/min; SPP = 140-160 bar; RPM 60-65).
28/08/2012	2335	POOH in pump out from 2355 m to Csg shoe 9 5/8" (1344 m)
29/08/2012	2335	Recorded Electric logs 1st run (GR-SP-HDIL-XMAC-ZDEN-CN) -POOH and lay/out tools. M/u logging tools 2nd run and performed Check Shot Survey (24 stations) - POOH and lay/out tools. M/u logging tools 3rd run (GR-RCI) and recorded Formation pressure test (10 stations+ 5 as repetition) POOH tools
29/08/2012	2335	RCI wireline tool stuck after successful pressure test, free with 1000 lbs overpull
30/08/2012	2335	Electric Logs, RIH tail tbg 2"7/8 to 1332m, W.O.Autorization to proceed with abandon well, RIH to 2000m, prepare for 1st CMT PLUG.

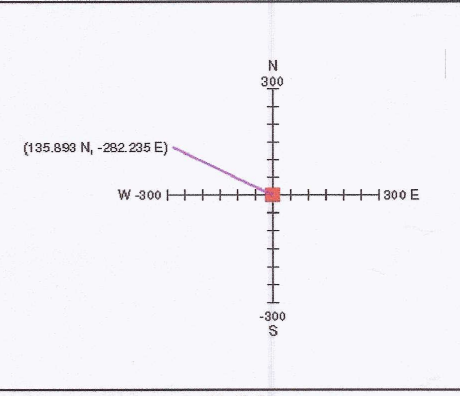
Profile View of Well Path



Location Map



Plan View of the Well Path



Well Configuration and Logging Runs

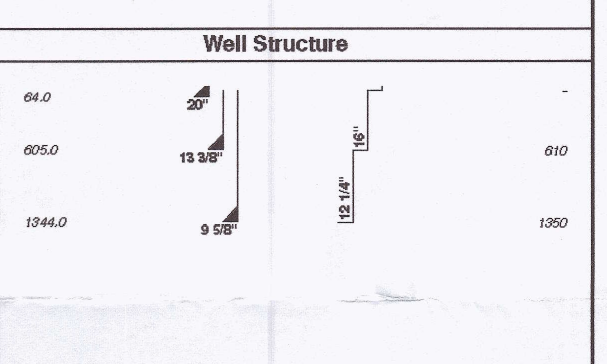
Hole and Casing Details

Bit Size	Hole MD (m)	Casing Size (")	Type	Shoe MD (m)	Hanger MD (m)	Comments
	-	20"	Casing	64.0	-	Driven before spud
16"	610	13 3/8"	Casing	605.0	-	Cemented to surface
12 1/4"	1350	9 5/8"	Casing	1344.0	-	Cemented to 200m MD (theoretical)

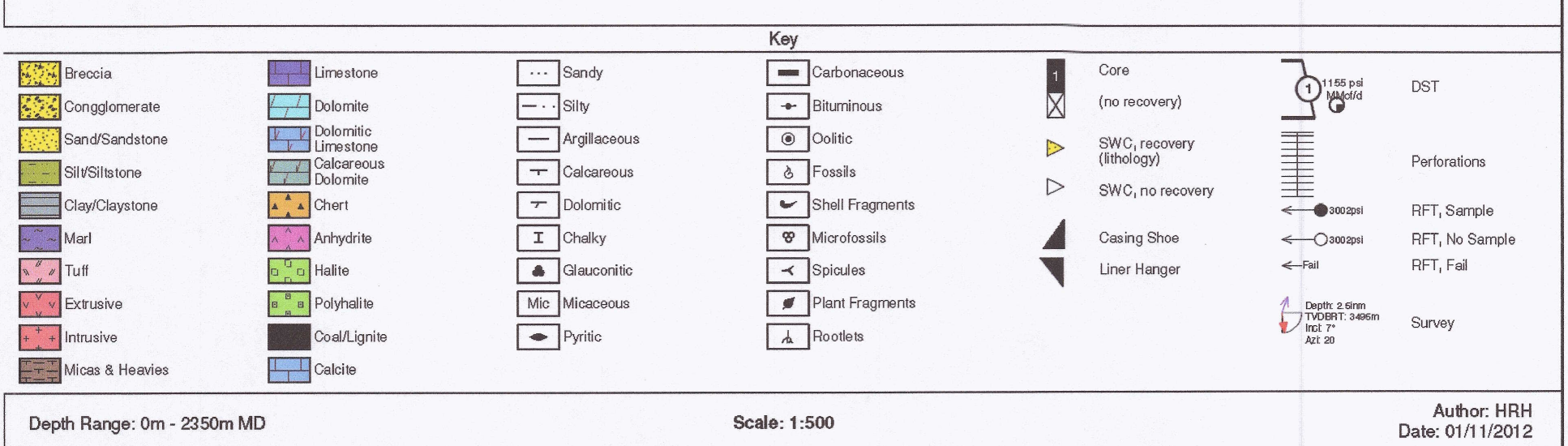
Wireline Logging Summary

Run	Hole Size (")	Suite	Dates	Interval MD (m)	Max Temp. °C	Comments
1	12.25	GR-SP-HDIL-XMAC-WGT	18/08/2012	1335-605	41.5	HDIL tool run to acquire SP data only
2A	8.5	GR-SP-HDIL- XMAC-ZDEN-CNC	28-29/08/2012	2334-1344	57.9	Recorded at high resolution (8 samples/foot) - Recorded CBL-VDL from 1344 to 25 m MD
2B	8.5	GR-ASR (Checkshot Survey)	29/08/2012	200-2335	-	24 stations acquired
2C	8.5	GR-RCI	29/08/2012	1420.5-1467.6	48.7	9 good tests, 5 tight, 1 unstable, 3 low permeability, 1 no seal

Well Structure



Key



Depth Range: 0m - 2350m MD

Scale: 1:500

Author: HRH
Date: 01/11/2012

CLAY/CLAYSTONE (60-90%): grey-light grey, soft to plastic, slighty silty, fossiliferous.
SANDSTONE (10-40%): Mainly quartzose ,white, occ light grey, locally poligenic, transparent - translucid, hard,
CaCO3 = 9 - 21 %
Locally biogenic, pred. microfossils (foraminifera sp.), occ broken macrofossils- bivalves, gastropods.
from very fine to medium, subangular, mod. Sorted, traces of Glauconite, Pyrite, Micas.
From 80 to 120m GRAVEL: polygenic, pred quartzitic.
From 110-120 and 160-170 abundant Lignite traces

CLAY/CLAYSTONE (70-90%): grey-light grey, loc reddish, soft to plastic, slighty silty, fossiliferous.
SANDSTONE (10-20%): Quartzose , very micaceous, white, occ light grey, locally poligenic, transparent - translucid, from very fine to medium, subangular, mod. sorted, common traces of Glauconite, Pyrite.
Occasional GRAVEL (Tr.-10%): polygenic, loc quartzitic, whitish.
Calcimetries = 8 - 21% / 8-21%
Locally biogenic, pred. microfossils (foraminifera sp.), occ broken macrofossils- bivalves, gastropods.
420-440m : abundant Lignite traces
310 490

CLAY/CLAYSTONE (20-80%): grey-light grey, soft, washable, plastic, locally silty
SAND/SANDSTONE (Tr-10%): Quartzose , very micaceous, white- light grey, transparent - translucid, from very fine to fine, subrounded, well sorted.
MARL(20-80%): Light grey-white, soft, blocky, fossiliferous
CALCIMETRY 27%-49%

Results

Wireline Formation Pressure Tests

Depth MD (m)	Depth TVDss (m)	Temperature °C	Hydrostatic Pressure psia	Drawdown Volume cc	Min Pressure psia	Final Pressure psia	Build-up Time sec	Drawdown Mobility mD/cP	DD Mob Confidence	Remarks
1434.70	1423.95	46.7	2657.65	0	164					tight
1434.00	1423.25	47.1	2656.12	11.8	1680					low perm & supercharged - aborted
1432.00	1421.25	47.7	2652.59	5.1	1748	2227.24	125	28.9	95.44	good test
1430.10	1419.35	48.2	2649.1	5.2	1897	2222.27	265	51.1	98.34	good test
1427.50	1416.75	48.3	2644.41	0	815					tight
1425.30	1414.55	48.4	2640.39	5.3	1652	2189.32	170	24.9	97.51	good test
1423.50	1412.75	48.5	2637.5	4.4	1965					supercharged
1421.50	1410.75	48.4	2633.36	0	1372					tight
1420.60	1409.85	48.6	2631.92	11.1	2629					no seal
1423.00	1412.25	48.7	2636.46	0	1284					tight
1434.00	1423.25	47	2657.22	5.3	1858					tight - supercharged
1432.20	1421.45	47.4	2653.7	5.1	1560	2227	205	11	72	good test
1430.10	1419.35	47.4	2649.79	5	1630					low perm - aborted
1430.20	1419.45	48	2650.01	3.1	1929					low perm - aborted
1467.60	1456.85	48.1	2719.7	5.3	1844	2242	230	14.2	27	good test but still building up 0.5 psi/min
1462.00	1451.25	48.6	2709.28	3.1	2153	2230.07	180	171	94.45	good test
1456.30	1445.55	48.7	2698.88	5	1684					low perm - aborted
1451.00	1440.25	48.5	2689.03	3.3	1948	2205	355	17	87.57	good test but still building up 0.6 psi/min
1443.50	1432.75	48.5	2675.33	2.9	1986	2201.35	200	52.3	95.23	good test

Bit Data

BIT No	MAKE	TYPE	SIZE	TFA / JETS	DEPTH IN (m)	PROGRESS (m)
1	SMITH	XRC	16"	3x18 + 1x16	25	585
2	SMITH	PDC	12 1/4"	7x13	610	740
3	SMITH	PDC	8 1/2"	5x15	1350	985

Deviation Data

MD	Inclination	Azimuth	TVDBRT	TVDSS	Easting	Northing
0.000	0.000	93.370	0.000	-10.500	0.000	0.000
1346.700	0.200	93.370	1346.700	1336.200	2.350	-0.140
1387.200	0.150	51.870	1387.200	1376.700	2.460	-0.110
1420.300	0.410	24.730	1420.300	1409.800	2.540	0.020
1440.200	0.460	16.290	1440.200	1429.700	2.590	0.170
1453.700	0.490	353.520	1453.700	1443.200	2.600	0.280
1466.300	1.560	312.760	1466.290	1455.790	2.470	0.450
1493.700	3.490	300.900	1493.670	1483.170	1.480	1.130
1521.100	5.530	291.940	1520.980	1510.480	-0.460	2.050
1548.000	7.890	288.640	1547.690	1537.190	-3.410	3.120
1575.000	10.780	288.610	1574.330	1563.830	-7.560	4.520
1602.200	12.690	292.800	1600.960	1590.460	-12.730	6.490
1629.500	14.490	295.110	1627.500	1617.000	-18.580	9.100
1656.100	16.460	295.740	1653.130	1642.630	-24.990	12.150
1683.000	19.880	292.870	1678.690	1668.190	-32.640	15.590
1710.500	23.450	293.640	1704.240	1693.740	-41.970	19.600
1736.900	25.460	294.250	1728.270	1717.770	-51.950	24.040
1764.300	25.670	295.510	1752.990	1742.490	-62.680	29.010
1791.200	25.690	295.760	1777.230	1766.730	-73.190	34.050
1818.100	25.380	296.060	1801.510	1791.010	-83.620	39.120
1845.500	25.170	295.700	1826.280	1815.780	-94.140	44.230
1871.800	25.310	295.990	1850.070	1839.570	-104.240	49.120
1899.100	25.010	295.260	1874.780	1864.280	-114.700	54.140
1926.000	25.210	295.620	1899.140	1888.640	-125.010	59.040
1952.900	25.140	295.280	1923.480	1912.980	-135.340	63.960
1979.800	25.570	295.160	1947.790	1937.290	-145.760	68.860
2007.000	25.570	295.010	1972.330	1961.830	-156.400	73.840
2033.600	25.100	295.080	1996.370	1985.870	-166.710	78.660
2060.800	25.130	294.320	2012.000	2001.500	-177.200	83.480
2087.600	25.160	294.490	2045.260	2034.760	-187.570	88.190
2115.400	25.190	293.860	2070.420	2059.920	-198.350	93.030
2142.200	25.120	293.800	2094.680	2084.180	-208.770	97.640
2168.800	25.130	293.890	2118.760	2108.260	-219.100	102.200
2195.500	25.120	293.350	2142.930	2132.430	-229.490	106.740
2222.800	25.090	293.290	2167.660	2157.160	-240.130	111.330
2249.700	24.830	292.530	2192.040	2181.540	-250.580	115.750
2276.700	25.110	292.290	2216.520	2206.020	-261.120	120.090
2303.900	24.950	291.860	2241.160	2230.660	-271.790	124.420
2317.400	25.030	291.580	2253.400	2242.900	-277.080	126.530
2335.000	25.030	291.580	2269.350	2258.850	-284.010	129.270

FIT-LOT

Depth (m)	DEPTH TVDBRT (m)	Depth TVDSS (m)	Type	Comments
610	610	599.25	LOT	1.636 sg
1356	1356	1345.25	LOT	1.706 sg