



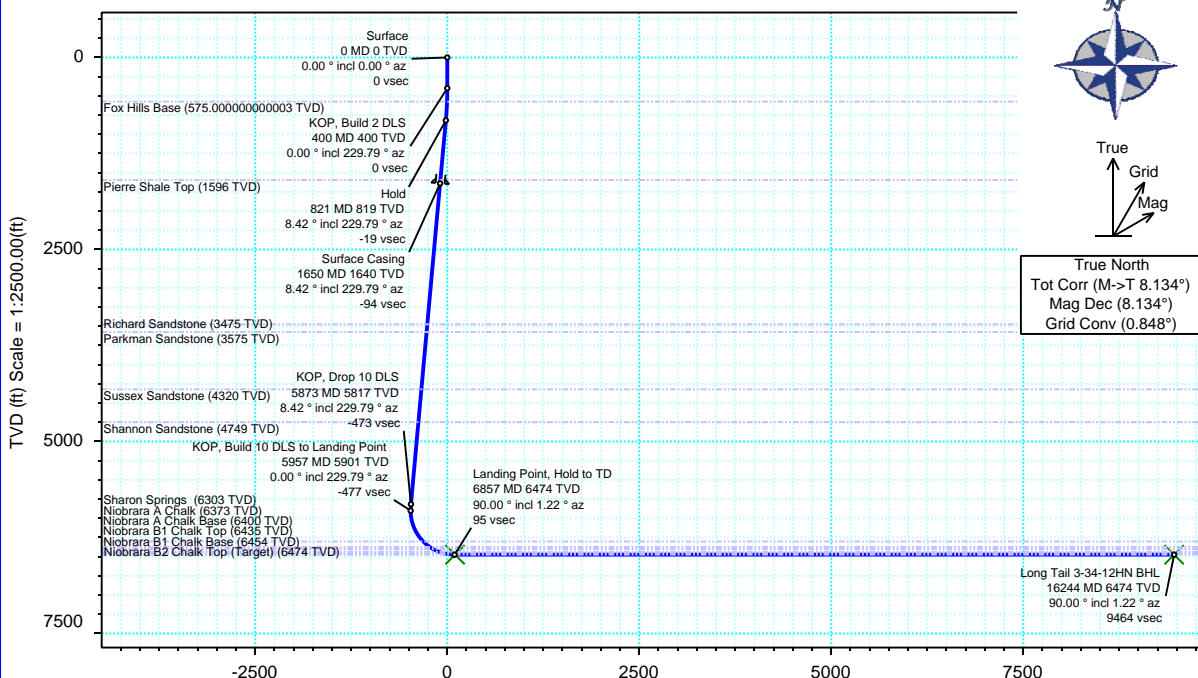
Mallard Exploration

Schlumberger

Borehole:	Well:	Field:	Structure:
Original Hole / Rev 0	Long Tail 3-34-12HN	CO, Weld County (NAD 83 NZ)	03-07N-61W (Long Tail East Pad)

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	HDGM 2017	Dip:	66.966°	Date:	29-Dec-2017	Lat:	N 40 35 52.57	Northing:	1463366.44ftUS	Grid Conv:	0.848°
MagDec:	8.134°	FS:	52353.205nT	Gravity FS:	999.063mgn (9.80665 Based)	Lon:	W 104 11 15.07	Easting:	3364458.96ftUS	Scale Fact:	0.99997517
								Plan: Long Tail 3-34-12HN R0 mdv 29Dec17			

Surface Location																					
Northing:		1463366.43732678		Easting:		3364458.9566467		Latitude:		N 40 35 52.57		Longitude:		W 104 11 15.07		VSec Azimuth:		357.69			
Target Description		Grid Coord																		Local Coord	
Target Name	Latitude	Longitude	Northing	Easting	TVD	VSec	N(+)/S(-)	E(+)/W(-)													
Long Tail Pad Sec 03-34	N 40 35 52.25	W 104 11 53.39	1463290.80	3361503.38	5002.00	87.12	-31.88	-2956.45													
Long Tail Pad Sec 03-34 - 600' SB	N 40 35 52.25	W 104 11 53.39	1463290.80	3361503.38	5002.00	87.12	-31.88	-2956.45													
Long Tail 3-34-12HN LP	N 40 35 53.33	W 104 11 22.60	1463435.44	3363877.21	6474.00	100.91	77.61	-580.68													
Long Tail 3-34-12HN BHL	N 40 37 26.00	W 104 11 20.01	1472815.59	3363938.19	6474.00	9463.75	9456.08	-380.86													
Critical Points																					
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS													
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00													
KOP, Build 2 DLS	400.00	0.00	229.79	400.00	0.00	0.00	0.00	0.00													
Fox Hills Base	575.11	3.50	229.79	575.00	-3.29	-3.45	-4.09	2.00													
Hold	820.83	8.42	229.79	819.32	-18.95	-19.92	-23.56	2.00													
Pierre Shale Top	1605.97	8.42	229.79	1596.00	-89.56	-94.11	-111.32	0.00													
Surface Casing	1650.00	8.42	229.79	1639.56	-93.52	-98.27	-116.25	0.00													
Richard Sandstone	3505.42	8.42	229.79	3475.00	-260.36	-273.60	-323.64	0.00													
Parkman Sandstone	3606.51	8.42	229.79	3575.00	-269.45	-283.16	-334.94	0.00													
Sussex Sandstone	4359.62	8.42	229.79	4320.00	-337.17	-354.32	-419.12	0.00													
Shannon Sandstone	4793.30	8.42	229.79	4749.00	-376.16	-395.30	-467.60	0.00													
KOP, Drop 10 DLS	5873.10	8.42	229.79	5817.18	-473.26	-497.34	-588.30	0.00													
KOP, Build 10 DLS to Landing Point	5957.27	0.00	229.79	5901.04	-477.05	-501.33	-593.01	10.00													
Sharon Springs	6402.78	44.55	1.22	6303.00	-312.71	-336.70	-589.50	10.00													
Niobrara A Chalk	6511.86	55.46	1.22	6373.00	-229.43	-253.28	-587.73	10.00													
Niobrara A Chalk Base	6562.84	60.56	1.22	6400.00	-186.28	-210.07	-586.80	10.00													
Niobrara B1 Chalk Top	6644.65	68.74	1.22	6435.00	-112.55	-136.22	-585.23	10.00													
Niobrara B1 Chalk Base	6705.44	74.82	1.22	6454.00	-54.95	-78.52	-584.00	10.00													
Landing Point, Hold to TD	6857.27	90.00	1.22	6474.00	94.82	71.50	-580.81	10.00													
Niobrara B2 Chalk Top (Target)	16243.98	90.00	1.22	6474.00	9463.75	9456.08	-380.86	0.00													
Long Tail 3-34-12HN BHL	16243.98	90.00	1.22	6474.00	9463.75	9456.08	-380.86	0.00													



Vertical Section (ft) Azim = 357.69° Scale = 1:2500.00(ft) Origin = 0N/-S, 0E/-W

