



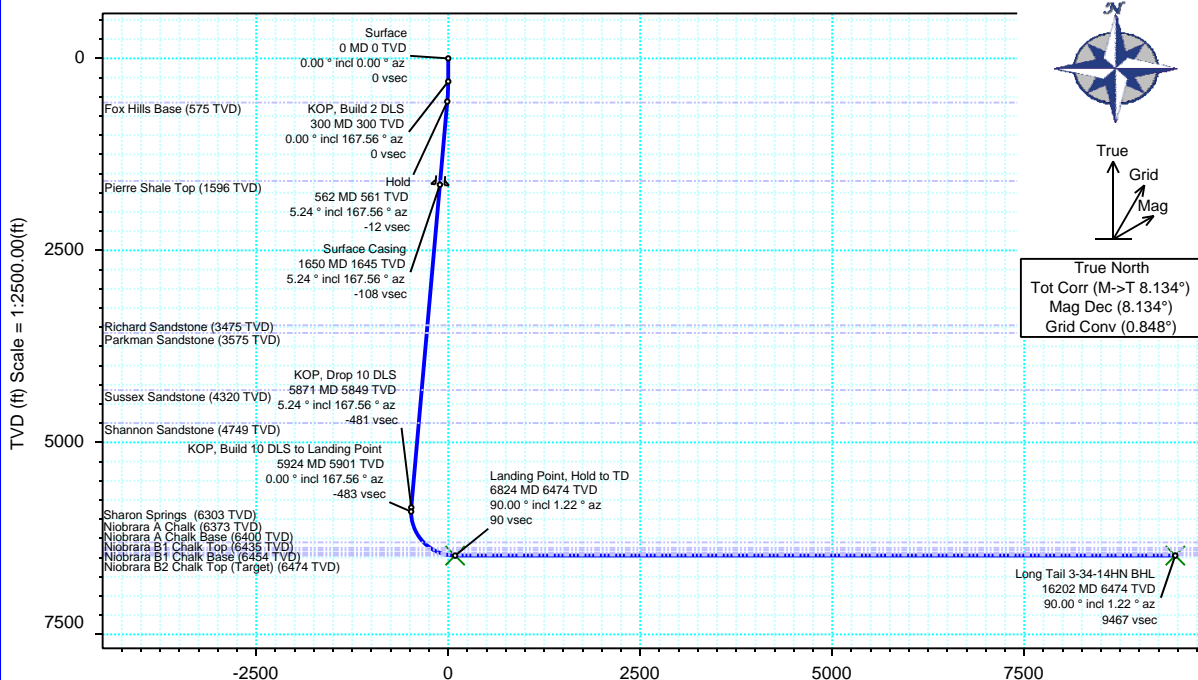
# Mallard Exploration

Schlumberger

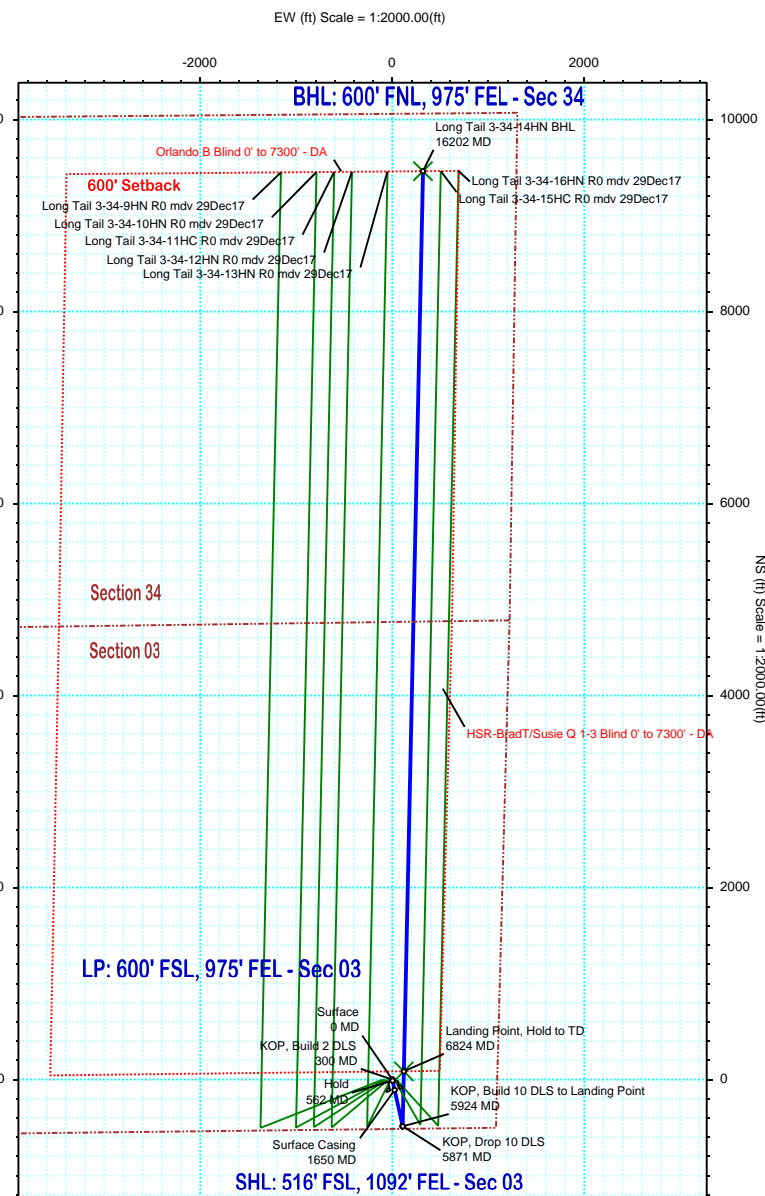
Borehole:	Well:	Field:	Structure:
Original Hole / Rev 0	Long Tail 3-34-14HN	CO, Weld County (NAD 83 NZ)	03-07N-61W (Long Tail East Pad)

Gravity & Magnetic Parameters				Surface Location				Miscellaneous			
Model:	HDGM 2017	Dip:	66.966°	Date:	29-Dec-2017	Lat:	N 40 35 52.57	Northing:	1463367.39ftUS	Grid Conv:	0.8481°
MagDec:	8.134°	FS:	52353.27nT	Gravity FS:	999.063mgn (9.80665 Based)	Lon:	W 104 11 14.55	Easting:	3364498.94ftUS	Scale Fact:	0.99997517
								Plan: Long Tail 3-34-14HN R0 mdv 29Dec17			

Surface Location									
Northing: 1463367.3934829		Easting: 3364498.93526649		Latitude: N 40 35 52.57		Longitude: W 104 11 14.55		VSec Azimuth: 1.93	
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	-133.26	-32.24	-2996.44	
Long Tail Pad Sec 03-34 - 600' SB	N 40 35 52.25	W 104 11 53.39	1463290.80	3361503.38	5002.00	-133.26	-32.24	-2996.44	
Long Tail 3-34-14HN BHL	N 40 37 26.07	W 104 11 10.41	1472832.74	3364678.08	6474.00	9467.30	9461.91	319.24	
Long Tail 3-34-14HN LP	N 40 35 53.42	W 104 11 13.00	1463454.77	3364617.34	6474.00	89.60	85.62	119.69	
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	300.00	0.00	167.56	300.00	0.00	0.00	0.00	0.00	
Hold	561.83	5.24	167.56	561.47	-11.58	-11.68	2.58	2.00	
Fox Hills Base	575.42	5.24	167.56	575.00	-12.78	-12.89	2.84	0.00	
Pierre Shale Top	1600.70	5.24	167.56	1596.00	-103.43	-104.27	23.01	0.00	
Surface Casing	1650.00	5.24	167.56	1645.09	-107.79	-108.66	23.97	0.00	
Richard Sandstone	3487.58	5.24	167.56	3475.00	-270.25	-272.43	60.11	0.00	
Parkman Sandstone	3587.99	5.24	167.56	3575.00	-279.13	-281.38	62.08	0.00	
Sussex Sandstone	4336.12	5.24	167.56	4320.00	-345.27	-348.06	76.80	0.00	
Shannon Sandstone	4766.92	5.24	167.56	4749.00	-383.36	-386.45	85.27	0.00	
KOP, Drop 10 DLS	5871.27	5.24	167.56	5848.75	-481.00	-484.88	106.98	0.00	
KOP, Build 10 DLS to Landing Point	5923.64	0.00	167.56	5901.04	-483.31	-487.22	107.50	10.00	
Sharon Springs	6369.15	44.55	1.22	6303.00	-318.67	-322.59	111.00	10.00	
Niobrara A Chalk	6478.23	55.46	1.22	6373.00	-235.24	-239.17	112.78	10.00	
Niobrara A Chalk Base	6529.21	60.56	1.22	6400.00	-192.02	-195.96	113.70	10.00	
Niobrara B1 Chalk Top	6611.02	68.74	1.22	6435.00	-118.15	-122.11	115.27	10.00	
Niobrara B1 Chalk Base	6671.81	74.82	1.22	6454.00	-60.44	-64.41	116.50	10.00	
Landing Point, Hold to TD	6823.64	90.00	1.22	6474.00	89.60	85.61	119.69	10.00	
Niobrara B2 Chalk Top (Target)	16202.06	90.00	1.22	6474.00	9467.30	9461.91	319.24	0.00	
Long Tail 3-34-14HN BHL	16202.06	90.00	1.22	6474.00	9467.30	9461.91	319.24	0.00	



True North  
Tot Corr (M->T 8.134°)  
Mag Dec (8.134°)  
Grid Conv (0.848°)



Vertical Section (ft) Azim = 1.93° Scale = 1:2500.00(ft) Origin = 0N/-S, 0E/-W