



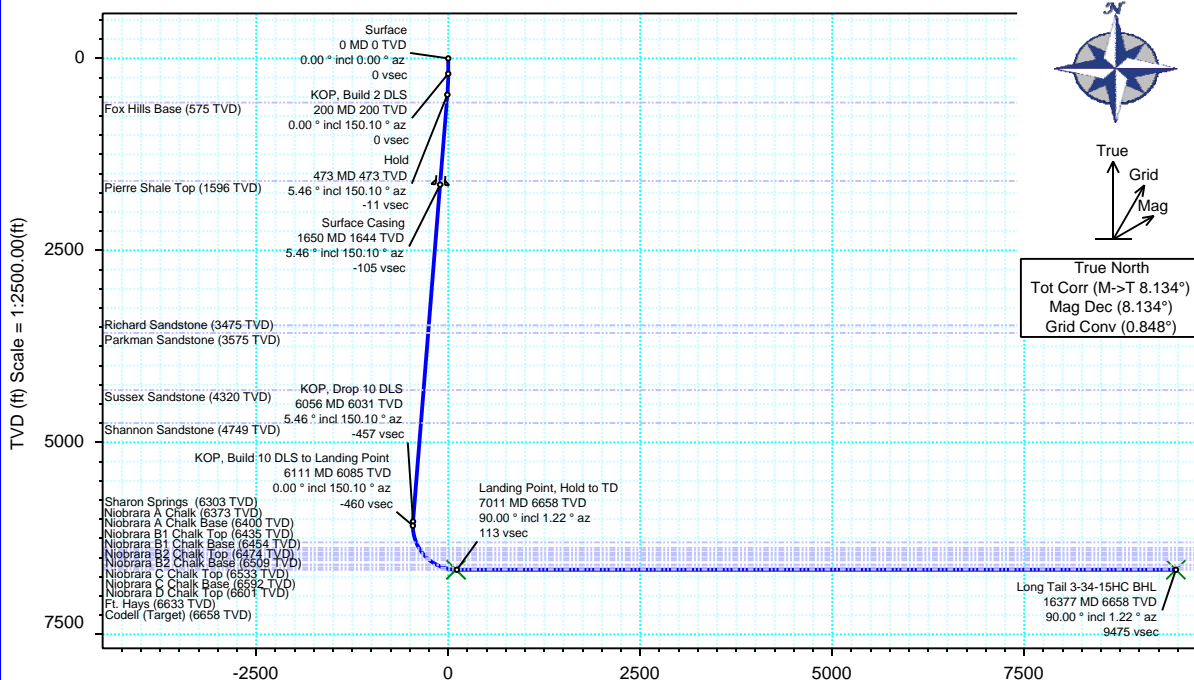
Mallard Exploration

Schlumberger

Borehole:	Well:	Field:	Structure:
Original Hole / Rev 0	Long Tail 3-34-15HC	CO, Weld County (NAD 83 NZ)	03-07N-61W (Long Tail East Pad)

Gravity & Magnetic Parameters					Surface Location					NAD83 Colorado State Plane, Northern Zone, US Feet					Miscellaneous		
Model:	HDGM 2017	Dip:	66.966°	Date:	29-Dec-2017	Lat:	N 40 35 52.57	Northing:	1463368.05ftUS	Grid Conv:	0.8482°	Slot:	Long Tail 3-34-15HC	TVD Ref:	KB 20ft(5002ft above MSL)		
MagDec:	8.134°	FS:	52353.303nT	Gravity FS:	999.063mgn (9.80665 Based)	Lon:	W 104 11 14.29	Easting:	3364518.92ftUS	Scale Fact:	0.99997517	Plan:	Long Tail 3-34-15HC R0 mdv 29Dec17				

Surface Location									
Northing: 1463368.05372277		Easting: 3364518.92187913		Latitude: N 40 35 52.57		Longitude: W 104 11 14.29		VSec Azimuth: 2.93	
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	-186.77	-32.60	-3016.43	
Long Tail Pad Sec 03-34 - 600' SB	N 40 35 52.25	W 104 11 53.39	1463290.80	3361503.38	5002.00	-186.77	-32.60	-3016.43	
Long Tail 3-34-15HC BHL	N 40 37 26.08	W 104 11 8.01	1472836.94	3364863.19	6658.00	9475.40	9463.01	484.41	
Long Tail 3-34-15HC LP	N 40 35 53.44	W 104 11 10.60	1463459.69	3364802.23	6658.00	101.88	87.44	284.65	
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	200.00	0.00	150.10	200.00	0.00	0.00	0.00	0.00	
Hold	473.06	5.46	150.10	472.64	-10.93	-11.27	6.48	2.00	
Fox Hills Base	575.88	5.46	150.10	575.00	-19.15	-19.76	11.36	0.00	
Pierre Shale Top	1601.54	5.46	150.10	1596.00	-101.17	-104.37	60.02	0.00	
Surface Casing	1650.00	5.46	150.10	1644.24	-105.04	-108.37	62.32	0.00	
Richard Sandstone	3489.10	5.46	150.10	3475.00	-252.11	-260.10	149.58	0.00	
Parkman Sandstone	3589.56	5.46	150.10	3575.00	-260.14	-268.38	154.35	0.00	
Sussex Sandstone	4337.96	5.46	150.10	4320.00	-319.99	-330.13	189.86	0.00	
Shannon Sandstone	4768.91	5.46	150.10	4749.00	-354.45	-365.68	210.30	0.00	
KOP, Drop 10 DLS	6056.27	5.46	150.10	6030.51	-457.39	-471.89	271.38	0.00	
KOP, Build 10 DLS to Landing Point	6110.88	0.00	150.10	6085.04	-459.58	-474.14	272.68	10.00	
Sharon Springs	6334.47	22.36	1.22	6303.00	-416.52	-431.07	275.60	10.00	
Niobrara A Chalk	6412.59	30.17	1.22	6373.00	-381.99	-396.54	274.33	10.00	
Niobrara A Chalk Base	6444.35	33.35	1.22	6400.00	-365.29	-379.83	274.69	10.00	
Niobrara B1 Chalk Top	6487.35	37.65	1.22	6435.00	-340.34	-354.87	275.22	10.00	
Niobrara B1 Chalk Base	6511.75	40.09	1.22	6454.00	-325.03	-339.56	275.55	10.00	
Niobrara B2 Chalk Top	6538.43	42.73	1.22	6474.00	-307.39	-321.92	275.92	10.00	
Niobrara B2 Chalk Base	6588.15	47.73	1.22	6509.00	-272.11	-286.63	276.68	10.00	
Niobrara C Chalk Top	6625.17	51.43	1.22	6533.00	-243.95	-258.46	277.28	10.00	
Niobrara C Chalk Base	6733.16	62.23	1.22	6592.00	-153.73	-168.22	278.20	10.00	
Niobrara D Chalk Top	6753.14	64.23	1.22	6601.00	-135.90	-150.39	279.58	10.00	
Ft. Hays	6841.01	73.01	1.22	6633.00	-54.20	-68.67	281.32	10.00	
Landing Point, Hold to TD	7010.88	90.00	1.22	6658.00	113.12	98.69	284.89	10.00	
Codell (Target)	16377.32	90.00	1.22	6658.00	9475.40	9463.01	484.41	0.00	
Long Tail 3-34-15HC BHL	16377.32	90.00	1.22	6658.00	9475.40	9463.01	484.41	0.00	



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

Vertical Section (ft) Azim = 2.93° Scale = 1:2500.00(ft) Origin = 0N/-S, 0E/-W

