Mallard Exploration

Borehole:	Well:	Field:	Structure:
Original Hole	Long Tail 3-34-4HN	CO, Weld County (NAD 83 NZ)	03-07N-61W (Long Tail West Pad)

Gravity & Magnetic Parameters

Model:	HDGM 2017	Dip:	66.962°	Date:	29-Dec-2017		
MagDec:	8.131°	FS:	52348.602nT	Gravity FS:	999.062mgn (9.80665 Based)		

Surface Location NAD83 Colorado State Plane, Northern Zone, US Feet

Lat:	N 40 35 52.25	Northing:	1463292.05ftUS	Grid Conv:	0.8413°		
Lon:	W 104 11 52.62	Easting:	3361563.36ftUS	Scale Fact:	0.99997516		

Miscellaneous

Slot:	Long Tail 3-34-4HN	TVD Ref:	KB 20ft(4998ft above MSL)
Plan:	Long Tail 3-34-4HN R0 mdv 29Dec17		

Surface Location

Northing: 1463292.04773904 Easting: 3361563.35524345 Latitude: N 40 35 52.25 Longitude: W 104 11 52.62 VSec Azimuth: 1.74

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	4998.00	-2.18	-0.36	-59.98
Long Tail Pad Sec 03-34 - 600' SB	N 40 35 52.25	W 104 11 53.39	1463290.80	3361503.38	4998.00	-2.18	-0.36	-59.98
Long Tail 3-34-4HN LP	N 40 35 53.08	W 104 11 51.08	1463377.21	3361680.69	6470.00	86.99	83.43	118.58
Long Tail 3-34-4HN BHL	N 40 37 25.82	W 104 11 48.89	1472764.18	3361711.32	6470.00	9473.55	9469.20	287.04

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	
KOP, Build 2 DLS	400.00	0.00	167.52	400.00	0.00	0.00	0.00	0.00
Fox Hills Base	571.10	3.42	167.52	571.00	-4.95	-4.99	1.10	2.00
Hold	668.35	5.37	167.52	667.95	-12.17	-12.26	2.71	2.00
Pierre Shale Top	1596.46	5.37	167.52	1592.00	-96.33	-97.02	21.47	0.00
Surface Casing	1650.00	5.37	167.52	1645.30	-101.18	-101.91	22.55	0.00
Richard Sandstone	3483.73	5.37	167.52	3471.00	-267.45	-269.38	59.60	0.00
Parkman Sandstone	3584.17	5.37	167.52	3571.00	-276.56	-278.55	61.63	0.00
Sussex Sandstone	4332.46	5.37	167.52	4316.00	-344.40	-346.89	76.75	0.00
Shannon Sandstone	4763.34	5.37	167.52	4745.00	-383.47	-386.24	85.45	0.00
KOP, Drop 10 DLS	5866.63	5.37	167.52	5843.45	-483.51	-487.00	107.75	0.00
KOP, Build 10 DLS to Landing Point	5920.30	0.00	167.52	5897.04	-485.94	-489.45	108.29	10.00
Sharon Springs	6365.82	44.55	1.03	6299.00	-321.30	-324.82	111.24	10.00
Niobrara A Chalk	6474.89	55.46	1.03	6369.00	-237.87	-241.39	112.74	10.00
Niobrara A Chalk Base	6525.87	60.56	1.03	6396.00	-194.65	-198.18	113.52	10.00
Niobrara B1 Chalk Top	6607.69	68.74	1.03	6431.00	-120.78	-124.32	114.84	10.00
Niobrara B1 Chalk Base	6668.48	74.82	1.03	6450.00	-63.07	-66.61	115.88	10.00
Landing Point, Hold to TD	6820.30	90.00	1.03	6470.00	86.97	83.42	118.57	10.00
Niobrara B2 Chalk Top (Target)	16207.59	90.00	1.03	6470.00	9473.55	9469.20	287.04	0.00
Long Tail 3-34-4HN BHL	16207.59	90.00	1.03	6470.00	9473.55	9469.20	287.04	0.00



