

# **MALLARD EXPLORATION**

**WELD COUNTY**

**SEC 27-T9N-R60W**

**BASHOR FED 27-3-7HN**

**ORIGINAL WELLBORE**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**17 July, 2020**



Project: WELD COUNTY  
Site: SEC 27-T9N-R60W  
Well: BASHOR FED 27-3-7HN  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL 1

PROJECT DETAILS: WELD COUNTY

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level



Azimuths to True North  
Magnetic North: 7.60°

Magnetic Field  
Strength: 52291.7nT  
Dip Angle: 67.05°  
Date: 7/6/2020  
Model: IGRF2020

WELL DETAILS: BASHOR FED 27-3-7HN

+N/-S		+E/-W		Northing	Easting	Latitude	Longitude	Slot
0.00		0.00		1510904.01	3395178.88	40.727100°N	104.074157°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	907.04	8.14	1.38	905.68	28.86	0.69	2.00	1.38	-28.85	
4	5839.04	8.14	1.38	5787.97	727.07	17.50	0.00	0.00	-726.77	
5	6820.39	90.00	179.36	6442.00	159.95	27.16	10.00	177.96	-159.57	BASHOR FED 27-3-7HN - LP
6	20294.05	90.00	179.36	6442.00	-13312.86	178.31	0.00	0.00	13314.05	BASHOR FED 27-3-7HN - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
609.00	609.03	Base Fox Hills
1528.00	1535.70	Pierre Shale Top
3415.00	3441.91	Richard Sandstone
3525.00	3553.03	Parkman Sandstone
4212.00	4247.03	Sussex Sandstone
4704.00	4744.03	Shannon Sandstone
5526.00	5574.40	TeePee Buttes
6163.00	6229.06	Sharon Springs
6200.00	6273.23	Niobrara Top
6355.00	6500.00	Niobrara B2 Chalk Target Top
6410.00	6628.00	Niobrara C Chalk Top
6430.00	6700.00	Niobrara C Chalk Target Top
6442.00	6820.39	Niobrara C Chalk Target Landing Point

ANNOTATIONS

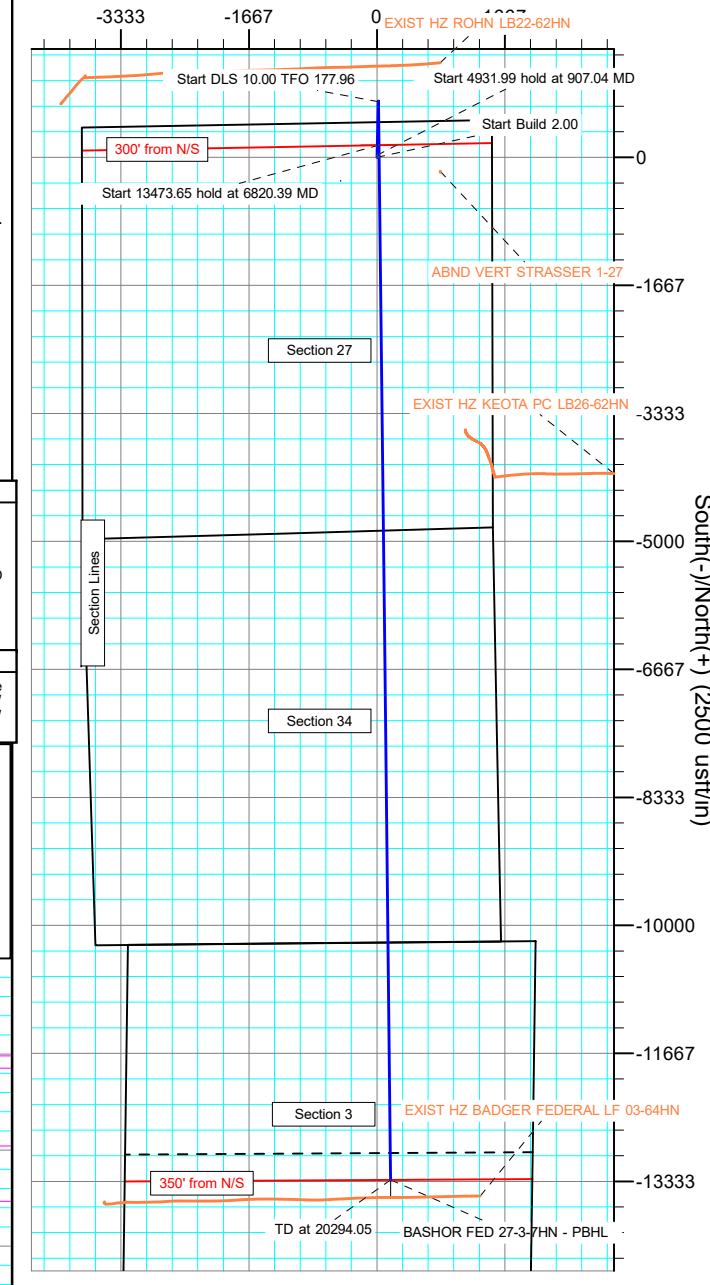
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	Start Build 2.00
907.04	8.14	1.38	905.68	28.86	0.69	-28.85	28.87	Start 4931.99 hold at 907.04 MD
5839.04	8.14	1.38	5787.97	727.07	17.50	-726.77	727.28	Start DLS 10.00 TFO 177.96
6820.39	90.00	179.36	6442.00	159.95	27.16	-159.57	1307.10	Start 13473.65 hold at 6820.39 MD
20294.05	90.00	179.36	6442.00	-13312.86	178.31	13314.05	14780.76	TD at 20294.05

DESIGN TARGET DETAILS

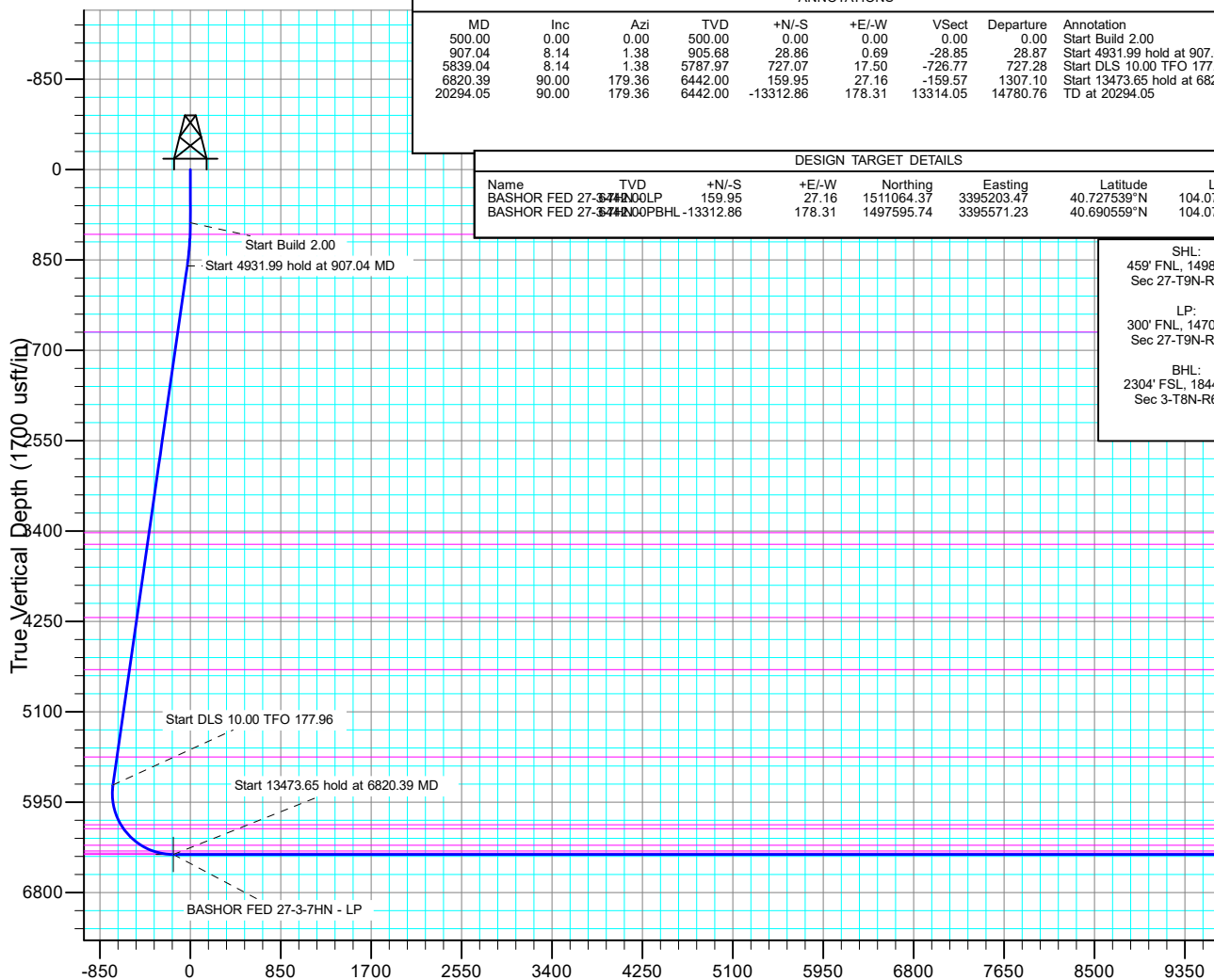
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BASHOR FED 27-3-7HN - LP	159.95	27.16	1511064.37	3395203.47	40.727539°N	104.074059°W	
BASHOR FED 27-3-7HN - PBHL	-13312.86	178.31	1497595.74	3395571.23	40.690559°N	104.073514°W	

SHL:  
459' FNL, 1498' FEL  
Sec 27-T9N-R60W  
  
LP:  
300' FNL, 1470' FEL  
Sec 27-T9N-R60W  
  
BHL:  
2304' FSL, 1844' FEL  
Sec 3-T8N-R60W

West(-)/East(+) (2500 usft/in)



South(-)/North(+) (2500 usft/in)



Vertical Section at 179.23° (1700 usft/in)

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	WELD COUNTY		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		SEC 27-T9N-R60W				
Site Position:		Northing:	1,511,414.81	usft	Latitude:	40.728436°N
From:	Lat/Long	Easting:	3,396,667.25	usft	Longitude:	104.068758°W
Position Uncertainty:	0.00	usft	Slot Radius:	13.200	in	

Well		BASHOR FED 27-3-7HN				
Well Position	+N/-S	0.00 usft	Northing:	1,510,904.01 usft	Latitude:	40.727100°N
	+E/-W	0.00 usft	Easting:	3,395,178.88 usft	Longitude:	104.074157°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,992.70 usft
Grid Convergence:		0.92 °				

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	7/6/2020	7.60	67.05	52,291.72735222

<b>Design</b>	PROPOSAL 1				
<b>Audit Notes:</b>					
<b>Version:</b>		<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	179.23	

<b>Plan Survey Tool Program</b>	<b>Date</b>	7/17/2020			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	20,294.05	PROPOSAL 1 (ORIGINAL WELL	MWD	
			OWSG MWD - Standard		

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
907.04	8.14	1.38	905.68	28.86	0.69	2.00	2.00	0.00	1.38	
5,839.04	8.14	1.38	5,787.97	727.07	17.50	0.00	0.00	0.00	0.00	
6,820.39	90.00	179.36	6,442.00	159.95	27.16	10.00	8.34	18.14	177.96	BASHOR FED 27-3-7
20,294.05	90.00	179.36	6,442.00	-13,312.86	178.31	0.00	0.00	0.00	0.00	BASHOR FED 27-3-7

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	1.38	599.98	1.74	0.04	-1.74	2.00	2.00	0.00
609.03	2.18	1.38	609.00	2.07	0.05	-2.07	2.00	2.00	0.00
Base Fox Hills									
700.00	4.00	1.38	699.84	6.98	0.17	-6.97	2.00	2.00	0.00
800.00	6.00	1.38	799.45	15.69	0.38	-15.68	2.00	2.00	0.00
907.04	8.14	1.38	905.68	28.86	0.69	-28.85	2.00	2.00	0.00
Start 4931.99 hold at 907.04 MD									
1,000.00	8.14	1.38	997.70	42.02	1.01	-42.00	0.00	0.00	0.00
1,100.00	8.14	1.38	1,096.69	56.18	1.35	-56.15	0.00	0.00	0.00
1,200.00	8.14	1.38	1,195.68	70.33	1.69	-70.30	0.00	0.00	0.00
1,300.00	8.14	1.38	1,294.67	84.49	2.03	-84.46	0.00	0.00	0.00
1,400.00	8.14	1.38	1,393.66	98.65	2.37	-98.61	0.00	0.00	0.00
1,500.00	8.14	1.38	1,492.66	112.80	2.71	-112.76	0.00	0.00	0.00
1,535.70	8.14	1.38	1,528.00	117.86	2.84	-117.81	0.00	0.00	0.00
Pierre Shale Top									
1,600.00	8.14	1.38	1,591.65	126.96	3.06	-126.91	0.00	0.00	0.00
1,700.00	8.14	1.38	1,690.64	141.12	3.40	-141.06	0.00	0.00	0.00
1,800.00	8.14	1.38	1,789.63	155.27	3.74	-155.21	0.00	0.00	0.00
1,900.00	8.14	1.38	1,888.63	169.43	4.08	-169.36	0.00	0.00	0.00
2,000.00	8.14	1.38	1,987.62	183.59	4.42	-183.51	0.00	0.00	0.00
2,100.00	8.14	1.38	2,086.61	197.74	4.76	-197.66	0.00	0.00	0.00
2,200.00	8.14	1.38	2,185.60	211.90	5.10	-211.81	0.00	0.00	0.00
2,300.00	8.14	1.38	2,284.59	226.06	5.44	-225.96	0.00	0.00	0.00
2,400.00	8.14	1.38	2,383.59	240.21	5.78	-240.11	0.00	0.00	0.00
2,500.00	8.14	1.38	2,482.58	254.37	6.12	-254.27	0.00	0.00	0.00
2,600.00	8.14	1.38	2,581.57	268.53	6.46	-268.42	0.00	0.00	0.00
2,700.00	8.14	1.38	2,680.56	282.68	6.80	-282.57	0.00	0.00	0.00
2,800.00	8.14	1.38	2,779.56	296.84	7.14	-296.72	0.00	0.00	0.00
2,900.00	8.14	1.38	2,878.55	311.00	7.49	-310.87	0.00	0.00	0.00
3,000.00	8.14	1.38	2,977.54	325.15	7.83	-325.02	0.00	0.00	0.00
3,100.00	8.14	1.38	3,076.53	339.31	8.17	-339.17	0.00	0.00	0.00
3,200.00	8.14	1.38	3,175.53	353.47	8.51	-353.32	0.00	0.00	0.00
3,300.00	8.14	1.38	3,274.52	367.62	8.85	-367.47	0.00	0.00	0.00
3,400.00	8.14	1.38	3,373.51	381.78	9.19	-381.62	0.00	0.00	0.00
3,441.91	8.14	1.38	3,415.00	387.71	9.33	-387.55	0.00	0.00	0.00
Richard Sandstone									
3,500.00	8.14	1.38	3,472.50	395.94	9.53	-395.77	0.00	0.00	0.00
3,553.03	8.14	1.38	3,525.00	403.44	9.71	-403.28	0.00	0.00	0.00
Parkman Sandstone									
3,600.00	8.14	1.38	3,571.49	410.09	9.87	-409.92	0.00	0.00	0.00
3,700.00	8.14	1.38	3,670.49	424.25	10.21	-424.07	0.00	0.00	0.00
3,800.00	8.14	1.38	3,769.48	438.41	10.55	-438.23	0.00	0.00	0.00
3,900.00	8.14	1.38	3,868.47	452.56	10.89	-452.38	0.00	0.00	0.00
4,000.00	8.14	1.38	3,967.46	466.72	11.23	-466.53	0.00	0.00	0.00
4,100.00	8.14	1.38	4,066.46	480.88	11.57	-480.68	0.00	0.00	0.00
4,200.00	8.14	1.38	4,165.45	495.03	11.91	-494.83	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,247.03	8.14	1.38	4,212.00	501.69	12.07	-501.48	0.00	0.00	0.00	
<b>Sussex Sandstone</b>										
4,300.00	8.14	1.38	4,264.44	509.19	12.26	-508.98	0.00	0.00	0.00	
4,400.00	8.14	1.38	4,363.43	523.35	12.60	-523.13	0.00	0.00	0.00	
4,500.00	8.14	1.38	4,462.43	537.50	12.94	-537.28	0.00	0.00	0.00	
4,600.00	8.14	1.38	4,561.42	551.66	13.28	-551.43	0.00	0.00	0.00	
4,700.00	8.14	1.38	4,660.41	565.82	13.62	-565.58	0.00	0.00	0.00	
4,744.03	8.14	1.38	4,704.00	572.05	13.77	-571.81	0.00	0.00	0.00	
<b>Shannon Sandstone</b>										
4,800.00	8.14	1.38	4,759.40	579.97	13.96	-579.73	0.00	0.00	0.00	
4,900.00	8.14	1.38	4,858.39	594.13	14.30	-593.88	0.00	0.00	0.00	
5,000.00	8.14	1.38	4,957.39	608.29	14.64	-608.04	0.00	0.00	0.00	
5,100.00	8.14	1.38	5,056.38	622.44	14.98	-622.19	0.00	0.00	0.00	
5,200.00	8.14	1.38	5,155.37	636.60	15.32	-636.34	0.00	0.00	0.00	
5,300.00	8.14	1.38	5,254.36	650.76	15.66	-650.49	0.00	0.00	0.00	
5,400.00	8.14	1.38	5,353.36	664.91	16.00	-664.64	0.00	0.00	0.00	
5,500.00	8.14	1.38	5,452.35	679.07	16.34	-678.79	0.00	0.00	0.00	
5,574.40	8.14	1.38	5,526.00	689.60	16.60	-689.32	0.00	0.00	0.00	
<b>TeePee Buttes</b>										
5,600.00	8.14	1.38	5,551.34	693.23	16.68	-692.94	0.00	0.00	0.00	
5,700.00	8.14	1.38	5,650.33	707.38	17.03	-707.09	0.00	0.00	0.00	
5,800.00	8.14	1.38	5,749.32	721.54	17.37	-721.24	0.00	0.00	0.00	
5,839.04	8.14	1.38	5,787.97	727.07	17.50	-726.77	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 177.96</b>										
5,850.00	7.05	1.70	5,798.84	728.51	17.54	-728.21	10.00	-9.99	2.91	
5,900.00	2.06	7.42	5,848.66	732.47	17.74	-732.17	10.00	-9.97	11.45	
5,950.00	2.97	173.78	5,898.64	732.07	18.00	-731.77	10.00	1.83	332.72	
6,000.00	7.97	177.29	5,948.40	727.32	18.31	-727.01	10.00	9.98	7.01	
6,050.00	12.96	178.10	5,997.55	718.25	18.66	-717.93	10.00	10.00	1.62	
6,100.00	17.96	178.47	6,045.73	704.93	19.05	-704.61	10.00	10.00	0.73	
6,150.00	22.96	178.67	6,092.56	687.46	19.48	-687.14	10.00	10.00	0.42	
6,200.00	27.96	178.81	6,137.69	665.97	19.95	-665.65	10.00	10.00	0.28	
6,229.06	30.87	178.87	6,163.00	651.71	20.24	-651.38	10.00	10.00	0.21	
<b>Sharon Springs</b>										
6,250.00	32.96	178.91	6,180.77	640.64	20.45	-640.31	10.00	10.00	0.18	
6,273.23	35.28	178.95	6,200.00	627.61	20.69	-627.28	10.00	10.00	0.16	
<b>Niobrara Top</b>										
6,300.00	37.96	178.99	6,221.48	611.65	20.98	-611.31	10.00	10.00	0.14	
6,350.00	42.96	179.05	6,259.51	579.21	21.54	-578.87	10.00	10.00	0.12	
6,400.00	47.96	179.10	6,294.57	543.59	22.11	-543.25	10.00	10.00	0.10	
6,450.00	52.96	179.14	6,326.39	505.05	22.71	-504.70	10.00	10.00	0.09	
6,500.00	57.96	179.18	6,354.73	463.88	23.31	-463.52	10.00	10.00	0.07	
6,500.51	58.01	179.18	6,355.00	463.45	23.32	-463.09	10.00	10.00	0.07	
<b>Niobrara B2 Chalk Target Top</b>										
6,550.00	62.96	179.21	6,379.37	420.39	23.92	-420.04	10.00	10.00	0.07	
6,600.00	67.96	179.24	6,400.13	374.93	24.54	-374.57	10.00	10.00	0.06	
6,628.00	70.76	179.26	6,410.00	348.74	24.88	-348.37	10.00	10.00	0.06	
<b>Niobrara C Chalk Top</b>										
6,650.00	72.96	179.27	6,416.85	327.83	25.15	-327.46	10.00	10.00	0.06	
6,700.00	77.96	179.30	6,429.40	279.45	25.76	-279.08	10.00	10.00	0.05	
6,702.92	78.25	179.30	6,430.00	276.59	25.79	-276.22	10.00	10.00	0.05	
<b>Niobrara C Chalk Target Top</b>										
6,750.00	82.96	179.32	6,437.68	230.16	26.35	-229.78	10.00	10.00	0.05	

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
6,800.00	87.96	179.35	6,441.64	180.33	26.93	-179.96	10.00	10.00	0.05	
6,820.39	90.00	179.36	6,442.00	159.95	27.16	-159.57	10.00	10.00	0.05	
Start 13473.65 hold at 6820.39 MD - Niobrara C Chalk Target Landing Point										
6,900.00	90.00	179.36	6,442.00	80.34	28.06	-79.96	0.00	0.00	0.00	
7,000.00	90.00	179.36	6,442.00	-19.65	29.18	20.04	0.00	0.00	0.00	
7,100.00	90.00	179.36	6,442.00	-119.64	30.30	120.04	0.00	0.00	0.00	
7,200.00	90.00	179.36	6,442.00	-219.64	31.42	220.04	0.00	0.00	0.00	
7,300.00	90.00	179.36	6,442.00	-319.63	32.54	320.04	0.00	0.00	0.00	
7,400.00	90.00	179.36	6,442.00	-419.62	33.66	420.04	0.00	0.00	0.00	
7,500.00	90.00	179.36	6,442.00	-519.62	34.79	520.04	0.00	0.00	0.00	
7,600.00	90.00	179.36	6,442.00	-619.61	35.91	620.04	0.00	0.00	0.00	
7,700.00	90.00	179.36	6,442.00	-719.60	37.03	720.04	0.00	0.00	0.00	
7,800.00	90.00	179.36	6,442.00	-819.60	38.15	820.04	0.00	0.00	0.00	
7,900.00	90.00	179.36	6,442.00	-919.59	39.27	920.04	0.00	0.00	0.00	
8,000.00	90.00	179.36	6,442.00	-1,019.59	40.40	1,020.04	0.00	0.00	0.00	
8,100.00	90.00	179.36	6,442.00	-1,119.58	41.52	1,120.04	0.00	0.00	0.00	
8,200.00	90.00	179.36	6,442.00	-1,219.57	42.64	1,220.03	0.00	0.00	0.00	
8,300.00	90.00	179.36	6,442.00	-1,319.57	43.76	1,320.03	0.00	0.00	0.00	
8,400.00	90.00	179.36	6,442.00	-1,419.56	44.88	1,420.03	0.00	0.00	0.00	
8,500.00	90.00	179.36	6,442.00	-1,519.55	46.00	1,520.03	0.00	0.00	0.00	
8,600.00	90.00	179.36	6,442.00	-1,619.55	47.13	1,620.03	0.00	0.00	0.00	
8,700.00	90.00	179.36	6,442.00	-1,719.54	48.25	1,720.03	0.00	0.00	0.00	
8,800.00	90.00	179.36	6,442.00	-1,819.54	49.37	1,820.03	0.00	0.00	0.00	
8,900.00	90.00	179.36	6,442.00	-1,919.53	50.49	1,920.03	0.00	0.00	0.00	
9,000.00	90.00	179.36	6,442.00	-2,019.52	51.61	2,020.03	0.00	0.00	0.00	
9,100.00	90.00	179.36	6,442.00	-2,119.52	52.74	2,120.03	0.00	0.00	0.00	
9,200.00	90.00	179.36	6,442.00	-2,219.51	53.86	2,220.03	0.00	0.00	0.00	
9,300.00	90.00	179.36	6,442.00	-2,319.50	54.98	2,320.03	0.00	0.00	0.00	
9,400.00	90.00	179.36	6,442.00	-2,419.50	56.10	2,420.03	0.00	0.00	0.00	
9,500.00	90.00	179.36	6,442.00	-2,519.49	57.22	2,520.03	0.00	0.00	0.00	
9,600.00	90.00	179.36	6,442.00	-2,619.49	58.34	2,620.03	0.00	0.00	0.00	
9,700.00	90.00	179.36	6,442.00	-2,719.48	59.47	2,720.03	0.00	0.00	0.00	
9,800.00	90.00	179.36	6,442.00	-2,819.47	60.59	2,820.03	0.00	0.00	0.00	
9,900.00	90.00	179.36	6,442.00	-2,919.47	61.71	2,920.03	0.00	0.00	0.00	
10,000.00	90.00	179.36	6,442.00	-3,019.46	62.83	3,020.03	0.00	0.00	0.00	
10,100.00	90.00	179.36	6,442.00	-3,119.45	63.95	3,120.03	0.00	0.00	0.00	
10,200.00	90.00	179.36	6,442.00	-3,219.45	65.08	3,220.03	0.00	0.00	0.00	
10,300.00	90.00	179.36	6,442.00	-3,319.44	66.20	3,320.03	0.00	0.00	0.00	
10,400.00	90.00	179.36	6,442.00	-3,419.43	67.32	3,420.03	0.00	0.00	0.00	
10,500.00	90.00	179.36	6,442.00	-3,519.43	68.44	3,520.03	0.00	0.00	0.00	
10,600.00	90.00	179.36	6,442.00	-3,619.42	69.56	3,620.03	0.00	0.00	0.00	
10,700.00	90.00	179.36	6,442.00	-3,719.42	70.69	3,720.03	0.00	0.00	0.00	
10,800.00	90.00	179.36	6,442.00	-3,819.41	71.81	3,820.03	0.00	0.00	0.00	
10,900.00	90.00	179.36	6,442.00	-3,919.40	72.93	3,920.03	0.00	0.00	0.00	
11,000.00	90.00	179.36	6,442.00	-4,019.40	74.05	4,020.03	0.00	0.00	0.00	
11,100.00	90.00	179.36	6,442.00	-4,119.39	75.17	4,120.03	0.00	0.00	0.00	
11,200.00	90.00	179.36	6,442.00	-4,219.38	76.29	4,220.03	0.00	0.00	0.00	
11,300.00	90.00	179.36	6,442.00	-4,319.38	77.42	4,320.03	0.00	0.00	0.00	
11,400.00	90.00	179.36	6,442.00	-4,419.37	78.54	4,420.03	0.00	0.00	0.00	
11,500.00	90.00	179.36	6,442.00	-4,519.37	79.66	4,520.03	0.00	0.00	0.00	
11,600.00	90.00	179.36	6,442.00	-4,619.36	80.78	4,620.03	0.00	0.00	0.00	
11,700.00	90.00	179.36	6,442.00	-4,719.35	81.90	4,720.03	0.00	0.00	0.00	
11,800.00	90.00	179.36	6,442.00	-4,819.35	83.03	4,820.03	0.00	0.00	0.00	
11,900.00	90.00	179.36	6,442.00	-4,919.34	84.15	4,920.03	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
12,000.00	90.00	179.36	6,442.00	-5,019.33	85.27	5,020.03	0.00	0.00	0.00	
12,100.00	90.00	179.36	6,442.00	-5,119.33	86.39	5,120.03	0.00	0.00	0.00	
12,200.00	90.00	179.36	6,442.00	-5,219.32	87.51	5,220.03	0.00	0.00	0.00	
12,300.00	90.00	179.36	6,442.00	-5,319.32	88.63	5,320.03	0.00	0.00	0.00	
12,400.00	90.00	179.36	6,442.00	-5,419.31	89.76	5,420.03	0.00	0.00	0.00	
12,500.00	90.00	179.36	6,442.00	-5,519.30	90.88	5,520.02	0.00	0.00	0.00	
12,600.00	90.00	179.36	6,442.00	-5,619.30	92.00	5,620.02	0.00	0.00	0.00	
12,700.00	90.00	179.36	6,442.00	-5,719.29	93.12	5,720.02	0.00	0.00	0.00	
12,800.00	90.00	179.36	6,442.00	-5,819.28	94.24	5,820.02	0.00	0.00	0.00	
12,900.00	90.00	179.36	6,442.00	-5,919.28	95.37	5,920.02	0.00	0.00	0.00	
13,000.00	90.00	179.36	6,442.00	-6,019.27	96.49	6,020.02	0.00	0.00	0.00	
13,100.00	90.00	179.36	6,442.00	-6,119.27	97.61	6,120.02	0.00	0.00	0.00	
13,200.00	90.00	179.36	6,442.00	-6,219.26	98.73	6,220.02	0.00	0.00	0.00	
13,300.00	90.00	179.36	6,442.00	-6,319.25	99.85	6,320.02	0.00	0.00	0.00	
13,400.00	90.00	179.36	6,442.00	-6,419.25	100.97	6,420.02	0.00	0.00	0.00	
13,500.00	90.00	179.36	6,442.00	-6,519.24	102.10	6,520.02	0.00	0.00	0.00	
13,600.00	90.00	179.36	6,442.00	-6,619.23	103.22	6,620.02	0.00	0.00	0.00	
13,700.00	90.00	179.36	6,442.00	-6,719.23	104.34	6,720.02	0.00	0.00	0.00	
13,800.00	90.00	179.36	6,442.00	-6,819.22	105.46	6,820.02	0.00	0.00	0.00	
13,900.00	90.00	179.36	6,442.00	-6,919.21	106.58	6,920.02	0.00	0.00	0.00	
14,000.00	90.00	179.36	6,442.00	-7,019.21	107.71	7,020.02	0.00	0.00	0.00	
14,100.00	90.00	179.36	6,442.00	-7,119.20	108.83	7,120.02	0.00	0.00	0.00	
14,200.00	90.00	179.36	6,442.00	-7,219.20	109.95	7,220.02	0.00	0.00	0.00	
14,300.00	90.00	179.36	6,442.00	-7,319.19	111.07	7,320.02	0.00	0.00	0.00	
14,400.00	90.00	179.36	6,442.00	-7,419.18	112.19	7,420.02	0.00	0.00	0.00	
14,500.00	90.00	179.36	6,442.00	-7,519.18	113.31	7,520.02	0.00	0.00	0.00	
14,600.00	90.00	179.36	6,442.00	-7,619.17	114.44	7,620.02	0.00	0.00	0.00	
14,700.00	90.00	179.36	6,442.00	-7,719.16	115.56	7,720.02	0.00	0.00	0.00	
14,800.00	90.00	179.36	6,442.00	-7,819.16	116.68	7,820.02	0.00	0.00	0.00	
14,900.00	90.00	179.36	6,442.00	-7,919.15	117.80	7,920.02	0.00	0.00	0.00	
15,000.00	90.00	179.36	6,442.00	-8,019.15	118.92	8,020.02	0.00	0.00	0.00	
15,100.00	90.00	179.36	6,442.00	-8,119.14	120.05	8,120.02	0.00	0.00	0.00	
15,200.00	90.00	179.36	6,442.00	-8,219.13	121.17	8,220.02	0.00	0.00	0.00	
15,300.00	90.00	179.36	6,442.00	-8,319.13	122.29	8,320.02	0.00	0.00	0.00	
15,400.00	90.00	179.36	6,442.00	-8,419.12	123.41	8,420.02	0.00	0.00	0.00	
15,500.00	90.00	179.36	6,442.00	-8,519.11	124.53	8,520.02	0.00	0.00	0.00	
15,600.00	90.00	179.36	6,442.00	-8,619.11	125.66	8,620.02	0.00	0.00	0.00	
15,700.00	90.00	179.36	6,442.00	-8,719.10	126.78	8,720.02	0.00	0.00	0.00	
15,800.00	90.00	179.36	6,442.00	-8,819.10	127.90	8,820.02	0.00	0.00	0.00	
15,900.00	90.00	179.36	6,442.00	-8,919.09	129.02	8,920.02	0.00	0.00	0.00	
16,000.00	90.00	179.36	6,442.00	-9,019.08	130.14	9,020.02	0.00	0.00	0.00	
16,100.00	90.00	179.36	6,442.00	-9,119.08	131.26	9,120.02	0.00	0.00	0.00	
16,200.00	90.00	179.36	6,442.00	-9,219.07	132.39	9,220.02	0.00	0.00	0.00	
16,300.00	90.00	179.36	6,442.00	-9,319.06	133.51	9,320.02	0.00	0.00	0.00	
16,400.00	90.00	179.36	6,442.00	-9,419.06	134.63	9,420.02	0.00	0.00	0.00	
16,500.00	90.00	179.36	6,442.00	-9,519.05	135.75	9,520.02	0.00	0.00	0.00	
16,600.00	90.00	179.36	6,442.00	-9,619.04	136.87	9,620.02	0.00	0.00	0.00	
16,700.00	90.00	179.36	6,442.00	-9,719.04	138.00	9,720.02	0.00	0.00	0.00	
16,800.00	90.00	179.36	6,442.00	-9,819.03	139.12	9,820.01	0.00	0.00	0.00	
16,900.00	90.00	179.36	6,442.00	-9,919.03	140.24	9,920.01	0.00	0.00	0.00	
17,000.00	90.00	179.36	6,442.00	-10,019.02	141.36	10,020.01	0.00	0.00	0.00	
17,100.00	90.00	179.36	6,442.00	-10,119.01	142.48	10,120.01	0.00	0.00	0.00	
17,200.00	90.00	179.36	6,442.00	-10,219.01	143.60	10,220.01	0.00	0.00	0.00	
17,300.00	90.00	179.36	6,442.00	-10,319.00	144.73	10,320.01	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDM 5000.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well BASHOR FED 27-3-7HN
<b>Company:</b>	MALLARD EXPLORATION	<b>TVD Reference:</b>	KB 27' @ 5019.70usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 27' @ 5019.70usft
<b>Site:</b>	SEC 27-T9N-R60W	<b>North Reference:</b>	True
<b>Well:</b>	BASHOR FED 27-3-7HN	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,400.00	90.00	179.36	6,442.00	-10,418.99	145.85	10,420.01	0.00	0.00	0.00
17,500.00	90.00	179.36	6,442.00	-10,518.99	146.97	10,520.01	0.00	0.00	0.00
17,600.00	90.00	179.36	6,442.00	-10,618.98	148.09	10,620.01	0.00	0.00	0.00
17,700.00	90.00	179.36	6,442.00	-10,718.98	149.21	10,720.01	0.00	0.00	0.00
17,800.00	90.00	179.36	6,442.00	-10,818.97	150.34	10,820.01	0.00	0.00	0.00
20,294.05	90.00	179.36	6,442.00	-13,312.86	178.31	13,314.05	0.00	0.00	0.00
TD at 20294.05									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BASHOR FED 27-3-7HN - plan hits target center - Point	0.00	0.00	6,442.00	-13,312.86	178.31	1,497,595.74	3,395,571.22	40.690559°N	104.073514°W
BASHOR FED 27-3-7HN - plan hits target center - Point	0.00	0.00	6,442.00	159.95	27.16	1,511,064.38	3,395,203.46	40.727539°N	104.074059°W

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
609.03	609.00	Base Fox Hills			
1,535.70	1,528.00	Pierre Shale Top			
3,441.91	3,415.00	Richard Sandstone			
3,553.03	3,525.00	Parkman Sandstone			
4,247.03	4,212.00	Sussex Sandstone			
4,744.03	4,704.00	Shannon Sandstone			
5,574.40	5,526.00	TeePee Buttes			
6,229.06	6,163.00	Sharon Springs			
6,273.23	6,200.00	Niobrara Top			
6,500.51	6,355.00	Niobrara B2 Chalk Target Top			
6,628.00	6,410.00	Niobrara C Chalk Top			
6,702.92	6,430.00	Niobrara C Chalk Target Top			
6,820.39	6,442.00	Niobrara C Chalk Target Landing Point			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
907.04	905.68	28.86	0.69	Start 4931.99 hold at 907.04 MD
5,839.04	5,787.97	727.07	17.50	Start DLS 10.00 TFO 177.96
6,820.39	6,442.00	159.95	27.16	Start 13473.65 hold at 6820.39 MD
20,294.05	6,442.00	-13,312.86	178.31	TD at 20294.05