

MALLARD EXPLORATION

WELD COUNTY

SEC 22-T8N-R60W

BLUE TEAL FED 15-3-3HN

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

09 September, 2020



Project: WELD COUNTY
Site: SEC 22-T8N-R60W
Well: BLUE TEAL FED 15-3-3HN
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: 52254.5nT
Dip Angle: 66.99°
Date: 7/6/2020
Model: IGRF2020

WELL DETAILS: BLUE TEAL FED 15-3-3HN

+N/-S	+E/-W	Northing	Easting	4893.00	Latitude	Longitude	Slot
0.00	0.00	1484205.24	3395101.22		40.653830°N	104.075984°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1001.08	14.02	278.95	994.11	13.28	-84.32	2.00	278.95	20.79	
4	5868.33	14.02	278.95	5716.33	196.70	-1249.25	0.00	307.99	307.99	
5	6749.25	90.00	1.05	6254.00	771.67	-1371.76	10.00	82.33	891.64	BT FED 3HN - LP
6	18767.34	90.00	1.05	6254.00	12787.76	-1152.00	0.00	0.00	12839.54	BT FED 3HN- PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
417.00	417.03	Fox Hills Base
1420.00	1440.06	Pierre Shale Top
3278.00	3355.12	Richard Sandstone
3393.00	3473.65	Parkman Sandstone
4169.00	4273.48	Sussex Sandstone
4607.00	4724.93	Shannon Sandstone
5370.00	5511.37	TeePee Buttes
6045.00	6235.50	Sharon Springs
6085.00	6290.43	Niobrara Top
6243.00	6635.10	Niobrara B2 Chalk Target Top
6254.00	6749.25	Niobrara B2 Chalk Target Center

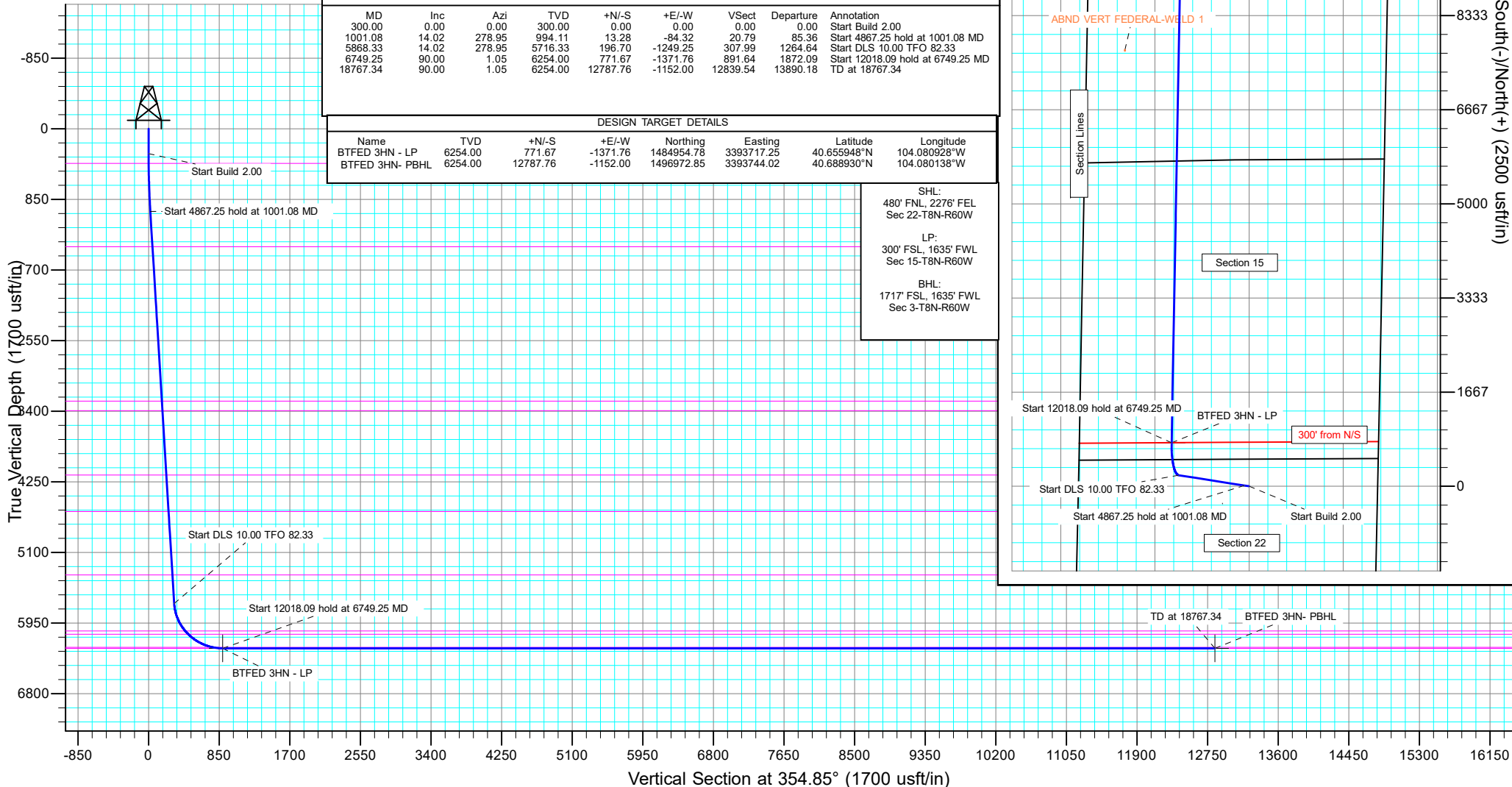
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	Start Build 2.00
1001.08	14.02	278.95	994.11	13.28	-84.32	20.79	85.36	Start 4867.25 hold at 1001.08 MD
5868.33	14.02	278.95	5716.33	196.70	-1249.25	307.99	1264.64	Start DLS 10.00 TFO 82.33
6749.25	90.00	1.05	6254.00	771.67	-1371.76	891.64	1872.09	Start 12018.09 hold at 6749.25 MD
18767.34	90.00	1.05	6254.00	12787.76	-1152.00	12839.54	13890.18	TD at 18767.34

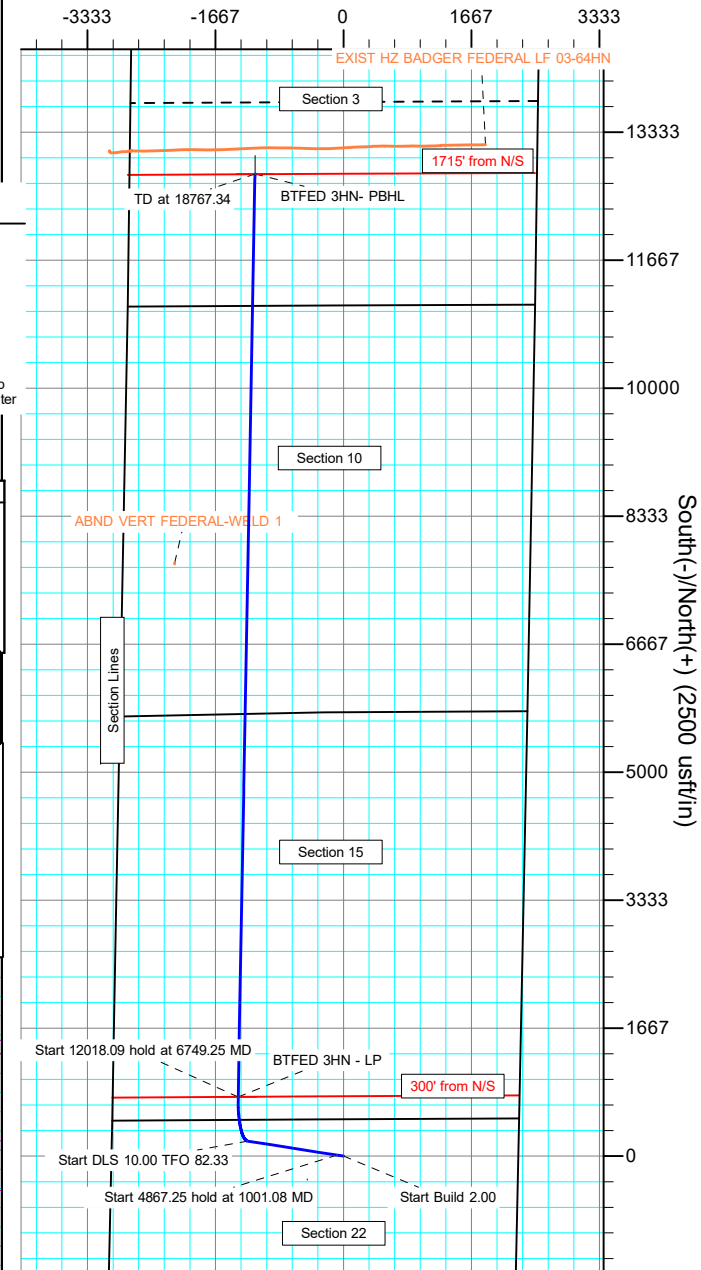
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
BT FED 3HN - LP	6254.00	771.67	-1371.76	1484954.78	3393717.25	40.655948°N	104.080928°W
BT FED 3HN- PBHL	6254.00	12787.76	-1152.00	1496972.85	3393744.02	40.688930°N	104.080138°W

SHL:
480' FNL, 2276' FEL
Sec 22-T8N-R60W
LP:
300' FSL, 1635' FWL
Sec 15-T8N-R60W
BHL:
1717' FSL, 1635' FWL
Sec 3-T8N-R60W



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



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4920.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

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

Site		SEC 22-T8N-R60W				
Site Position:		Northing:	1,488,376.93	usft	Latitude:	40.665181°N
From:	Lat/Long	Easting:	3,397,319.63	usft	Longitude:	104.067747°W
Position Uncertainty:		0.00	usft	Slot Radius:	13.200	in

Well		BLUE TEAL FED 15-3-3HN				
Well Position	+N/-S	0.00 usft	Northing:	1,484,205.24 usft	Latitude:	40.653830°N
	+E/-W	0.00 usft	Easting:	3,395,101.22 usft	Longitude:	104.075984°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,893.00 usft
Grid Convergence:		0.92 °				

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	7/6/2020	7.60	66.99	52,254.52083916

Design	PROPOSAL 1				
Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	354.85	

Plan Survey Tool Program	Date	9/9/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,767.34	PROPOSAL 1 (ORIGINAL WELL	MWD	
			OWSG MWD - Standard		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,001.09	14.02	278.95	994.11	13.28	-84.32	2.00	2.00	0.00	278.95	
5,868.33	14.02	278.95	5,716.33	196.70	-1,249.25	0.00	0.00	0.00	0.00	
6,749.25	90.00	1.05	6,254.00	771.67	-1,371.76	10.00	8.62	9.32	82.33	BT FED 3HN - LP
18,767.34	90.00	1.05	6,254.00	12,787.76	-1,152.00	0.00	0.00	0.00	0.00	BT FED 3HN- PBHL

Planning Report

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4920.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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
Start Build 2.00									
400.00	2.00	278.95	399.98	0.27	-1.72	0.43	2.00	2.00	0.00
417.03	2.34	278.95	417.00	0.37	-2.36	0.58	2.00	2.00	0.00
Fox Hills Base									
500.00	4.00	278.95	499.84	1.09	-6.89	1.70	2.00	2.00	0.00
600.00	6.00	278.95	599.45	2.44	-15.50	3.82	2.00	2.00	0.00
700.00	8.00	278.95	698.70	4.34	-27.54	6.79	2.00	2.00	0.00
800.00	10.00	278.95	797.47	6.77	-42.99	10.60	2.00	2.00	0.00
900.00	12.00	278.95	895.62	9.74	-61.84	15.25	2.00	2.00	0.00
1,001.09	14.02	278.95	994.11	13.28	-84.32	20.79	2.00	2.00	0.00
Start 4867.25 hold at 1001.08 MD									
1,100.00	14.02	278.95	1,090.08	17.00	-107.99	26.63	0.00	0.00	0.00
1,200.00	14.02	278.95	1,187.10	20.77	-131.93	32.53	0.00	0.00	0.00
1,300.00	14.02	278.95	1,284.12	24.54	-155.86	38.43	0.00	0.00	0.00
1,400.00	14.02	278.95	1,381.14	28.31	-179.80	44.33	0.00	0.00	0.00
1,440.06	14.02	278.95	1,420.00	29.82	-189.38	46.69	0.00	0.00	0.00
Pierre Shale Top									
1,500.00	14.02	278.95	1,478.16	32.08	-203.73	50.23	0.00	0.00	0.00
1,600.00	14.02	278.95	1,575.18	35.85	-227.67	56.13	0.00	0.00	0.00
1,700.00	14.02	278.95	1,672.20	39.62	-251.60	62.03	0.00	0.00	0.00
1,800.00	14.02	278.95	1,769.22	43.38	-275.53	67.93	0.00	0.00	0.00
1,900.00	14.02	278.95	1,866.24	47.15	-299.47	73.83	0.00	0.00	0.00
2,000.00	14.02	278.95	1,963.26	50.92	-323.40	79.73	0.00	0.00	0.00
2,100.00	14.02	278.95	2,060.28	54.69	-347.34	85.63	0.00	0.00	0.00
2,200.00	14.02	278.95	2,157.30	58.46	-371.27	91.53	0.00	0.00	0.00
2,300.00	14.02	278.95	2,254.32	62.23	-395.20	97.43	0.00	0.00	0.00
2,400.00	14.02	278.95	2,351.34	65.99	-419.14	103.33	0.00	0.00	0.00
2,500.00	14.02	278.95	2,448.36	69.76	-443.07	109.24	0.00	0.00	0.00
2,600.00	14.02	278.95	2,545.38	73.53	-467.01	115.14	0.00	0.00	0.00
2,700.00	14.02	278.95	2,642.40	77.30	-490.94	121.04	0.00	0.00	0.00
2,800.00	14.02	278.95	2,739.42	81.07	-514.88	126.94	0.00	0.00	0.00
2,900.00	14.02	278.95	2,836.44	84.84	-538.81	132.84	0.00	0.00	0.00
3,000.00	14.02	278.95	2,933.46	88.61	-562.74	138.74	0.00	0.00	0.00
3,100.00	14.02	278.95	3,030.48	92.37	-586.68	144.64	0.00	0.00	0.00
3,200.00	14.02	278.95	3,127.50	96.14	-610.61	150.54	0.00	0.00	0.00
3,300.00	14.02	278.95	3,224.52	99.91	-634.55	156.44	0.00	0.00	0.00
3,355.12	14.02	278.95	3,278.00	101.99	-647.74	159.69	0.00	0.00	0.00
Richard Sandstone									
3,400.00	14.02	278.95	3,321.54	103.68	-658.48	162.34	0.00	0.00	0.00
3,473.65	14.02	278.95	3,393.00	106.45	-676.11	166.69	0.00	0.00	0.00
Parkman Sandstone									
3,500.00	14.02	278.95	3,418.57	107.45	-682.41	168.24	0.00	0.00	0.00
3,600.00	14.02	278.95	3,515.59	111.22	-706.35	174.14	0.00	0.00	0.00
3,700.00	14.02	278.95	3,612.61	114.98	-730.28	180.04	0.00	0.00	0.00
3,800.00	14.02	278.95	3,709.63	118.75	-754.22	185.94	0.00	0.00	0.00
3,900.00	14.02	278.95	3,806.65	122.52	-778.15	191.85	0.00	0.00	0.00
4,000.00	14.02	278.95	3,903.67	126.29	-802.08	197.75	0.00	0.00	0.00
4,100.00	14.02	278.95	4,000.69	130.06	-826.02	203.65	0.00	0.00	0.00
4,200.00	14.02	278.95	4,097.71	133.83	-849.95	209.55	0.00	0.00	0.00

Planning Report

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4920.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)	
4,273.48	14.02	278.95	4,169.00	136.60	-867.54	213.88	0.00	0.00	0.00	
Sussex Sandstone										
4,300.00	14.02	278.95	4,194.73	137.60	-873.89	215.45	0.00	0.00	0.00	
4,400.00	14.02	278.95	4,291.75	141.36	-897.82	221.35	0.00	0.00	0.00	
4,500.00	14.02	278.95	4,388.77	145.13	-921.76	227.25	0.00	0.00	0.00	
4,600.00	14.02	278.95	4,485.79	148.90	-945.69	233.15	0.00	0.00	0.00	
4,700.00	14.02	278.95	4,582.81	152.67	-969.62	239.05	0.00	0.00	0.00	
4,724.93	14.02	278.95	4,607.00	153.61	-975.59	240.52	0.00	0.00	0.00	
Shannon Sandstone										
4,800.00	14.02	278.95	4,679.83	156.44	-993.56	244.95	0.00	0.00	0.00	
4,900.00	14.02	278.95	4,776.85	160.21	-1,017.49	250.85	0.00	0.00	0.00	
5,000.00	14.02	278.95	4,873.87	163.98	-1,041.43	256.75	0.00	0.00	0.00	
5,100.00	14.02	278.95	4,970.89	167.74	-1,065.36	262.65	0.00	0.00	0.00	
5,200.00	14.02	278.95	5,067.91	171.51	-1,089.29	268.56	0.00	0.00	0.00	
5,300.00	14.02	278.95	5,164.93	175.28	-1,113.23	274.46	0.00	0.00	0.00	
5,400.00	14.02	278.95	5,261.95	179.05	-1,137.16	280.36	0.00	0.00	0.00	
5,500.00	14.02	278.95	5,358.97	182.82	-1,161.10	286.26	0.00	0.00	0.00	
5,511.37	14.02	278.95	5,370.00	183.25	-1,163.82	286.93	0.00	0.00	0.00	
TeePee Buttes										
5,600.00	14.02	278.95	5,455.99	186.59	-1,185.03	292.16	0.00	0.00	0.00	
5,700.00	14.02	278.95	5,553.01	190.35	-1,208.96	298.06	0.00	0.00	0.00	
5,800.00	14.02	278.95	5,650.03	194.12	-1,232.90	303.96	0.00	0.00	0.00	
5,868.33	14.02	278.95	5,716.33	196.70	-1,249.25	307.99	0.00	0.00	0.00	
Start DLS 10.00 TFO 82.33										
5,900.00	14.77	291.35	5,747.01	198.77	-1,256.81	310.73	10.00	2.38	39.15	
5,950.00	17.10	307.55	5,795.11	205.57	-1,268.58	318.56	10.00	4.66	32.40	
6,000.00	20.39	319.33	5,842.47	216.67	-1,280.09	330.65	10.00	6.57	23.57	
6,050.00	24.25	327.74	5,888.72	231.97	-1,291.26	346.89	10.00	7.72	16.82	
6,100.00	28.45	333.88	5,933.53	251.35	-1,301.99	367.16	10.00	8.40	12.28	
6,150.00	32.85	338.53	5,976.54	274.68	-1,312.20	391.31	10.00	8.81	9.29	
6,200.00	37.40	342.17	6,017.43	301.78	-1,321.82	419.16	10.00	9.08	7.28	
6,235.50	40.68	344.32	6,045.00	323.19	-1,328.25	441.06	10.00	9.24	6.06	
Sharon Springs										
6,250.00	42.03	345.12	6,055.88	332.43	-1,330.78	450.49	10.00	9.32	5.50	
6,290.43	45.82	347.14	6,085.00	359.65	-1,337.48	478.21	10.00	9.38	5.00	
Niobrara Top										
6,300.00	46.72	347.58	6,091.61	366.40	-1,338.99	485.06	10.00	9.43	4.60	
6,350.00	51.46	349.69	6,124.35	403.44	-1,346.42	522.61	10.00	9.48	4.21	
6,400.00	56.24	351.53	6,153.83	443.26	-1,352.98	562.86	10.00	9.55	3.69	
6,450.00	61.04	353.18	6,179.85	485.56	-1,358.65	605.50	10.00	9.60	3.30	
6,500.00	65.85	354.68	6,202.20	530.02	-1,363.36	650.21	10.00	9.63	3.00	
6,550.00	70.68	356.07	6,220.71	576.30	-1,367.09	696.64	10.00	9.66	2.79	
6,600.00	75.52	357.39	6,235.24	624.05	-1,369.81	744.44	10.00	9.68	2.62	
6,635.11	78.92	358.27	6,243.00	658.26	-1,371.11	778.62	10.00	9.69	2.53	
Niobrara B2 Chalk Target Top										
6,650.00	80.37	358.64	6,245.68	672.90	-1,371.50	793.24	10.00	9.70	2.48	
6,700.00	85.22	359.86	6,251.95	722.49	-1,372.15	842.69	10.00	9.70	2.44	
6,749.25	90.00	1.05	6,254.00	771.67	-1,371.76	891.64	10.00	9.71	2.41	
Start 12018.09 hold at 6749.25 MD - Niobrara B2 Chalk Target Center										
6,800.00	90.00	1.05	6,254.00	822.42	-1,370.83	942.10	0.00	0.00	0.00	
6,900.00	90.00	1.05	6,254.00	922.40	-1,369.00	1,041.51	0.00	0.00	0.00	
7,000.00	90.00	1.05	6,254.00	1,022.39	-1,367.17	1,140.93	0.00	0.00	0.00	
7,100.00	90.00	1.05	6,254.00	1,122.37	-1,365.34	1,240.35	0.00	0.00	0.00	

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)	
7,200.00	90.00	1.05	6,254.00	1,222.35	-1,363.51	1,339.76	0.00	0.00	0.00	
7,300.00	90.00	1.05	6,254.00	1,322.34	-1,361.68	1,439.18	0.00	0.00	0.00	
7,400.00	90.00	1.05	6,254.00	1,422.32	-1,359.85	1,538.59	0.00	0.00	0.00	
7,500.00	90.00	1.05	6,254.00	1,522.30	-1,358.03	1,638.01	0.00	0.00	0.00	
7,600.00	90.00	1.05	6,254.00	1,622.29	-1,356.20	1,737.43	0.00	0.00	0.00	
7,700.00	90.00	1.05	6,254.00	1,722.27	-1,354.37	1,836.84	0.00	0.00	0.00	
7,800.00	90.00	1.05	6,254.00	1,822.25	-1,352.54	1,936.26	0.00	0.00	0.00	
7,900.00	90.00	1.05	6,254.00	1,922.24	-1,350.71	2,035.67	0.00	0.00	0.00	
8,000.00	90.00	1.05	6,254.00	2,022.22	-1,348.88	2,135.09	0.00	0.00	0.00	
8,100.00	90.00	1.05	6,254.00	2,122.20	-1,347.05	2,234.50	0.00	0.00	0.00	
8,200.00	90.00	1.05	6,254.00	2,222.19	-1,345.22	2,333.92	0.00	0.00	0.00	
8,300.00	90.00	1.05	6,254.00	2,322.17	-1,343.39	2,433.34	0.00	0.00	0.00	
8,400.00	90.00	1.05	6,254.00	2,422.15	-1,341.57	2,532.75	0.00	0.00	0.00	
8,500.00	90.00	1.05	6,254.00	2,522.14	-1,339.74	2,632.17	0.00	0.00	0.00	
8,600.00	90.00	1.05	6,254.00	2,622.12	-1,337.91	2,731.58	0.00	0.00	0.00	
8,700.00	90.00	1.05	6,254.00	2,722.10	-1,336.08	2,831.00	0.00	0.00	0.00	
8,800.00	90.00	1.05	6,254.00	2,822.09	-1,334.25	2,930.42	0.00	0.00	0.00	
8,900.00	90.00	1.05	6,254.00	2,922.07	-1,332.42	3,029.83	0.00	0.00	0.00	
9,000.00	90.00	1.05	6,254.00	3,022.05	-1,330.59	3,129.25	0.00	0.00	0.00	
9,100.00	90.00	1.05	6,254.00	3,122.04	-1,328.76	3,228.66	0.00	0.00	0.00	
9,200.00	90.00	1.05	6,254.00	3,222.02	-1,326.93	3,328.08	0.00	0.00	0.00	
9,300.00	90.00	1.05	6,254.00	3,322.00	-1,325.11	3,427.50	0.00	0.00	0.00	
9,400.00	90.00	1.05	6,254.00	3,421.99	-1,323.28	3,526.91	0.00	0.00	0.00	
9,500.00	90.00	1.05	6,254.00	3,521.97	-1,321.45	3,626.33	0.00	0.00	0.00	
9,600.00	90.00	1.05	6,254.00	3,621.95	-1,319.62	3,725.74	0.00	0.00	0.00	
9,700.00	90.00	1.05	6,254.00	3,721.94	-1,317.79	3,825.16	0.00	0.00	0.00	
9,800.00	90.00	1.05	6,254.00	3,821.92	-1,315.96	3,924.58	0.00	0.00	0.00	
9,900.00	90.00	1.05	6,254.00	3,921.90	-1,314.13	4,023.99	0.00	0.00	0.00	
10,000.00	90.00	1.05	6,254.00	4,021.88	-1,312.30	4,123.41	0.00	0.00	0.00	
10,100.00	90.00	1.05	6,254.00	4,121.87	-1,310.47	4,222.82	0.00	0.00	0.00	
10,200.00	90.00	1.05	6,254.00	4,221.85	-1,308.65	4,322.24	0.00	0.00	0.00	
10,300.00	90.00	1.05	6,254.00	4,321.83	-1,306.82	4,421.66	0.00	0.00	0.00	
10,400.00	90.00	1.05	6,254.00	4,421.82	-1,304.99	4,521.07	0.00	0.00	0.00	
10,500.00	90.00	1.05	6,254.00	4,521.80	-1,303.16	4,620.49	0.00	0.00	0.00	
10,600.00	90.00	1.05	6,254.00	4,621.78	-1,301.33	4,719.90	0.00	0.00	0.00	
10,700.00	90.00	1.05	6,254.00	4,721.77	-1,299.50	4,819.32	0.00	0.00	0.00	
10,800.00	90.00	1.05	6,254.00	4,821.75	-1,297.67	4,918.73	0.00	0.00	0.00	
10,900.00	90.00	1.05	6,254.00	4,921.73	-1,295.84	5,018.15	0.00	0.00	0.00	
11,000.00	90.00	1.05	6,254.00	5,021.72	-1,294.01	5,117.57	0.00	0.00	0.00	
11,100.00	90.00	1.05	6,254.00	5,121.70	-1,292.19	5,216.98	0.00	0.00	0.00	
11,200.00	90.00	1.05	6,254.00	5,221.68	-1,290.36	5,316.40	0.00	0.00	0.00	
11,300.00	90.00	1.05	6,254.00	5,321.67	-1,288.53	5,415.81	0.00	0.00	0.00	
11,400.00	90.00	1.05	6,254.00	5,421.65	-1,286.70	5,515.23	0.00	0.00	0.00	
11,500.00	90.00	1.05	6,254.00	5,521.63	-1,284.87	5,614.65	0.00	0.00	0.00	
11,600.00	90.00	1.05	6,254.00	5,621.62	-1,283.04	5,714.06	0.00	0.00	0.00	
11,700.00	90.00	1.05	6,254.00	5,721.60	-1,281.21	5,813.48	0.00	0.00	0.00	
11,800.00	90.00	1.05	6,254.00	5,821.58	-1,279.38	5,912.89	0.00	0.00	0.00	
11,900.00	90.00	1.05	6,254.00	5,921.57	-1,277.55	6,012.31	0.00	0.00	0.00	
12,000.00	90.00	1.05	6,254.00	6,021.55	-1,275.72	6,111.73	0.00	0.00	0.00	
12,100.00	90.00	1.05	6,254.00	6,121.53	-1,273.90	6,211.14	0.00	0.00	0.00	
12,200.00	90.00	1.05	6,254.00	6,221.52	-1,272.07	6,310.56	0.00	0.00	0.00	
12,300.00	90.00	1.05	6,254.00	6,321.50	-1,270.24	6,409.97	0.00	0.00	0.00	
12,400.00	90.00	1.05	6,254.00	6,421.48	-1,268.41	6,509.39	0.00	0.00	0.00	
12,500.00	90.00	1.05	6,254.00	6,521.47	-1,266.58	6,608.81	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4920.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
12,600.00	90.00	1.05	6,254.00	6,621.45	-1,264.75	6,708.22	0.00	0.00	0.00
12,700.00	90.00	1.05	6,254.00	6,721.43	-1,262.92	6,807.64	0.00	0.00	0.00
12,800.00	90.00	1.05	6,254.00	6,821.42	-1,261.09	6,907.05	0.00	0.00	0.00
12,900.00	90.00	1.05	6,254.00	6,921.40	-1,259.26	7,006.47	0.00	0.00	0.00
13,000.00	90.00	1.05	6,254.00	7,021.38	-1,257.44	7,105.89	0.00	0.00	0.00
13,100.00	90.00	1.05	6,254.00	7,121.37	-1,255.61	7,205.30	0.00	0.00	0.00
13,200.00	90.00	1.05	6,254.00	7,221.35	-1,253.78	7,304.72	0.00	0.00	0.00
13,300.00	90.00	1.05	6,254.00	7,321.33	-1,251.95	7,404.13	0.00	0.00	0.00
13,400.00	90.00	1.05	6,254.00	7,421.32	-1,250.12	7,503.55	0.00	0.00	0.00
13,500.00	90.00	1.05	6,254.00	7,521.30	-1,248.29	7,602.96	0.00	0.00	0.00
13,600.00	90.00	1.05	6,254.00	7,621.28	-1,246.46	7,702.38	0.00	0.00	0.00
13,700.00	90.00	1.05	6,254.00	7,721.27	-1,244.63	7,801.80	0.00	0.00	0.00
13,800.00	90.00	1.05	6,254.00	7,821.25	-1,242.80	7,901.21	0.00	0.00	0.00
13,900.00	90.00	1.05	6,254.00	7,921.23	-1,240.98	8,000.63	0.00	0.00	0.00
14,000.00	90.00	1.05	6,254.00	8,021.22	-1,239.15	8,100.04	0.00	0.00	0.00
14,100.00	90.00	1.05	6,254.00	8,121.20	-1,237.32	8,199.46	0.00	0.00	0.00
14,200.00	90.00	1.05	6,254.00	8,221.18	-1,235.49	8,298.88	0.00	0.00	0.00
14,300.00	90.00	1.05	6,254.00	8,321.17	-1,233.66	8,398.29	0.00	0.00	0.00
14,400.00	90.00	1.05	6,254.00	8,421.15	-1,231.83	8,497.71	0.00	0.00	0.00
14,500.00	90.00	1.05	6,254.00	8,521.13	-1,230.00	8,597.12	0.00	0.00	0.00
14,600.00	90.00	1.05	6,254.00	8,621.12	-1,228.17	8,696.54	0.00	0.00	0.00
14,700.00	90.00	1.05	6,254.00	8,721.10	-1,226.34	8,795.96	0.00	0.00	0.00
14,800.00	90.00	1.05	6,254.00	8,821.08	-1,224.52	8,895.37	0.00	0.00	0.00
14,900.00	90.00	1.05	6,254.00	8,921.07	-1,222.69	8,994.79	0.00	0.00	0.00
15,000.00	90.00	1.05	6,254.00	9,021.05	-1,220.86	9,094.20	0.00	0.00	0.00
15,100.00	90.00	1.05	6,254.00	9,121.03	-1,219.03	9,193.62	0.00	0.00	0.00
15,200.00	90.00	1.05	6,254.00	9,221.02	-1,217.20	9,293.04	0.00	0.00	0.00
15,300.00	90.00	1.05	6,254.00	9,321.00	-1,215.37	9,392.45	0.00	0.00	0.00
15,400.00	90.00	1.05	6,254.00	9,420.98	-1,213.54	9,491.87	0.00	0.00	0.00
15,500.00	90.00	1.05	6,254.00	9,520.97	-1,211.71	9,591.28	0.00	0.00	0.00
15,600.00	90.00	1.05	6,254.00	9,620.95	-1,209.88	9,690.70	0.00	0.00	0.00
15,700.00	90.00	1.05	6,254.00	9,720.93	-1,208.06	9,790.12	0.00	0.00	0.00
15,800.00	90.00	1.05	6,254.00	9,820.92	-1,206.23	9,889.53	0.00	0.00	0.00
15,900.00	90.00	1.05	6,254.00	9,920.90	-1,204.40	9,988.95	0.00	0.00	0.00
16,000.00	90.00	1.05	6,254.00	10,020.88	-1,202.57	10,088.36	0.00	0.00	0.00
16,100.00	90.00	1.05	6,254.00	10,120.86	-1,200.74	10,187.78	0.00	0.00	0.00
16,200.00	90.00	1.05	6,254.00	10,220.85	-1,198.91	10,287.19	0.00	0.00	0.00
16,300.00	90.00	1.05	6,254.00	10,320.83	-1,197.08	10,386.61	0.00	0.00	0.00
16,400.00	90.00	1.05	6,254.00	10,420.81	-1,195.25	10,486.03	0.00	0.00	0.00
16,500.00	90.00	1.05	6,254.00	10,520.80	-1,193.42	10,585.44	0.00	0.00	0.00
16,600.00	90.00	1.05	6,254.00	10,620.78	-1,191.59	10,684.86	0.00	0.00	0.00
16,700.00	90.00	1.05	6,254.00	10,720.76	-1,189.77	10,784.27	0.00	0.00	0.00
16,800.00	90.00	1.05	6,254.00	10,820.75	-1,187.94	10,883.69	0.00	0.00	0.00
16,900.00	90.00	1.05	6,254.00	10,920.73	-1,186.11	10,983.11	0.00	0.00	0.00
17,000.00	90.00	1.05	6,254.00	11,020.71	-1,184.28	11,082.52	0.00	0.00	0.00
17,100.00	90.00	1.05	6,254.00	11,120.70	-1,182.45	11,181.94	0.00	0.00	0.00
17,200.00	90.00	1.05	6,254.00	11,220.68	-1,180.62	11,281.35	0.00	0.00	0.00
17,300.00	90.00	1.05	6,254.00	11,320.66	-1,178.79	11,380.77	0.00	0.00	0.00
17,400.00	90.00	1.05	6,254.00	11,420.65	-1,176.96	11,480.19	0.00	0.00	0.00
17,500.00	90.00	1.05	6,254.00	11,520.63	-1,175.13	11,579.60	0.00	0.00	0.00
17,600.00	90.00	1.05	6,254.00	11,620.61	-1,173.31	11,679.02	0.00	0.00	0.00
17,700.00	90.00	1.05	6,254.00	11,720.60	-1,171.48	11,778.43	0.00	0.00	0.00
17,800.00	90.00	1.05	6,254.00	11,820.58	-1,169.65	11,877.85	0.00	0.00	0.00
17,900.00	90.00	1.05	6,254.00	11,920.56	-1,167.82	11,977.27	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4920.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4920.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
18,000.00	90.00	1.05	6,254.00	12,020.55	-1,165.99	12,076.68	0.00	0.00	0.00
18,100.00	90.00	1.05	6,254.00	12,120.53	-1,164.16	12,176.10	0.00	0.00	0.00
18,200.00	90.00	1.05	6,254.00	12,220.51	-1,162.33	12,275.51	0.00	0.00	0.00
18,300.00	90.00	1.05	6,254.00	12,320.50	-1,160.50	12,374.93	0.00	0.00	0.00
18,400.00	90.00	1.05	6,254.00	12,420.48	-1,158.67	12,474.35	0.00	0.00	0.00
18,500.00	90.00	1.05	6,254.00	12,520.46	-1,156.85	12,573.76	0.00	0.00	0.00
18,600.00	90.00	1.05	6,254.00	12,620.45	-1,155.02	12,673.18	0.00	0.00	0.00
18,700.00	90.00	1.05	6,254.00	12,720.43	-1,153.19	12,772.59	0.00	0.00	0.00
18,767.34	90.00	1.05	6,254.00	12,787.76	-1,152.00	12,839.54	0.00	0.00	0.00
TD at 18767.34									

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
BTFED 3HN- PBHL - plan hits target center - Point	0.00	0.00	6,254.00	12,787.76	-1,152.00	1,496,972.85	3,393,744.02	40.688930°N	104.080138°W
BTFED 3HN - LP - plan hits target center - Point	0.00	0.00	6,254.00	771.67	-1,371.76	1,484,954.79	3,393,717.25	40.655948°N	104.080928°W

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
417.03	417.00	Fox Hills Base			
1,440.06	1,420.00	Pierre Shale Top			
3,355.12	3,278.00	Richard Sandstone			
3,473.65	3,393.00	Parkman Sandstone			
4,273.48	4,169.00	Sussex Sandstone			
4,724.93	4,607.00	Shannon Sandstone			
5,511.37	5,370.00	TeePee Buttes			
6,235.50	6,045.00	Sharon Springs			
6,290.43	6,085.00	Niobrara Top			
6,635.11	6,243.00	Niobrara B2 Chalk Target Top			
6,749.25	6,254.00	Niobrara B2 Chalk Target Center			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Start Build 2.00
1,001.09	994.11	13.28	-84.32	Start 4867.25 hold at 1001.08 MD
5,868.33	5,716.33	196.70	-1,249.25	Start DLS 10.00 TFO 82.33
6,749.25	6,254.00	771.67	-1,371.76	Start 12018.09 hold at 6749.25 MD
18,767.34	6,254.00	12,787.76	-1,152.00	TD at 18767.34