

MALLARD EXPLORATION

WELD COUNTY

SEC 22-T8N-R60W

BLUE TEAL FED 15-3-1HN

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

01 September, 2020



Project: WELD COUNTY
Site: SEC 22-T8N-R60W
Well: BLUE TEAL FED 15-3-1HN
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 15-3-1HN

+N/-S	+E/-W	Northing	Easting	4894.00	Latitude	Longitude	Slot
0.00	0.00	1484204.07	3395051.29		40.653829°N	104.076164°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	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	1388.98	25.78	274.42	1345.93	21.97	-284.28	2.00	274.42	74.72	
4	6314.35	25.78	274.42	5781.09	187.02	-2420.01	0.00	0.00	636.13	
5	7199.70	90.00	1.05	6284.00	764.13	-2651.95	10.00	86.97	1246.43	BTfED 1HN - LP
6	19216.70	90.00	1.05	6284.00	12779.11	-2431.85	0.00	0.00	13008.44	BTfED 1HN - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
488.00	489.20	Fox Hills Base
1491.00	1550.09	Pierre Shale Top
3349.00	3613.45	Richard Sandstone
3464.00	3741.16	Parkman Sandstone
4240.00	4602.93	Sussex Sandstone
4678.00	5089.34	Shannon Sandstone
5441.00	5936.67	TeePee Buttes
6116.00	6723.84	Sharon Springs
6156.00	6787.33	Niobrara Top
6275.00	7092.54	Niobrara Target Top
6284.00	7199.70	Niobrara B2 Chalk Target

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	Start Build 2.00
1388.98	25.78	274.42	1345.93	21.97	-284.28	74.72	285.12	Start 4925.37 hold at 1388.98 MD
6314.35	25.78	274.42	5781.09	187.02	-2420.01	636.13	2427.22	Start DLS 10.00 TFO 86.97
7199.70	90.00	1.05	6284.00	764.13	-2651.95	1246.43	3091.88	Start 12016.99 hold at 7199.70 MD
19216.70	90.00	1.05	6284.00	12779.11	-2431.85	13008.44	15108.87	TD at 19216.70

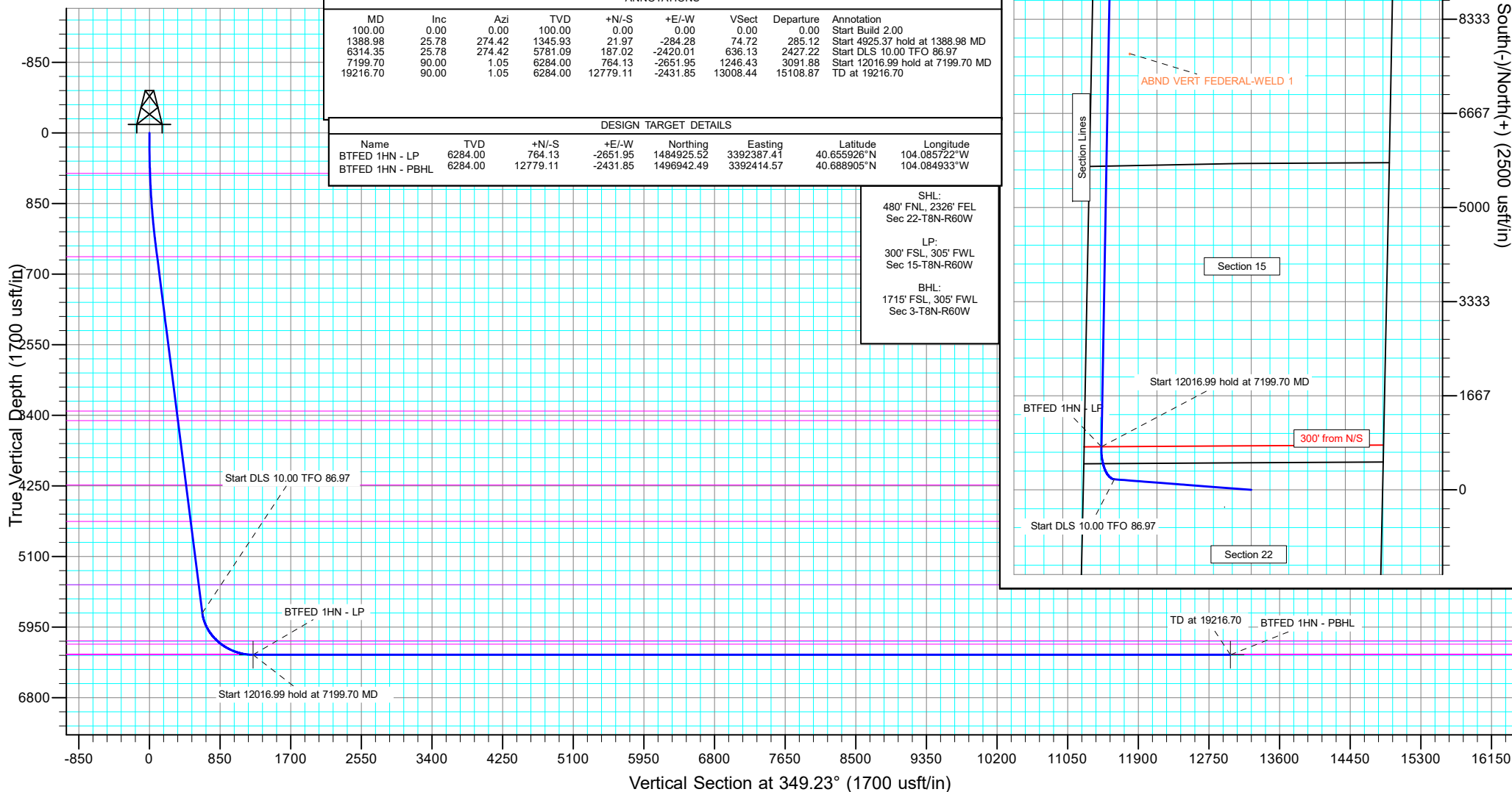
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	North	Easting	Latitude	Longitude
BTfED 1HN - LP	6284.00	764.13	-2651.95	1484925.52	3392387.41	40.655926°N	104.085722°W
BTfED 1HN - PBHL	6284.00	12779.11	-2431.85	1496942.49	3392414.57	40.688905°N	104.084933°W

SHL:
480' FNL, 2326' FEL
Sec 22-T8N-R60W

LP:
300' FSL, 305' FWL
Sec 15-T8N-R60W

BHL:
1715' FSL, 305' FWL
Sec 3-T8N-R60W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4921.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	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 15-3-1HN				
Well Position	+N/-S	0.00 usft	Northing:	1,484,204.07 usft	Latitude:	40.653829°N
	+E/-W	0.00 usft	Easting:	3,395,051.29 usft	Longitude:	104.076164°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,894.00 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	52,254.49440096

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	349.23	

Plan Survey Tool Program	Date	9/1/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	19,216.70	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,388.98	25.78	274.42	1,345.93	21.97	-284.28	2.00	2.00	0.00	274.42	
6,314.35	25.78	274.42	5,781.09	187.02	-2,420.01	0.00	0.00	0.00	0.00	
7,199.70	90.00	1.05	6,284.00	764.13	-2,651.95	10.00	7.25	9.78	86.97	BLUE TEAL FED 15-3-1HN
19,216.70	90.00	1.05	6,284.00	12,779.11	-2,431.85	0.00	0.00	0.00	0.00	BLUE TEAL FED 15-3-1HN

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	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
Start Build 2.00									
200.00	2.00	274.42	199.98	0.13	-1.74	0.46	2.00	2.00	0.00
300.00	4.00	274.42	299.84	0.54	-6.96	1.83	2.00	2.00	0.00
400.00	6.00	274.42	399.45	1.21	-15.65	4.11	2.00	2.00	0.00
489.20	7.78	274.42	488.00	2.03	-26.32	6.92	2.00	2.00	0.00
Fox Hills Base									
500.00	8.00	274.42	498.70	2.15	-27.80	7.31	2.00	2.00	0.00
600.00	10.00	274.42	597.47	3.35	-43.39	11.41	2.00	2.00	0.00
700.00	12.00	274.42	695.62	4.82	-62.42	16.41	2.00	2.00	0.00
800.00	14.00	274.42	793.06	6.56	-84.84	22.30	2.00	2.00	0.00
900.00	16.00	274.42	889.64	8.55	-110.65	29.08	2.00	2.00	0.00
1,000.00	18.00	274.42	985.27	10.80	-139.80	36.75	2.00	2.00	0.00
1,100.00	20.00	274.42	1,079.82	13.31	-172.25	45.28	2.00	2.00	0.00
1,200.00	22.00	274.42	1,173.17	16.07	-207.98	54.67	2.00	2.00	0.00
1,300.00	24.00	274.42	1,265.21	19.08	-246.94	64.91	2.00	2.00	0.00
1,388.98	25.78	274.42	1,345.93	21.97	-284.28	74.72	2.00	2.00	0.00
Start 4925.37 hold at 1388.98 MD									
1,400.00	25.78	274.42	1,355.85	22.34	-289.05	75.98	0.00	0.00	0.00
1,500.00	25.78	274.42	1,445.90	25.69	-332.42	87.38	0.00	0.00	0.00
1,550.09	25.78	274.42	1,491.00	27.37	-354.13	93.09	0.00	0.00	0.00
Pierre Shale Top									
1,600.00	25.78	274.42	1,535.94	29.04	-375.78	98.78	0.00	0.00	0.00
1,700.00	25.78	274.42	1,625.99	32.39	-419.14	110.18	0.00	0.00	0.00
1,800.00	25.78	274.42	1,716.04	35.74	-462.50	121.57	0.00	0.00	0.00
1,900.00	25.78	274.42	1,806.09	39.09	-505.86	132.97	0.00	0.00	0.00
2,000.00	25.78	274.42	1,896.13	42.44	-549.22	144.37	0.00	0.00	0.00
2,100.00	25.78	274.42	1,986.18	45.79	-592.59	155.77	0.00	0.00	0.00
2,200.00	25.78	274.42	2,076.23	49.15	-635.95	167.17	0.00	0.00	0.00
2,300.00	25.78	274.42	2,166.28	52.50	-679.31	178.56	0.00	0.00	0.00
2,400.00	25.78	274.42	2,256.32	55.85	-722.67	189.96	0.00	0.00	0.00
2,500.00	25.78	274.42	2,346.37	59.20	-766.03	201.36	0.00	0.00	0.00
2,600.00	25.78	274.42	2,436.42	62.55	-809.40	212.76	0.00	0.00	0.00
2,700.00	25.78	274.42	2,526.47	65.90	-852.76	224.16	0.00	0.00	0.00
2,800.00	25.78	274.42	2,616.51	69.25	-896.12	235.55	0.00	0.00	0.00
2,900.00	25.78	274.42	2,706.56	72.60	-939.48	246.95	0.00	0.00	0.00
3,000.00	25.78	274.42	2,796.61	75.95	-982.84	258.35	0.00	0.00	0.00
3,100.00	25.78	274.42	2,886.65	79.30	-1,026.21	269.75	0.00	0.00	0.00
3,200.00	25.78	274.42	2,976.70	82.66	-1,069.57	281.15	0.00	0.00	0.00
3,300.00	25.78	274.42	3,066.75	86.01	-1,112.93	292.55	0.00	0.00	0.00
3,400.00	25.78	274.42	3,156.80	89.36	-1,156.29	303.94	0.00	0.00	0.00
3,500.00	25.78	274.42	3,246.84	92.71	-1,199.65	315.34	0.00	0.00	0.00
3,600.00	25.78	274.42	3,336.89	96.06	-1,243.01	326.74	0.00	0.00	0.00
3,613.45	25.78	274.42	3,349.00	96.51	-1,248.85	328.27	0.00	0.00	0.00
Richard Sandstone									
3,700.00	25.78	274.42	3,426.94	99.41	-1,286.38	338.14	0.00	0.00	0.00
3,741.16	25.78	274.42	3,464.00	100.79	-1,304.22	342.83	0.00	0.00	0.00
Parkman Sandstone									
3,800.00	25.78	274.42	3,516.99	102.76	-1,329.74	349.54	0.00	0.00	0.00
3,900.00	25.78	274.42	3,607.03	106.11	-1,373.10	360.93	0.00	0.00	0.00
4,000.00	25.78	274.42	3,697.08	109.46	-1,416.46	372.33	0.00	0.00	0.00
4,100.00	25.78	274.42	3,787.13	112.81	-1,459.82	383.73	0.00	0.00	0.00

Planning Report

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4921.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	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)
4,200.00	25.78	274.42	3,877.17	116.17	-1,503.19	395.13	0.00	0.00	0.00
4,300.00	25.78	274.42	3,967.22	119.52	-1,546.55	406.53	0.00	0.00	0.00
4,400.00	25.78	274.42	4,057.27	122.87	-1,589.91	417.93	0.00	0.00	0.00
4,500.00	25.78	274.42	4,147.32	126.22	-1,633.27	429.32	0.00	0.00	0.00
4,600.00	25.78	274.42	4,237.36	129.57	-1,676.63	440.72	0.00	0.00	0.00
4,602.93	25.78	274.42	4,240.00	129.67	-1,677.90	441.06	0.00	0.00	0.00
Sussex Sandstone									
4,700.00	25.78	274.42	4,327.41	132.92	-1,720.00	452.12	0.00	0.00	0.00
4,800.00	25.78	274.42	4,417.46	136.27	-1,763.36	463.52	0.00	0.00	0.00
4,900.00	25.78	274.42	4,507.51	139.62	-1,806.72	474.92	0.00	0.00	0.00
5,000.00	25.78	274.42	4,597.55	142.97	-1,850.08	486.31	0.00	0.00	0.00
5,089.34	25.78	274.42	4,678.00	145.97	-1,888.82	496.50	0.00	0.00	0.00
Shannon Sandstone									
5,100.00	25.78	274.42	4,687.60	146.32	-1,893.44	497.71	0.00	0.00	0.00
5,200.00	25.78	274.42	4,777.65	149.68	-1,936.80	509.11	0.00	0.00	0.00
5,300.00	25.78	274.42	4,867.70	153.03	-1,980.17	520.51	0.00	0.00	0.00
5,400.00	25.78	274.42	4,957.74	156.38	-2,023.53	531.91	0.00	0.00	0.00
5,500.00	25.78	274.42	5,047.79	159.73	-2,066.89	543.31	0.00	0.00	0.00
5,600.00	25.78	274.42	5,137.84	163.08	-2,110.25	554.70	0.00	0.00	0.00
5,700.00	25.78	274.42	5,227.88	166.43	-2,153.61	566.10	0.00	0.00	0.00
5,800.00	25.78	274.42	5,317.93	169.78	-2,196.98	577.50	0.00	0.00	0.00
5,900.00	25.78	274.42	5,407.98	173.13	-2,240.34	588.90	0.00	0.00	0.00
5,936.67	25.78	274.42	5,441.00	174.36	-2,256.24	593.08	0.00	0.00	0.00
TeePee Buttes									
6,000.00	25.78	274.42	5,498.03	176.48	-2,283.70	600.30	0.00	0.00	0.00
6,100.00	25.78	274.42	5,588.07	179.83	-2,327.06	611.69	0.00	0.00	0.00
6,200.00	25.78	274.42	5,678.12	183.19	-2,370.42	623.09	0.00	0.00	0.00
6,300.00	25.78	274.42	5,768.17	186.54	-2,413.79	634.49	0.00	0.00	0.00
6,314.35	25.78	274.42	5,781.09	187.02	-2,420.01	636.13	0.00	0.00	0.00
Start DLS 10.00 TFO 86.97									
6,350.00	26.19	282.50	5,813.15	189.32	-2,435.42	641.27	10.00	1.16	22.68
6,400.00	27.50	293.21	5,857.78	196.26	-2,456.82	652.09	10.00	2.61	21.40
6,450.00	29.55	302.78	5,901.73	207.49	-2,477.81	667.05	10.00	4.09	19.14
6,500.00	32.19	311.06	5,944.67	222.92	-2,498.23	686.02	10.00	5.29	16.57
6,550.00	35.30	318.12	5,986.25	242.44	-2,517.93	708.88	10.00	6.21	14.13
6,600.00	38.75	324.13	6,026.18	265.89	-2,536.75	735.43	10.00	6.91	12.01
6,650.00	42.47	329.27	6,064.14	293.10	-2,554.56	765.49	10.00	7.44	10.28
6,700.00	46.39	333.71	6,099.85	323.86	-2,571.21	798.82	10.00	7.84	8.88
6,723.84	48.32	335.62	6,116.00	339.71	-2,578.71	815.80	10.00	8.07	8.03
Sharon Springs									
6,750.00	50.46	337.60	6,133.03	357.93	-2,586.59	835.17	10.00	8.20	7.54
6,787.33	53.58	340.21	6,156.00	385.38	-2,597.17	864.11	10.00	8.34	7.00
Niobrara Top									
6,800.00	54.64	341.05	6,163.43	395.07	-2,600.57	874.26	10.00	8.44	6.62
6,850.00	58.92	344.15	6,190.82	434.97	-2,613.05	915.80	10.00	8.54	6.21
6,900.00	63.26	346.99	6,214.99	477.35	-2,623.93	959.46	10.00	8.68	5.67
6,950.00	67.65	349.62	6,235.76	521.87	-2,633.13	1,004.92	10.00	8.79	5.25
7,000.00	72.08	352.08	6,252.97	568.21	-2,640.58	1,051.83	10.00	8.86	4.93
7,050.00	76.54	354.43	6,266.48	616.00	-2,646.22	1,099.83	10.00	8.92	4.69
7,092.55	80.36	356.35	6,275.00	657.54	-2,649.57	1,141.26	10.00	8.96	4.53
Niobrara B2 Chalk Target Top									
7,100.00	81.03	356.68	6,276.21	664.88	-2,650.01	1,148.56	10.00	8.98	4.46
7,150.00	85.52	358.89	6,282.06	714.48	-2,651.93	1,197.65	10.00	8.99	4.41

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
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Wellbore:	ORIGINAL WELLBORE		
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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)	
7,199.70	90.00	1.05	6,284.00	764.13	-2,651.95	1,246.43	10.00	9.01	4.35	
Start 12016.99 hold at 7199.70 MD - Niobrara B2 Chalk Target Center										
7,300.00	90.00	1.05	6,284.00	864.41	-2,650.12	1,344.60	0.00	0.00	0.00	
7,400.00	90.00	1.05	6,284.00	964.40	-2,648.28	1,442.47	0.00	0.00	0.00	
7,500.00	90.00	1.05	6,284.00	1,064.38	-2,646.45	1,540.35	0.00	0.00	0.00	
7,600.00	90.00	1.05	6,284.00	1,164.36	-2,644.62	1,638.23	0.00	0.00	0.00	
7,700.00	90.00	1.05	6,284.00	1,264.35	-2,642.79	1,736.11	0.00	0.00	0.00	
7,800.00	90.00	1.05	6,284.00	1,364.33	-2,640.96	1,833.99	0.00	0.00	0.00	
7,900.00	90.00	1.05	6,284.00	1,464.31	-2,639.13	1,931.87	0.00	0.00	0.00	
8,000.00	90.00	1.05	6,284.00	1,564.29	-2,637.29	2,029.74	0.00	0.00	0.00	
8,100.00	90.00	1.05	6,284.00	1,664.28	-2,635.46	2,127.62	0.00	0.00	0.00	
8,200.00	90.00	1.05	6,284.00	1,764.26	-2,633.63	2,225.50	0.00	0.00	0.00	
8,300.00	90.00	1.05	6,284.00	1,864.24	-2,631.80	2,323.38	0.00	0.00	0.00	
8,400.00	90.00	1.05	6,284.00	1,964.23	-2,629.97	2,421.26	0.00	0.00	0.00	
8,500.00	90.00	1.05	6,284.00	2,064.21	-2,628.14	2,519.13	0.00	0.00	0.00	
8,600.00	90.00	1.05	6,284.00	2,164.19	-2,626.30	2,617.01	0.00	0.00	0.00	
8,700.00	90.00	1.05	6,284.00	2,264.18	-2,624.47	2,714.89	0.00	0.00	0.00	
8,800.00	90.00	1.05	6,284.00	2,364.16	-2,622.64	2,812.77	0.00	0.00	0.00	
8,900.00	90.00	1.05	6,284.00	2,464.14	-2,620.81	2,910.65	0.00	0.00	0.00	
9,000.00	90.00	1.05	6,284.00	2,564.13	-2,618.98	3,008.53	0.00	0.00	0.00	
9,100.00	90.00	1.05	6,284.00	2,664.11	-2,617.15	3,106.40	0.00	0.00	0.00	
9,200.00	90.00	1.05	6,284.00	2,764.09	-2,615.31	3,204.28	0.00	0.00	0.00	
9,300.00	90.00	1.05	6,284.00	2,864.08	-2,613.48	3,302.16	0.00	0.00	0.00	
9,400.00	90.00	1.05	6,284.00	2,964.06	-2,611.65	3,400.04	0.00	0.00	0.00	
9,500.00	90.00	1.05	6,284.00	3,064.04	-2,609.82	3,497.92	0.00	0.00	0.00	
9,600.00	90.00	1.05	6,284.00	3,164.03	-2,607.99	3,595.79	0.00	0.00	0.00	
9,700.00	90.00	1.05	6,284.00	3,264.01	-2,606.16	3,693.67	0.00	0.00	0.00	
9,800.00	90.00	1.05	6,284.00	3,363.99	-2,604.33	3,791.55	0.00	0.00	0.00	
9,900.00	90.00	1.05	6,284.00	3,463.98	-2,602.49	3,889.43	0.00	0.00	0.00	
10,000.00	90.00	1.05	6,284.00	3,563.96	-2,600.66	3,987.31	0.00	0.00	0.00	
10,100.00	90.00	1.05	6,284.00	3,663.94	-2,598.83	4,085.18	0.00	0.00	0.00	
10,200.00	90.00	1.05	6,284.00	3,763.93	-2,597.00	4,183.06	0.00	0.00	0.00	
10,300.00	90.00	1.05	6,284.00	3,863.91	-2,595.17	4,280.94	0.00	0.00	0.00	
10,400.00	90.00	1.05	6,284.00	3,963.89	-2,593.34	4,378.82	0.00	0.00	0.00	
10,500.00	90.00	1.05	6,284.00	4,063.88	-2,591.50	4,476.70	0.00	0.00	0.00	
10,600.00	90.00	1.05	6,284.00	4,163.86	-2,589.67	4,574.58	0.00	0.00	0.00	
10,700.00	90.00	1.05	6,284.00	4,263.84	-2,587.84	4,672.45	0.00	0.00	0.00	
10,800.00	90.00	1.05	6,284.00	4,363.83	-2,586.01	4,770.33	0.00	0.00	0.00	
10,900.00	90.00	1.05	6,284.00	4,463.81	-2,584.18	4,868.21	0.00	0.00	0.00	
11,000.00	90.00	1.05	6,284.00	4,563.79	-2,582.35	4,966.09	0.00	0.00	0.00	
11,100.00	90.00	1.05	6,284.00	4,663.77	-2,580.51	5,063.97	0.00	0.00	0.00	
11,200.00	90.00	1.05	6,284.00	4,763.76	-2,578.68	5,161.84	0.00	0.00	0.00	
11,300.00	90.00	1.05	6,284.00	4,863.74	-2,576.85	5,259.72	0.00	0.00	0.00	
11,400.00	90.00	1.05	6,284.00	4,963.72	-2,575.02	5,357.60	0.00	0.00	0.00	
11,500.00	90.00	1.05	6,284.00	5,063.71	-2,573.19	5,455.48	0.00	0.00	0.00	
11,600.00	90.00	1.05	6,284.00	5,163.69	-2,571.36	5,553.36	0.00	0.00	0.00	
11,700.00	90.00	1.05	6,284.00	5,263.67	-2,569.52	5,651.24	0.00	0.00	0.00	
11,800.00	90.00	1.05	6,284.00	5,363.66	-2,567.69	5,749.11	0.00	0.00	0.00	
11,900.00	90.00	1.05	6,284.00	5,463.64	-2,565.86	5,846.99	0.00	0.00	0.00	
12,000.00	90.00	1.05	6,284.00	5,563.62	-2,564.03	5,944.87	0.00	0.00	0.00	
12,100.00	90.00	1.05	6,284.00	5,663.61	-2,562.20	6,042.75	0.00	0.00	0.00	
12,200.00	90.00	1.05	6,284.00	5,763.59	-2,560.37	6,140.63	0.00	0.00	0.00	
12,300.00	90.00	1.05	6,284.00	5,863.57	-2,558.54	6,238.50	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4921.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	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)
12,400.00	90.00	1.05	6,284.00	5,963.56	-2,556.70	6,336.38	0.00	0.00	0.00
12,500.00	90.00	1.05	6,284.00	6,063.54	-2,554.87	6,434.26	0.00	0.00	0.00
12,600.00	90.00	1.05	6,284.00	6,163.52	-2,553.04	6,532.14	0.00	0.00	0.00
12,700.00	90.00	1.05	6,284.00	6,263.51	-2,551.21	6,630.02	0.00	0.00	0.00
12,800.00	90.00	1.05	6,284.00	6,363.49	-2,549.38	6,727.90	0.00	0.00	0.00
12,900.00	90.00	1.05	6,284.00	6,463.47	-2,547.55	6,825.77	0.00	0.00	0.00
13,000.00	90.00	1.05	6,284.00	6,563.46	-2,545.71	6,923.65	0.00	0.00	0.00
13,100.00	90.00	1.05	6,284.00	6,663.44	-2,543.88	7,021.53	0.00	0.00	0.00
13,200.00	90.00	1.05	6,284.00	6,763.42	-2,542.05	7,119.41	0.00	0.00	0.00
13,300.00	90.00	1.05	6,284.00	6,863.41	-2,540.22	7,217.29	0.00	0.00	0.00
13,400.00	90.00	1.05	6,284.00	6,963.39	-2,538.39	7,315.16	0.00	0.00	0.00
13,500.00	90.00	1.05	6,284.00	7,063.37	-2,536.56	7,413.04	0.00	0.00	0.00
13,600.00	90.00	1.05	6,284.00	7,163.36	-2,534.72	7,510.92	0.00	0.00	0.00
13,700.00	90.00	1.05	6,284.00	7,263.34	-2,532.89	7,608.80	0.00	0.00	0.00
13,800.00	90.00	1.05	6,284.00	7,363.32	-2,531.06	7,706.68	0.00	0.00	0.00
13,900.00	90.00	1.05	6,284.00	7,463.31	-2,529.23	7,804.56	0.00	0.00	0.00
14,000.00	90.00	1.05	6,284.00	7,563.29	-2,527.40	7,902.43	0.00	0.00	0.00
14,100.00	90.00	1.05	6,284.00	7,663.27	-2,525.57	8,000.31	0.00	0.00	0.00
14,200.00	90.00	1.05	6,284.00	7,763.25	-2,523.73	8,098.19	0.00	0.00	0.00
14,300.00	90.00	1.05	6,284.00	7,863.24	-2,521.90	8,196.07	0.00	0.00	0.00
14,400.00	90.00	1.05	6,284.00	7,963.22	-2,520.07	8,293.95	0.00	0.00	0.00
14,500.00	90.00	1.05	6,284.00	8,063.20	-2,518.24	8,391.82	0.00	0.00	0.00
14,600.00	90.00	1.05	6,284.00	8,163.19	-2,516.41	8,489.70	0.00	0.00	0.00
14,700.00	90.00	1.05	6,284.00	8,263.17	-2,514.58	8,587.58	0.00	0.00	0.00
14,800.00	90.00	1.05	6,284.00	8,363.15	-2,512.75	8,685.46	0.00	0.00	0.00
14,900.00	90.00	1.05	6,284.00	8,463.14	-2,510.91	8,783.34	0.00	0.00	0.00
15,000.00	90.00	1.05	6,284.00	8,563.12	-2,509.08	8,881.22	0.00	0.00	0.00
15,100.00	90.00	1.05	6,284.00	8,663.10	-2,507.25	8,979.09	0.00	0.00	0.00
15,200.00	90.00	1.05	6,284.00	8,763.09	-2,505.42	9,076.97	0.00	0.00	0.00
15,300.00	90.00	1.05	6,284.00	8,863.07	-2,503.59	9,174.85	0.00	0.00	0.00
15,400.00	90.00	1.05	6,284.00	8,963.05	-2,501.76	9,272.73	0.00	0.00	0.00
15,500.00	90.00	1.05	6,284.00	9,063.04	-2,499.92	9,370.61	0.00	0.00	0.00
15,600.00	90.00	1.05	6,284.00	9,163.02	-2,498.09	9,468.48	0.00	0.00	0.00
15,700.00	90.00	1.05	6,284.00	9,263.00	-2,496.26	9,566.36	0.00	0.00	0.00
15,800.00	90.00	1.05	6,284.00	9,362.99	-2,494.43	9,664.24	0.00	0.00	0.00
15,900.00	90.00	1.05	6,284.00	9,462.97	-2,492.60	9,762.12	0.00	0.00	0.00
16,000.00	90.00	1.05	6,284.00	9,562.95	-2,490.77	9,860.00	0.00	0.00	0.00
16,100.00	90.00	1.05	6,284.00	9,662.94	-2,488.93	9,957.88	0.00	0.00	0.00
16,200.00	90.00	1.05	6,284.00	9,762.92	-2,487.10	10,055.75	0.00	0.00	0.00
16,300.00	90.00	1.05	6,284.00	9,862.90	-2,485.27	10,153.63	0.00	0.00	0.00
16,400.00	90.00	1.05	6,284.00	9,962.89	-2,483.44	10,251.51	0.00	0.00	0.00
16,500.00	90.00	1.05	6,284.00	10,062.87	-2,481.61	10,349.39	0.00	0.00	0.00
16,600.00	90.00	1.05	6,284.00	10,162.85	-2,479.78	10,447.27	0.00	0.00	0.00
16,700.00	90.00	1.05	6,284.00	10,262.84	-2,477.94	10,545.14	0.00	0.00	0.00
16,800.00	90.00	1.05	6,284.00	10,362.82	-2,476.11	10,643.02	0.00	0.00	0.00
16,900.00	90.00	1.05	6,284.00	10,462.80	-2,474.28	10,740.90	0.00	0.00	0.00
17,000.00	90.00	1.05	6,284.00	10,562.79	-2,472.45	10,838.78	0.00	0.00	0.00
17,100.00	90.00	1.05	6,284.00	10,662.77	-2,470.62	10,936.66	0.00	0.00	0.00
17,200.00	90.00	1.05	6,284.00	10,762.75	-2,468.79	11,034.54	0.00	0.00	0.00
17,300.00	90.00	1.05	6,284.00	10,862.73	-2,466.96	11,132.41	0.00	0.00	0.00
17,400.00	90.00	1.05	6,284.00	10,962.72	-2,465.12	11,230.29	0.00	0.00	0.00
17,500.00	90.00	1.05	6,284.00	11,062.70	-2,463.29	11,328.17	0.00	0.00	0.00
17,600.00	90.00	1.05	6,284.00	11,162.68	-2,461.46	11,426.05	0.00	0.00	0.00
17,700.00	90.00	1.05	6,284.00	11,262.67	-2,459.63	11,523.93	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4921.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	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)
17,800.00	90.00	1.05	6,284.00	11,362.65	-2,457.80	11,621.80	0.00	0.00	0.00
17,900.00	90.00	1.05	6,284.00	11,462.63	-2,455.97	11,719.68	0.00	0.00	0.00
18,000.00	90.00	1.05	6,284.00	11,562.62	-2,454.13	11,817.56	0.00	0.00	0.00
18,100.00	90.00	1.05	6,284.00	11,662.60	-2,452.30	11,915.44	0.00	0.00	0.00
18,200.00	90.00	1.05	6,284.00	11,762.58	-2,450.47	12,013.32	0.00	0.00	0.00
18,300.00	90.00	1.05	6,284.00	11,862.57	-2,448.64	12,111.20	0.00	0.00	0.00
18,400.00	90.00	1.05	6,284.00	11,962.55	-2,446.81	12,209.07	0.00	0.00	0.00
18,500.00	90.00	1.05	6,284.00	12,062.53	-2,444.98	12,306.95	0.00	0.00	0.00
18,600.00	90.00	1.05	6,284.00	12,162.52	-2,443.14	12,404.83	0.00	0.00	0.00
18,700.00	90.00	1.05	6,284.00	12,262.50	-2,441.31	12,502.71	0.00	0.00	0.00
18,800.00	90.00	1.05	6,284.00	12,362.48	-2,439.48	12,600.59	0.00	0.00	0.00
18,900.00	90.00	1.05	6,284.00	12,462.47	-2,437.65	12,698.46	0.00	0.00	0.00
19,000.00	90.00	1.05	6,284.00	12,562.45	-2,435.82	12,796.34	0.00	0.00	0.00
19,100.00	90.00	1.05	6,284.00	12,662.43	-2,433.99	12,894.22	0.00	0.00	0.00
19,200.00	90.00	1.05	6,284.00	12,762.42	-2,432.15	12,992.10	0.00	0.00	0.00
19,216.70	90.00	1.05	6,284.00	12,779.11	-2,431.85	13,008.44	0.00	0.00	0.00
TD at 19216.70 - 20" Casing									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
BLUE TEAL FED 15-3-1 - hit/miss target - Shape	0.00	0.00	6,284.00	12,779.11	-2,431.85	1,496,942.49	3,392,414.57	40.688905°N	104.084933°W
BLUE TEAL FED 15-3-1 - plan hits target center - Point									
BLUE TEAL FED 15-3-1 - plan hits target center - Point	0.00	0.00	6,284.00	764.13	-2,651.95	1,484,925.53	3,392,387.41	40.655926°N	104.085722°W

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
19,216.70	6,284.00	20" Casing	20.000	24.000	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well BLUE TEAL FED 15-3-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4921.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4921.00usft
Site:	SEC 22-T8N-R60W	North Reference:	True
Well:	BLUE TEAL FED 15-3-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
489.20	488.00	Fox Hills Base				
1,550.09	1,491.00	Pierre Shale Top				
3,613.45	3,349.00	Richard Sandstone				
3,741.16	3,464.00	Parkman Sandstone				
4,602.93	4,240.00	Sussex Sandstone				
5,089.34	4,678.00	Shannon Sandstone				
5,936.67	5,441.00	TeePee Buttes				
6,723.84	6,116.00	Sharon Springs				
6,787.33	6,156.00	Niobrara Top				
7,092.55	6,275.00	Niobrara B2 Chalk Target Top				
7,199.70	6,284.00	Niobrara B2 Chalk Target Center				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
100.00	100.00	0.00	0.00	Start Build 2.00	
1,388.98	1,345.93	21.97	-284.28	Start 4925.37 hold at 1388.98 MD	
6,314.35	5,781.09	187.02	-2,420.01	Start DLS 10.00 TFO 86.97	
7,199.70	6,284.00	764.13	-2,651.95	Start 12016.99 hold at 7199.70 MD	
19,216.70	6,284.00	12,779.11	-2,431.85	TD at 19216.70	