

MALLARD EXPLORATION

WELD COUNTY

SEC 32-T9N-R60W

CANVASBACK FED 32-33-3HN

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

25 August, 2020



Project: WELD COUNTY
Site: SEC 32-T9N-R60W
Well: CANVASBACK FED 32-33-3HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1



Azimuths to True North
Magnetic North: 7.62°

Magnetic Field
Strength: 52263.1nT
Dip Angle: 67.02°
Date: 8/24/2020
Model: IGRF2020

WELL DETAILS: CANVASBACK FED 32-33-3HN

	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
	0.00	0.00	1503666.56	3381533.78	40.707829°N	104.123787°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	837.12	10.74	260.84	833.98	-7.99	-49.56	2.00	260.84	-49.69	
4	5256.41	10.74	260.84	5175.82	-139.16	-862.79	0.00	0.00	-865.00	
5	5793.53	0.00	0.00	5709.80	-147.15	-912.35	2.00	180.00	-914.69	
6	5893.53	0.00	0.00	5809.80	-147.15	-912.35	0.00	0.00	-914.69	
7	6793.96	90.00	88.33	6383.00	-130.41	-339.35	10.00	88.33	-341.49	
8	16823.65	90.00	88.33	6383.00	162.59	9686.07	0.00	-172.05	9687.43	

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
837.12	10.74	260.84	833.98	-7.99	-49.56	-49.69	50.21	Start 4419.29 hold at 837.12 MD
5256.41	10.74	260.84	5175.82	-139.16	-862.79	-865.00	873.94	Start Drop -2.00
5793.53	0.00	0.00	5709.80	-147.15	-912.35	-914.69	924.14	Start 100.00 hold at 5793.53 MD
5893.53	0.00	0.00	5809.80	-147.15	-912.35	-914.69	924.14	Start DLS 10.00 TFO 88.33
6793.96	90.00	88.33	6383.00	-130.41	-339.35	-341.49	1497.39	Start DLS 0.00 TFO -172.05
16823.65	90.00	88.33	6383.00	162.59	9686.07	9687.43	11527.09	TD at 16823.65

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
CANVASBACK 32-33-3HN - LP 6383.00	6383.00	-130.41	-339.35	1503530.90	3381196.50	40.707471°N	104.125011°W	Point
- plan hits target center								
CANVASBACK 32-33-3HN - PBHL 6383.00	6383.00	162.59	9686.07	1503979.45	3391216.16	40.708270°N	104.088850°W	Point
- plan hits target center								

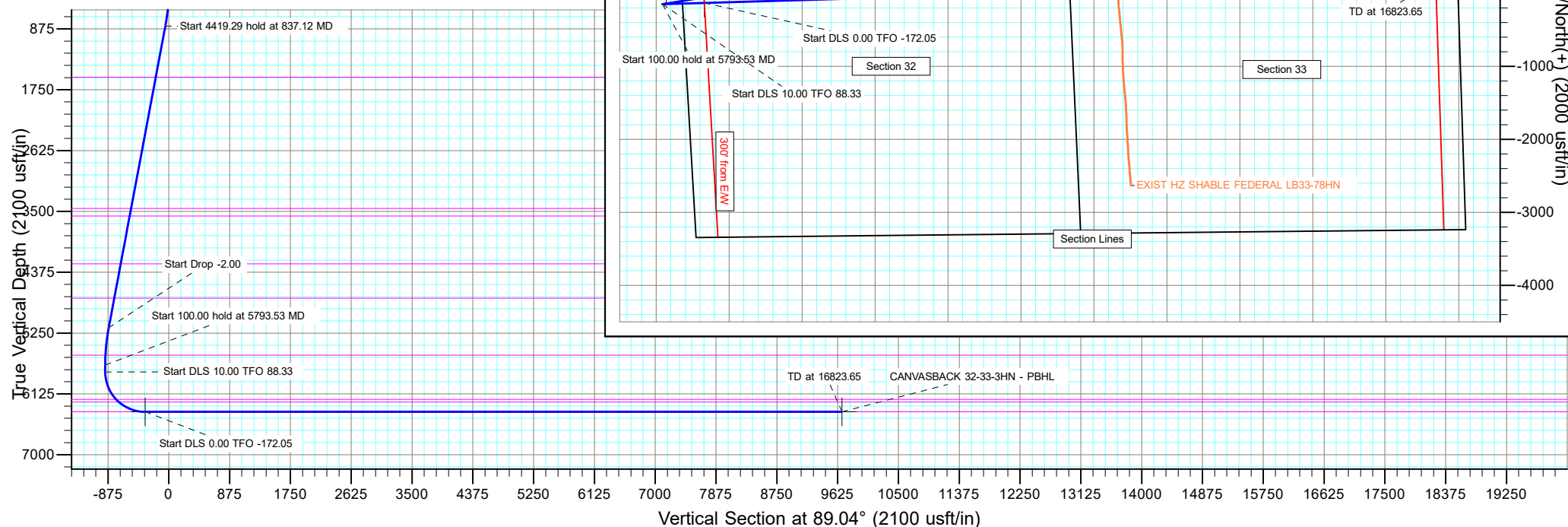
FORMATION TOP DETAILS

MDPath	MDPath	Formation
1569.00	1565.25	Pierre Shale Top
3456.00	3505.91	Richard Sandstone
3566.00	3617.87	Parkman Sandstone
4253.00	4317.13	Sussex Sandstone
4746.00	4818.92	Shannon Sandstone
5568.00	5651.67	TeePee Buttes
6204.00	6328.21	Sharon Springs
6241.00	6381.61	Niobrara Top
6383.00	6793.96	Niobrara B2 Chalk Top (Target)

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

SHL:
1838' FNL, 646' FWL
Sec 32-T9N-R60W
LP:
1960' FNL, 300' FWL
Sec 32-T9N-R60W
BHL:
1885' FNL, 300' FEL
Sec 33-T9N-R60W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK FED 32-33-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4971.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	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 32-T9N-R60W				
Site Position:		Northing:	1,505,473.79 usft	Latitude:	40.712822°N
From:	Lat/Long	Easting:	3,380,754.08 usft	Longitude:	104.126498°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in		

Well	CANVASBACK FED 32-33-3HN					
Well Position	+N/-S	0.00 usft	Northing:	1,503,666.57 usft	Latitude:	40.707829°N
	+E/-W	0.00 usft	Easting:	3,381,533.78 usft	Longitude:	104.123787°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,944.00 usft
Grid Convergence:		0.89 °				

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/24/2020	7.62	67.02	52,263.07966090

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	89.04	

Plan Survey Tool Program	Date	8/25/2020			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	16,823.66	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	
837.12	10.74	260.84	833.98	-7.99	-49.56	2.00	2.00	0.00	260.84	
5,256.41	10.74	260.84	5,175.82	-139.16	-862.79	0.00	0.00	0.00	0.00	
5,793.53	0.00	0.00	5,709.80	-147.16	-912.35	2.00	-2.00	0.00	180.00	
5,893.53	0.00	0.00	5,809.80	-147.16	-912.35	0.00	0.00	0.00	0.00	
6,793.96	90.00	88.33	6,383.00	-130.41	-339.35	10.00	10.00	9.81	88.33	CANVASBACK 32-33
16,823.66	90.00	88.33	6,383.00	162.59	9,686.07	0.00	0.00	0.00	-172.05	CANVASBACK 32-33

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	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	260.84	399.98	-0.28	-1.72	-1.73	2.00	2.00	0.00
500.00	4.00	260.84	499.84	-1.11	-6.89	-6.91	2.00	2.00	0.00
600.00	6.00	260.84	599.45	-2.50	-15.49	-15.53	2.00	2.00	0.00
700.00	8.00	260.84	698.70	-4.44	-27.52	-27.59	2.00	2.00	0.00
800.00	10.00	260.84	797.47	-6.93	-42.97	-43.08	2.00	2.00	0.00
837.12	10.74	260.84	833.98	-7.99	-49.56	-49.69	2.00	2.00	0.00
Start 4419.29 hold at 837.12 MD									
900.00	10.74	260.84	895.76	-9.86	-61.14	-61.29	0.00	0.00	0.00
1,000.00	10.74	260.84	994.00	-12.83	-79.54	-79.74	0.00	0.00	0.00
1,100.00	10.74	260.84	1,092.25	-15.80	-97.94	-98.19	0.00	0.00	0.00
1,200.00	10.74	260.84	1,190.50	-18.76	-116.34	-116.64	0.00	0.00	0.00
1,300.00	10.74	260.84	1,288.75	-21.73	-134.74	-135.09	0.00	0.00	0.00
1,400.00	10.74	260.84	1,386.99	-24.70	-153.14	-153.54	0.00	0.00	0.00
1,500.00	10.74	260.84	1,485.24	-27.67	-171.55	-171.99	0.00	0.00	0.00
1,585.25	10.74	260.84	1,569.00	-30.20	-187.23	-187.71	0.00	0.00	0.00
Pierre Shale Top									
1,600.00	10.74	260.84	1,583.49	-30.64	-189.95	-190.43	0.00	0.00	0.00
1,700.00	10.74	260.84	1,681.74	-33.60	-208.35	-208.88	0.00	0.00	0.00
1,800.00	10.74	260.84	1,779.98	-36.57	-226.75	-227.33	0.00	0.00	0.00
1,900.00	10.74	260.84	1,878.23	-39.54	-245.15	-245.78	0.00	0.00	0.00
2,000.00	10.74	260.84	1,976.48	-42.51	-263.55	-264.23	0.00	0.00	0.00
2,100.00	10.74	260.84	2,074.73	-45.48	-281.95	-282.68	0.00	0.00	0.00
2,200.00	10.74	260.84	2,172.97	-48.45	-300.36	-301.13	0.00	0.00	0.00
2,300.00	10.74	260.84	2,271.22	-51.41	-318.76	-319.58	0.00	0.00	0.00
2,400.00	10.74	260.84	2,369.47	-54.38	-337.16	-338.02	0.00	0.00	0.00
2,500.00	10.74	260.84	2,467.72	-57.35	-355.56	-356.47	0.00	0.00	0.00
2,600.00	10.74	260.84	2,565.96	-60.32	-373.96	-374.92	0.00	0.00	0.00
2,700.00	10.74	260.84	2,664.21	-63.29	-392.36	-393.37	0.00	0.00	0.00
2,800.00	10.74	260.84	2,762.46	-66.25	-410.77	-411.82	0.00	0.00	0.00
2,900.00	10.74	260.84	2,860.71	-69.22	-429.17	-430.27	0.00	0.00	0.00
3,000.00	10.74	260.84	2,958.95	-72.19	-447.57	-448.72	0.00	0.00	0.00
3,100.00	10.74	260.84	3,057.20	-75.16	-465.97	-467.17	0.00	0.00	0.00
3,200.00	10.74	260.84	3,155.45	-78.13	-484.37	-485.62	0.00	0.00	0.00
3,300.00	10.74	260.84	3,253.70	-81.09	-502.77	-504.06	0.00	0.00	0.00
3,400.00	10.74	260.84	3,351.94	-84.06	-521.18	-522.51	0.00	0.00	0.00
3,500.00	10.74	260.84	3,450.19	-87.03	-539.58	-540.96	0.00	0.00	0.00
3,505.91	10.74	260.84	3,456.00	-87.21	-540.67	-542.05	0.00	0.00	0.00
Richard Sandstone									
3,600.00	10.74	260.84	3,548.44	-90.00	-557.98	-559.41	0.00	0.00	0.00
3,617.87	10.74	260.84	3,566.00	-90.53	-561.27	-562.71	0.00	0.00	0.00
Parkman Sandstone									
3,700.00	10.74	260.84	3,646.69	-92.97	-576.38	-577.86	0.00	0.00	0.00
3,800.00	10.74	260.84	3,744.93	-95.93	-594.78	-596.31	0.00	0.00	0.00
3,900.00	10.74	260.84	3,843.18	-98.90	-613.18	-614.76	0.00	0.00	0.00
4,000.00	10.74	260.84	3,941.43	-101.87	-631.59	-633.21	0.00	0.00	0.00
4,100.00	10.74	260.84	4,039.68	-104.84	-649.99	-651.66	0.00	0.00	0.00
4,200.00	10.74	260.84	4,137.92	-107.81	-668.39	-670.10	0.00	0.00	0.00
4,300.00	10.74	260.84	4,236.17	-110.77	-686.79	-688.55	0.00	0.00	0.00

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	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)
4,317.13	10.74	260.84	4,253.00	-111.28	-689.94	-691.71	0.00	0.00	0.00
Sussex Sandstone									
4,400.00	10.74	260.84	4,334.42	-113.74	-705.19	-707.00	0.00	0.00	0.00
4,500.00	10.74	260.84	4,432.67	-116.71	-723.59	-725.45	0.00	0.00	0.00
4,600.00	10.74	260.84	4,530.91	-119.68	-742.00	-743.90	0.00	0.00	0.00
4,700.00	10.74	260.84	4,629.16	-122.65	-760.40	-762.35	0.00	0.00	0.00
4,800.00	10.74	260.84	4,727.41	-125.61	-778.80	-780.80	0.00	0.00	0.00
4,818.92	10.74	260.84	4,746.00	-126.18	-782.28	-784.29	0.00	0.00	0.00
Shannon Sandstone									
4,900.00	10.74	260.84	4,825.66	-128.58	-797.20	-799.25	0.00	0.00	0.00
5,000.00	10.74	260.84	4,923.90	-131.55	-815.60	-817.69	0.00	0.00	0.00
5,100.00	10.74	260.84	5,022.15	-134.52	-834.00	-836.14	0.00	0.00	0.00
5,200.00	10.74	260.84	5,120.40	-137.49	-852.40	-854.59	0.00	0.00	0.00
5,256.41	10.74	260.84	5,175.82	-139.16	-862.79	-865.00	0.00	0.00	0.00
Start Drop -2.00									
5,300.00	9.87	260.84	5,218.71	-140.40	-870.48	-872.72	2.00	-2.00	0.00
5,400.00	7.87	260.84	5,317.51	-142.86	-885.71	-887.98	2.00	-2.00	0.00
5,500.00	5.87	260.84	5,416.78	-144.76	-897.52	-899.82	2.00	-2.00	0.00
5,600.00	3.87	260.84	5,516.42	-146.11	-905.90	-908.22	2.00	-2.00	0.00
5,651.67	2.84	260.84	5,568.00	-146.60	-908.88	-911.22	2.00	-2.00	0.00
TeePee Buttes									
5,700.00	1.87	260.84	5,616.29	-146.91	-910.84	-913.18	2.00	-2.00	0.00
5,793.53	0.00	0.00	5,709.80	-147.16	-912.35	-914.69	2.00	-2.00	106.02
Start 100.00 hold at 5793.53 MD									
5,800.00	0.00	0.00	5,716.27	-147.16	-912.35	-914.69	0.00	0.00	0.00
5,893.53	0.00	0.00	5,809.80	-147.16	-912.35	-914.69	0.00	0.00	0.00
Start DLS 10.00 TFO 88.33									
5,900.00	0.65	88.33	5,816.27	-147.15	-912.31	-914.65	10.00	10.00	0.00
5,950.00	5.64	88.33	5,866.18	-147.07	-909.57	-911.91	10.00	10.00	0.00
6,000.00	10.64	88.33	5,915.66	-146.87	-902.49	-904.83	10.00	10.00	0.00
6,050.00	15.64	88.33	5,964.33	-146.54	-891.14	-893.47	10.00	10.00	0.00
6,100.00	20.64	88.33	6,011.83	-146.08	-875.58	-877.91	10.00	10.00	0.00
6,150.00	25.64	88.33	6,057.80	-145.51	-855.95	-858.27	10.00	10.00	0.00
6,200.00	30.63	88.33	6,101.88	-144.82	-832.39	-834.70	10.00	10.00	0.00
6,250.00	35.63	88.33	6,143.73	-144.02	-805.08	-807.38	10.00	10.00	0.00
6,300.00	40.63	88.33	6,183.05	-143.12	-774.23	-776.52	10.00	10.00	0.00
6,328.21	43.45	88.33	6,204.00	-142.57	-755.35	-757.63	10.00	10.00	0.00
Sharon Springs									
6,350.00	45.63	88.33	6,219.53	-142.12	-740.07	-742.35	10.00	10.00	0.00
6,381.61	48.79	88.33	6,241.00	-141.44	-716.89	-719.16	10.00	10.00	0.00
Niobrara Top									
6,400.00	50.63	88.33	6,252.89	-141.03	-702.87	-705.14	10.00	10.00	0.00
6,450.00	55.62	88.33	6,282.89	-139.87	-662.90	-665.16	10.00	10.00	0.00
6,500.00	60.62	88.33	6,309.28	-138.63	-620.47	-622.71	10.00	10.00	0.00
6,550.00	65.62	88.33	6,331.88	-137.33	-575.91	-578.13	10.00	10.00	0.00
6,600.00	70.62	88.33	6,350.51	-135.97	-529.55	-531.75	10.00	10.00	0.00
6,650.00	75.61	88.33	6,365.03	-134.57	-481.74	-483.93	10.00	10.00	0.00
6,700.00	80.61	88.33	6,375.32	-133.15	-432.85	-435.02	10.00	10.00	0.00
6,750.00	85.61	88.33	6,381.32	-131.70	-383.24	-385.40	10.00	10.00	0.00
6,793.96	90.00	88.33	6,383.00	-130.41	-339.35	-341.49	10.00	10.00	0.00
Start DLS 0.00 TFO -172.05 - Niobrara B2 Chalk Top (Target)									
6,800.00	90.00	88.33	6,383.00	-130.24	-333.31	-335.45	0.00	0.00	0.00
6,900.00	90.00	88.33	6,382.99	-127.32	-233.35	-235.45	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK FED 32-33-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4971.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	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)	
7,000.00	90.00	88.33	6,382.98	-124.40	-133.39	-135.46	0.00	0.00	0.00	
7,100.00	90.00	88.33	6,382.98	-121.48	-33.44	-35.47	0.00	0.00	0.00	
7,200.00	90.00	88.33	6,382.97	-118.56	66.52	64.52	0.00	0.00	0.00	
7,300.00	90.00	88.33	6,382.96	-115.64	166.48	164.51	0.00	0.00	0.00	
7,400.00	90.00	88.33	6,382.96	-112.72	266.44	264.51	0.00	0.00	0.00	
7,500.00	90.00	88.33	6,382.95	-109.80	366.39	364.50	0.00	0.00	0.00	
7,600.00	90.00	88.33	6,382.94	-106.88	466.35	464.49	0.00	0.00	0.00	
7,700.00	90.00	88.33	6,382.94	-103.95	566.31	564.48	0.00	0.00	0.00	
7,800.00	90.00	88.33	6,382.93	-101.03	666.27	664.48	0.00	0.00	0.00	
7,900.00	90.00	88.33	6,382.92	-98.11	766.22	764.47	0.00	0.00	0.00	
8,000.00	90.00	88.33	6,382.92	-95.19	866.18	864.46	0.00	0.00	0.00	
8,100.00	90.00	88.33	6,382.91	-92.27	966.14	964.45	0.00	0.00	0.00	
8,200.00	90.00	88.33	6,382.91	-89.35	1,066.09	1,064.44	0.00	0.00	0.00	
8,300.00	90.00	88.33	6,382.90	-86.43	1,166.05	1,164.44	0.00	0.00	0.00	
8,400.00	90.00	88.33	6,382.90	-83.51	1,266.01	1,264.43	0.00	0.00	0.00	
8,500.00	90.00	88.33	6,382.89	-80.59	1,365.97	1,364.42	0.00	0.00	0.00	
8,600.00	90.00	88.33	6,382.89	-77.67	1,465.92	1,464.41	0.00	0.00	0.00	
8,700.00	90.00	88.33	6,382.88	-74.75	1,565.88	1,564.41	0.00	0.00	0.00	
8,800.00	90.00	88.33	6,382.88	-71.83	1,665.84	1,664.40	0.00	0.00	0.00	
8,900.00	90.00	88.33	6,382.87	-68.91	1,765.80	1,764.39	0.00	0.00	0.00	
9,000.00	90.00	88.33	6,382.87	-65.99	1,865.75	1,864.38	0.00	0.00	0.00	
9,100.00	90.00	88.33	6,382.86	-63.07	1,965.71	1,964.38	0.00	0.00	0.00	
9,200.00	90.00	88.33	6,382.86	-60.15	2,065.67	2,064.37	0.00	0.00	0.00	
9,300.00	90.00	88.33	6,382.86	-57.22	2,165.63	2,164.36	0.00	0.00	0.00	
9,400.00	90.00	88.33	6,382.85	-54.30	2,265.58	2,264.35	0.00	0.00	0.00	
9,500.00	90.00	88.33	6,382.85	-51.38	2,365.54	2,364.34	0.00	0.00	0.00	
9,600.00	90.00	88.33	6,382.85	-48.46	2,465.50	2,464.34	0.00	0.00	0.00	
9,700.00	90.00	88.33	6,382.84	-45.54	2,565.45	2,564.33	0.00	0.00	0.00	
9,800.00	90.00	88.33	6,382.84	-42.62	2,665.41	2,664.32	0.00	0.00	0.00	
9,900.00	90.00	88.33	6,382.84	-39.70	2,765.37	2,764.31	0.00	0.00	0.00	
10,000.00	90.00	88.33	6,382.83	-36.78	2,865.33	2,864.31	0.00	0.00	0.00	
10,100.00	90.00	88.33	6,382.83	-33.86	2,965.28	2,964.30	0.00	0.00	0.00	
10,200.00	90.00	88.33	6,382.83	-30.94	3,065.24	3,064.29	0.00	0.00	0.00	
10,300.00	90.00	88.33	6,382.83	-28.02	3,165.20	3,164.28	0.00	0.00	0.00	
10,400.00	90.00	88.33	6,382.82	-25.09	3,265.16	3,264.27	0.00	0.00	0.00	
10,500.00	90.00	88.33	6,382.82	-22.17	3,365.11	3,364.27	0.00	0.00	0.00	
10,600.00	90.00	88.33	6,382.82	-19.25	3,465.07	3,464.26	0.00	0.00	0.00	
10,700.00	90.00	88.33	6,382.82	-16.33	3,565.03	3,564.25	0.00	0.00	0.00	
10,800.00	90.00	88.33	6,382.82	-13.41	3,664.99	3,664.24	0.00	0.00	0.00	
10,900.00	90.00	88.33	6,382.81	-10.49	3,764.94	3,764.24	0.00	0.00	0.00	
11,000.00	90.00	88.33	6,382.81	-7.57	3,864.90	3,864.23	0.00	0.00	0.00	
11,100.00	90.00	88.33	6,382.81	-4.65	3,964.86	3,964.22	0.00	0.00	0.00	
11,200.00	90.00	88.33	6,382.81	-1.73	4,064.81	4,064.21	0.00	0.00	0.00	
11,300.00	90.00	88.33	6,382.81	1.20	4,164.77	4,164.21	0.00	0.00	0.00	
11,400.00	90.00	88.33	6,382.81	4.12	4,264.73	4,264.20	0.00	0.00	0.00	
11,500.00	90.00	88.33	6,382.81	7.04	4,364.69	4,364.19	0.00	0.00	0.00	
11,600.00	90.00	88.33	6,382.81	9.96	4,464.64	4,464.18	0.00	0.00	0.00	
11,700.00	90.00	88.33	6,382.81	12.88	4,564.60	4,564.17	0.00	0.00	0.00	
11,800.00	90.00	88.33	6,382.81	15.80	4,664.56	4,664.17	0.00	0.00	0.00	
11,900.00	90.00	88.33	6,382.81	18.72	4,764.52	4,764.16	0.00	0.00	0.00	
12,000.00	90.00	88.33	6,382.81	21.65	4,864.47	4,864.15	0.00	0.00	0.00	
12,100.00	90.00	88.33	6,382.81	24.57	4,964.43	4,964.14	0.00	0.00	0.00	
12,200.00	90.00	88.33	6,382.81	27.49	5,064.39	5,064.14	0.00	0.00	0.00	
12,300.00	90.00	88.33	6,382.81	30.41	5,164.35	5,164.13	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK FED 32-33-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4971.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	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)
12,400.00	90.00	88.33	6,382.81	33.33	5,264.30	5,264.12	0.00	0.00	0.00
12,500.00	90.00	88.33	6,382.81	36.25	5,364.26	5,364.11	0.00	0.00	0.00
12,600.00	90.00	88.33	6,382.81	39.17	5,464.22	5,464.10	0.00	0.00	0.00
12,700.00	90.00	88.33	6,382.81	42.10	5,564.17	5,564.10	0.00	0.00	0.00
12,800.00	90.00	88.33	6,382.82	45.02	5,664.13	5,664.09	0.00	0.00	0.00
12,900.00	90.00	88.33	6,382.82	47.94	5,764.09	5,764.08	0.00	0.00	0.00
13,000.00	90.00	88.33	6,382.82	50.86	5,864.05	5,864.07	0.00	0.00	0.00
13,100.00	90.00	88.33	6,382.82	53.78	5,964.00	5,964.07	0.00	0.00	0.00
13,200.00	90.00	88.33	6,382.82	56.70	6,063.96	6,064.06	0.00	0.00	0.00
13,300.00	90.00	88.33	6,382.82	59.63	6,163.92	6,164.05	0.00	0.00	0.00
13,400.00	90.00	88.33	6,382.83	62.55	6,263.88	6,264.04	0.00	0.00	0.00
13,500.00	90.00	88.33	6,382.83	65.47	6,363.83	6,364.04	0.00	0.00	0.00
13,600.00	90.00	88.33	6,382.83	68.39	6,463.79	6,464.03	0.00	0.00	0.00
13,700.00	90.00	88.33	6,382.84	71.31	6,563.75	6,564.02	0.00	0.00	0.00
13,800.00	90.00	88.33	6,382.84	74.23	6,663.70	6,664.01	0.00	0.00	0.00
13,900.00	90.00	88.33	6,382.84	77.16	6,763.66	6,764.00	0.00	0.00	0.00
14,000.00	90.00	88.33	6,382.84	80.08	6,863.62	6,864.00	0.00	0.00	0.00
14,100.00	90.00	88.33	6,382.85	83.00	6,963.58	6,963.99	0.00	0.00	0.00
14,200.00	90.00	88.33	6,382.85	85.92	7,063.53	7,063.98	0.00	0.00	0.00
14,300.00	90.00	88.33	6,382.86	88.84	7,163.49	7,163.97	0.00	0.00	0.00
14,400.00	90.00	88.33	6,382.86	91.76	7,263.45	7,263.97	0.00	0.00	0.00
14,500.00	90.00	88.33	6,382.86	94.69	7,363.41	7,363.96	0.00	0.00	0.00
14,600.00	90.00	88.33	6,382.87	97.61	7,463.36	7,463.95	0.00	0.00	0.00
14,700.00	90.00	88.33	6,382.87	100.53	7,563.32	7,563.94	0.00	0.00	0.00
14,800.00	90.00	88.33	6,382.88	103.45	7,663.28	7,663.93	0.00	0.00	0.00
14,900.00	90.00	88.33	6,382.88	106.37	7,763.24	7,763.93	0.00	0.00	0.00
15,000.00	90.00	88.33	6,382.89	109.30	7,863.19	7,863.92	0.00	0.00	0.00
15,100.00	90.00	88.33	6,382.89	112.22	7,963.15	7,963.91	0.00	0.00	0.00
15,200.00	90.00	88.33	6,382.90	115.14	8,063.11	8,063.90	0.00	0.00	0.00
15,300.00	90.00	88.33	6,382.90	118.06	8,163.06	8,163.90	0.00	0.00	0.00
15,400.00	90.00	88.33	6,382.91	120.99	8,263.02	8,263.89	0.00	0.00	0.00
15,500.00	90.00	88.33	6,382.91	123.91	8,362.98	8,363.88	0.00	0.00	0.00
15,600.00	90.00	88.33	6,382.92	126.83	8,462.94	8,463.87	0.00	0.00	0.00
15,700.00	90.00	88.33	6,382.92	129.75	8,562.89	8,563.87	0.00	0.00	0.00
15,800.00	90.00	88.33	6,382.93	132.67	8,662.85	8,663.86	0.00	0.00	0.00
15,900.00	90.00	88.33	6,382.94	135.60	8,762.81	8,763.85	0.00	0.00	0.00
16,000.00	90.00	88.33	6,382.94	138.52	8,862.77	8,863.84	0.00	0.00	0.00
16,100.00	90.00	88.33	6,382.95	141.44	8,962.72	8,963.83	0.00	0.00	0.00
16,200.00	90.00	88.33	6,382.96	144.36	9,062.68	9,063.83	0.00	0.00	0.00
16,300.00	90.00	88.33	6,382.96	147.29	9,162.64	9,163.82	0.00	0.00	0.00
16,400.00	90.00	88.33	6,382.97	150.21	9,262.59	9,263.81	0.00	0.00	0.00
16,500.00	90.00	88.33	6,382.98	153.13	9,362.55	9,363.80	0.00	0.00	0.00
16,600.00	90.00	88.33	6,382.98	156.05	9,462.51	9,463.80	0.00	0.00	0.00
16,700.00	90.00	88.33	6,382.99	158.97	9,562.47	9,563.79	0.00	0.00	0.00
16,800.00	90.00	88.33	6,383.00	161.90	9,662.42	9,663.78	0.00	0.00	0.00
16,823.66	90.00	88.33	6,383.00	162.59	9,686.07	9,687.43	0.00	0.00	0.00
TD at 16823.65									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK FED 32-33-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4971.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4971.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK FED 32-33-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

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
CANVASBACK 32-33-3H - plan hits target center - Point	0.00	0.00	6,383.00	-130.41	-339.35	1,503,530.90	3,381,196.49	40.707471°N	104.125011°W
CANVASBACK 32-33-3H - plan hits target center - Point	0.00	0.00	6,383.00	162.59	9,686.07	1,503,979.45	3,391,216.16	40.708270°N	104.088850°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,585.25	1,569.00	Pierre Shale Top				
3,505.91	3,456.00	Richard Sandstone				
3,617.87	3,566.00	Parkman Sandstone				
4,317.13	4,253.00	Sussex Sandstone				
4,818.92	4,746.00	Shannon Sandstone				
5,651.67	5,568.00	TeePee Buttes				
6,328.21	6,204.00	Sharon Springs				
6,381.61	6,241.00	Niobrara Top				
6,793.96	6,383.00	Niobrara B2 Chalk Top (Target)				

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
837.12	833.98	-7.99	-49.56	Start 4419.29 hold at 837.12 MD
5,256.41	5,175.82	-139.16	-862.79	Start Drop -2.00
5,793.53	5,709.80	-147.16	-912.35	Start 100.00 hold at 5793.53 MD
5,893.53	5,809.80	-147.16	-912.35	Start DLS 10.00 TFO 88.33
6,793.96	6,383.00	-130.41	-339.35	Start DLS 0.00 TFO -172.05
16,823.66	6,383.00	162.59	9,686.07	TD at 16823.65