

MALLARD EXPLORATION

WELD COUNTY

SEC 32-T9N-R60W

CANVASBACK 32-33-6HN

OWB

Plan: PROPOSAL 2

Standard Planning Report

20 June, 2022



Project: WELD COUNTY
Site: SEC 32-T9N-R60W
Well: CANVASBACK 32-33-6HN
Wellbore: OWB
Design: PROPOSAL 2



Azimuths to True North
Magnetic North: 7.43°

Magnetic Field
Strength: 52070.4nT
Dip Angle: 66.94°
Date: 6/20/2022
Model: IGRF2020

WELL DETAILS: CANVASBACK 32-33-6HN

+N/-S	+E/-W	Northing	Easting	4946.00	Latitude	Longitude	Slot
0.00	0.00	1503606.49	3381536.94		40.707664°N	104.123779°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	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	1290.38	19.81	206.64	1270.77	-151.49	-76.01	2.00	206.64	-48.73	
4	6113.74	19.81	206.64	5808.76	-1612.39	-808.99	0.00	0.00	-518.59	
5	7102.92	90.00	89.42	6439.00	-1808.50	-240.94	10.00	-115.83	74.77	CANVASBACK 32-33-6HN - LP
6	17089.98	90.00	89.42	6439.00	-1707.47	9745.61	0.00	0.00	9894.06	CANVASBACK 32-33-6HN - PBHL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	Start Build 2.00
1290.38	19.81	206.64	1270.77	-151.49	-76.01	-48.73	169.49	Start 4823.36 hold at 1290.38 MD
6113.74	19.81	206.64	5808.76	-1612.39	-808.99	-518.59	1803.95	Start DLS 10.00 TFO -115.83
7102.92	90.00	89.42	6439.00	-1808.50	-240.94	74.77	2462.31	Start 9987.07 hold at 7102.92 MD
17089.98	90.00	89.42	6439.00	-1707.47	9745.61	9894.06	12449.38	TD at 17089.98

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
CANVASBACK 32-33-6HN - LP - plan hits target center	6439.00	-1808.50	-240.94	1501794.46	3381324.09	40.702700°N	104.124648°W	Point
CANVASBACK 32-33-6HN - PBHL - plan hits target center	6439.00	-1707.47	9745.61	1502050.46	3391307.87	40.702972°N	104.088630°W	Point

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
263.00	263.00	Laramie Base
683.00	684.15	Laramie Fox Hills Base
988.00	994.79	Pierre Shale Base
1768.00	1818.88	Upper Pierre Shale Base* (SFC min depth)
3413.00	3567.32	Richard Sandstone
3533.00	3694.87	Parkman Sandstone
3848.00	4029.68	Parkman Sandstone Base
6204.00	6549.95	Sharon Springs
6242.00	6600.07	Niobrara Top
6383.00	6841.06	Niobrara B2 Chalk Top
6439.00	7102.92	Niobrara C 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

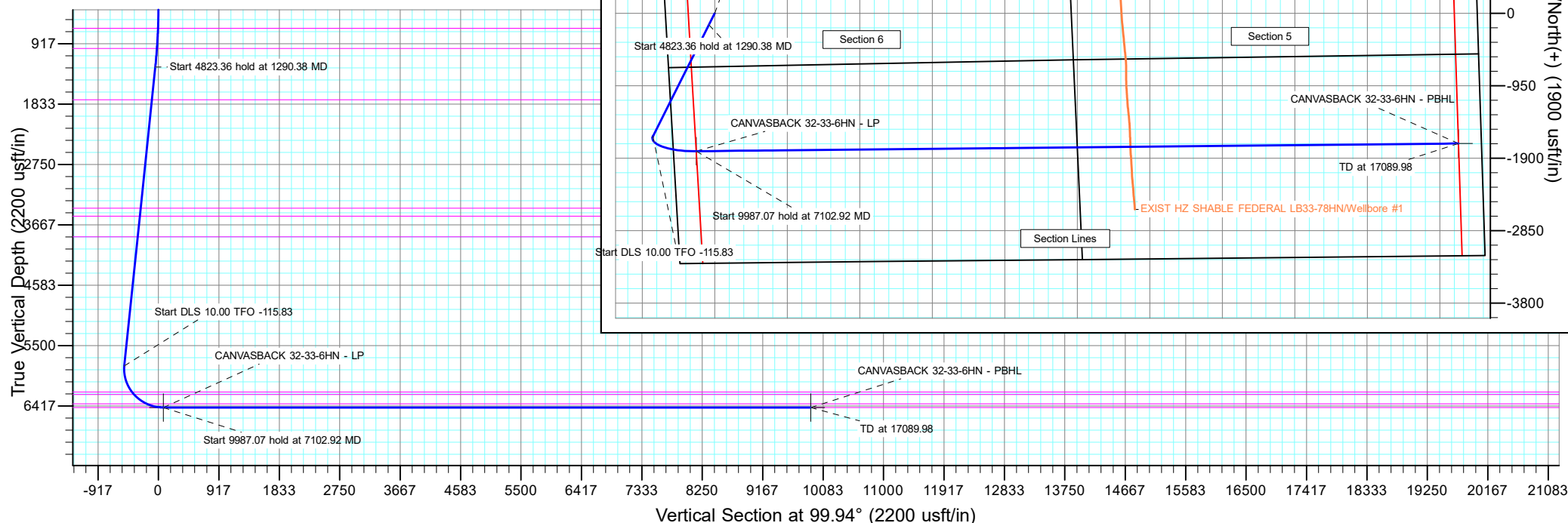
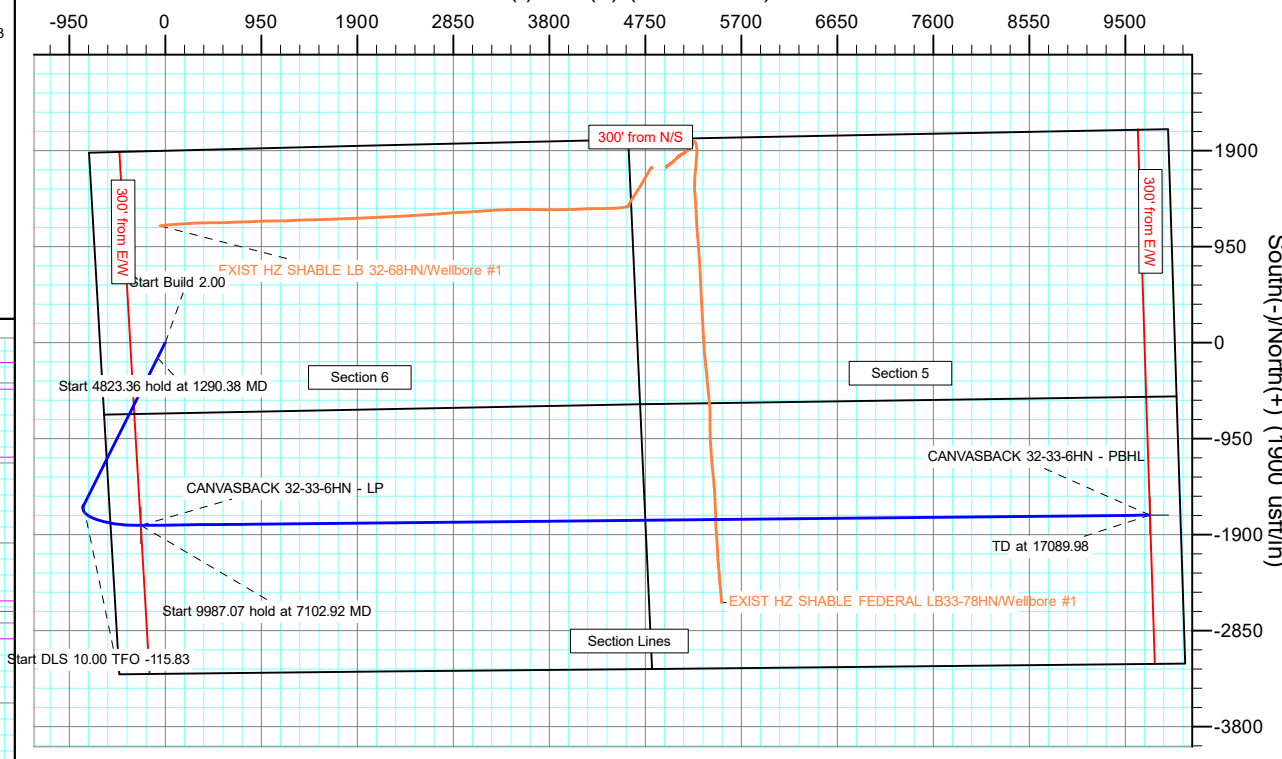
System Datum: Mean Sea Level

SHL:
1898' FNL, 645' FWL
Sec 32-T9N-R60W

LP:
1472' FSL, 300' FWL
Sec 32-T9N-R60W

BHL:
1472' FSL, 300' FEL
Sec 33-T9N-R60W

West(-)/East(+) (1900 usft/in)



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-33-6HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

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 32-33-6HN				
Well Position	+N/-S	0.00 usft	Northing:	1,503,606.49 usft	Latitude:	40.707664°N
	+E/-W	0.00 usft	Easting:	3,381,536.93 usft	Longitude:	104.123779°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,946.00 usft
Grid Convergence:		0.89 °				

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	6/20/2022	7.43	66.94	52,070.35587912

Design	PROPOSAL 2				
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	99.94	

Plan Survey Tool Program	Date	6/20/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,089.98 PROPOSAL 2 (OWB)	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	
1,290.38	19.81	206.64	1,270.77	-151.49	-76.01	2.00	2.00	0.00	206.64	
6,113.74	19.81	206.64	5,808.76	-1,612.39	-808.99	0.00	0.00	0.00	0.00	
7,102.92	90.00	89.42	6,439.00	-1,808.50	-240.94	10.00	7.10	-11.85	-115.83	CANVASBACK 32-33
17,089.98	90.00	89.42	6,439.00	-1,707.47	9,745.61	0.00	0.00	0.00	0.00	CANVASBACK 32-33

Planning Report

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

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
263.00	0.00	0.00	263.00	0.00	0.00	0.00	0.00	0.00	0.00
Laramie Base									
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	206.64	399.98	-1.56	-0.78	-0.50	2.00	2.00	0.00
500.00	4.00	206.64	499.84	-6.24	-3.13	-2.01	2.00	2.00	0.00
600.00	6.00	206.64	599.45	-14.03	-7.04	-4.51	2.00	2.00	0.00
684.15	7.68	206.64	683.00	-22.99	-11.53	-7.39	2.00	2.00	0.00
Laramie Fox Hills Base									
700.00	8.00	206.64	698.70	-24.92	-12.50	-8.01	2.00	2.00	0.00
800.00	10.00	206.64	797.47	-38.90	-19.52	-12.51	2.00	2.00	0.00
900.00	12.00	206.64	895.62	-55.95	-28.07	-18.00	2.00	2.00	0.00
994.79	13.90	206.64	988.00	-74.94	-37.60	-24.10	2.00	2.00	0.00
Pierre Shale Base									
1,000.00	14.00	206.64	993.06	-76.06	-38.16	-24.46	2.00	2.00	0.00
1,100.00	16.00	206.64	1,089.64	-99.19	-49.77	-31.90	2.00	2.00	0.00
1,200.00	18.00	206.64	1,185.27	-125.32	-62.88	-40.31	2.00	2.00	0.00
1,290.38	19.81	206.64	1,270.77	-151.49	-76.01	-48.73	2.00	2.00	0.00
Start 4823.36 hold at 1290.38 MD									
1,300.00	19.81	206.64	1,279.82	-154.41	-77.47	-49.66	0.00	0.00	0.00
1,400.00	19.81	206.64	1,373.90	-184.70	-92.67	-59.40	0.00	0.00	0.00
1,500.00	19.81	206.64	1,467.99	-214.98	-107.86	-69.15	0.00	0.00	0.00
1,600.00	19.81	206.64	1,562.07	-245.27	-123.06	-78.89	0.00	0.00	0.00
1,700.00	19.81	206.64	1,656.16	-275.56	-138.26	-88.63	0.00	0.00	0.00
1,800.00	19.81	206.64	1,750.24	-305.85	-153.45	-98.37	0.00	0.00	0.00
1,818.88	19.81	206.64	1,768.00	-311.56	-156.32	-100.21	0.00	0.00	0.00
Upper Pierre Shale Base* (SFC min depth)									
1,900.00	19.81	206.64	1,844.32	-336.13	-168.65	-108.11	0.00	0.00	0.00
2,000.00	19.81	206.64	1,938.41	-366.42	-183.85	-117.85	0.00	0.00	0.00
2,100.00	19.81	206.64	2,032.49	-396.71	-199.04	-127.59	0.00	0.00	0.00
2,200.00	19.81	206.64	2,126.57	-427.00	-214.24	-137.34	0.00	0.00	0.00
2,300.00	19.81	206.64	2,220.66	-457.29	-229.44	-147.08	0.00	0.00	0.00
2,400.00	19.81	206.64	2,314.74	-487.57	-244.63	-156.82	0.00	0.00	0.00
2,500.00	19.81	206.64	2,408.82	-517.86	-259.83	-166.56	0.00	0.00	0.00
2,600.00	19.81	206.64	2,502.91	-548.15	-275.03	-176.30	0.00	0.00	0.00
2,700.00	19.81	206.64	2,596.99	-578.44	-290.22	-186.04	0.00	0.00	0.00
2,800.00	19.81	206.64	2,691.07	-608.73	-305.42	-195.78	0.00	0.00	0.00
2,900.00	19.81	206.64	2,785.16	-639.01	-320.61	-205.53	0.00	0.00	0.00
3,000.00	19.81	206.64	2,879.24	-669.30	-335.81	-215.27	0.00	0.00	0.00
3,100.00	19.81	206.64	2,973.33	-699.59	-351.01	-225.01	0.00	0.00	0.00
3,200.00	19.81	206.64	3,067.41	-729.88	-366.20	-234.75	0.00	0.00	0.00
3,300.00	19.81	206.64	3,161.49	-760.16	-381.40	-244.49	0.00	0.00	0.00
3,400.00	19.81	206.64	3,255.58	-790.45	-396.60	-254.23	0.00	0.00	0.00
3,500.00	19.81	206.64	3,349.66	-820.74	-411.79	-263.97	0.00	0.00	0.00
3,567.32	19.81	206.64	3,413.00	-841.13	-422.02	-270.53	0.00	0.00	0.00
Richard Sandstone									
3,600.00	19.81	206.64	3,443.74	-851.03	-426.99	-273.72	0.00	0.00	0.00
3,694.87	19.81	206.64	3,533.00	-879.76	-441.41	-282.96	0.00	0.00	0.00
Parkman Sandstone									
3,700.00	19.81	206.64	3,537.83	-881.32	-442.19	-283.46	0.00	0.00	0.00
3,800.00	19.81	206.64	3,631.91	-911.60	-457.38	-293.20	0.00	0.00	0.00
3,900.00	19.81	206.64	3,725.99	-941.89	-472.58	-302.94	0.00	0.00	0.00

Planning Report

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

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)
4,000.00	19.81	206.64	3,820.08	-972.18	-487.78	-312.68	0.00	0.00	0.00
4,029.68	19.81	206.64	3,848.00	-981.17	-492.29	-315.57	0.00	0.00	0.00
Parkman Sandstone Base									
4,100.00	19.81	206.64	3,914.16	-1,002.47	-502.97	-322.42	0.00	0.00	0.00
4,200.00	19.81	206.64	4,008.24	-1,032.75	-518.17	-332.17	0.00	0.00	0.00
4,300.00	19.81	206.64	4,102.33	-1,063.04	-533.36	-341.91	0.00	0.00	0.00
4,400.00	19.81	206.64	4,196.41	-1,093.33	-548.56	-351.65	0.00	0.00	0.00
4,500.00	19.81	206.64	4,290.49	-1,123.62	-563.76	-361.39	0.00	0.00	0.00
4,600.00	19.81	206.64	4,384.58	-1,153.91	-578.95	-371.13	0.00	0.00	0.00
4,700.00	19.81	206.64	4,478.66	-1,184.19	-594.15	-380.87	0.00	0.00	0.00
4,800.00	19.81	206.64	4,572.75	-1,214.48	-609.35	-390.61	0.00	0.00	0.00
4,900.00	19.81	206.64	4,666.83	-1,244.77	-624.54	-400.36	0.00	0.00	0.00
5,000.00	19.81	206.64	4,760.91	-1,275.06	-639.74	-410.10	0.00	0.00	0.00
5,100.00	19.81	206.64	4,855.00	-1,305.35	-654.94	-419.84	0.00	0.00	0.00
5,200.00	19.81	206.64	4,949.08	-1,335.63	-670.13	-429.58	0.00	0.00	0.00
5,300.00	19.81	206.64	5,043.16	-1,365.92	-685.33	-439.32	0.00	0.00	0.00
5,400.00	19.81	206.64	5,137.25	-1,396.21	-700.53	-449.06	0.00	0.00	0.00
5,500.00	19.81	206.64	5,231.33	-1,426.50	-715.72	-458.80	0.00	0.00	0.00
5,600.00	19.81	206.64	5,325.41	-1,456.78	-730.92	-468.55	0.00	0.00	0.00
5,700.00	19.81	206.64	5,419.50	-1,487.07	-746.11	-478.29	0.00	0.00	0.00
5,800.00	19.81	206.64	5,513.58	-1,517.36	-761.31	-488.03	0.00	0.00	0.00
5,900.00	19.81	206.64	5,607.66	-1,547.65	-776.51	-497.77	0.00	0.00	0.00
6,000.00	19.81	206.64	5,701.75	-1,577.94	-791.70	-507.51	0.00	0.00	0.00
6,100.00	19.81	206.64	5,795.83	-1,608.22	-806.90	-517.25	0.00	0.00	0.00
6,113.74	19.81	206.64	5,808.76	-1,612.39	-808.99	-518.59	0.00	0.00	0.00
Start DLS 10.00 TFO -115.83									
6,200.00	17.76	180.38	5,890.57	-1,638.65	-815.64	-520.61	10.00	-2.37	-30.45
6,300.00	20.16	150.13	5,985.36	-1,668.93	-807.14	-507.01	10.00	2.40	-30.24
6,400.00	26.29	129.83	6,077.36	-1,698.14	-781.48	-476.70	10.00	6.13	-20.30
6,500.00	34.19	117.55	6,163.76	-1,725.39	-739.46	-430.60	10.00	7.90	-12.29
6,549.95	38.47	113.19	6,204.00	-1,738.00	-712.72	-402.09	10.00	8.57	-8.72
Sharon Springs									
6,600.00	42.89	109.59	6,241.95	-1,749.85	-682.34	-370.12	10.00	8.83	-7.20
6,600.07	42.89	109.59	6,242.00	-1,749.87	-682.30	-370.08	0.00	0.00	0.00
Niobrara Top									
6,700.00	51.99	103.92	6,309.55	-1,770.79	-611.87	-297.09	10.01	9.10	-5.67
6,800.00	61.29	99.52	6,364.50	-1,787.56	-530.17	-213.73	10.00	9.31	-4.40
6,841.06	65.15	97.95	6,383.00	-1,793.12	-493.95	-177.09	10.00	9.40	-3.83
Niobrara B2 Chalk Top									
6,900.00	70.71	95.85	6,405.14	-1,799.66	-439.75	-122.57	10.00	9.44	-3.56
7,000.00	80.20	92.59	6,430.22	-1,806.72	-343.33	-26.39	10.00	9.49	-3.26
7,100.00	89.72	89.51	6,438.99	-1,808.53	-243.86	71.90	10.00	9.52	-3.08
7,102.92	90.00	89.42	6,439.00	-1,808.50	-240.94	74.77	10.00	9.52	-3.05
Start 9987.07 hold at 7102.92 MD - Niobrara C Chalk Top (Target)									
7,200.00	90.00	89.42	6,439.00	-1,807.52	-143.87	170.22	0.00	0.00	0.00
7,300.00	90.00	89.42	6,439.00	-1,806.51	-43.87	268.54	0.00	0.00	0.00
7,400.00	90.00	89.42	6,439.00	-1,805.49	56.12	366.86	0.00	0.00	0.00
7,500.00	90.00	89.42	6,439.00	-1,804.48	156.12	465.18	0.00	0.00	0.00
7,600.00	90.00	89.42	6,439.00	-1,803.47	256.11	563.50	0.00	0.00	0.00
7,700.00	90.00	89.42	6,439.00	-1,802.46	356.11	661.82	0.00	0.00	0.00
7,800.00	90.00	89.42	6,439.00	-1,801.45	456.10	760.14	0.00	0.00	0.00
7,900.00	90.00	89.42	6,439.00	-1,800.44	556.10	858.46	0.00	0.00	0.00
8,000.00	90.00	89.42	6,439.00	-1,799.42	656.09	956.78	0.00	0.00	0.00

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-33-6HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

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)	
8,100.00	90.00	89.42	6,439.00	-1,798.41	756.09	1,055.10	0.00	0.00	0.00	
8,200.00	90.00	89.42	6,439.00	-1,797.40	856.08	1,153.42	0.00	0.00	0.00	
8,300.00	90.00	89.42	6,439.00	-1,796.39	956.08	1,251.74	0.00	0.00	0.00	
8,400.00	90.00	89.42	6,439.00	-1,795.38	1,056.07	1,350.06	0.00	0.00	0.00	
8,500.00	90.00	89.42	6,439.00	-1,794.37	1,156.07	1,448.38	0.00	0.00	0.00	
8,600.00	90.00	89.42	6,439.00	-1,793.36	1,256.06	1,546.70	0.00	0.00	0.00	
8,700.00	90.00	89.42	6,439.00	-1,792.34	1,356.06	1,645.03	0.00	0.00	0.00	
8,800.00	90.00	89.42	6,439.00	-1,791.33	1,456.05	1,743.35	0.00	0.00	0.00	
8,900.00	90.00	89.42	6,439.00	-1,790.32	1,556.05	1,841.67	0.00	0.00	0.00	
9,000.00	90.00	89.42	6,439.00	-1,789.31	1,656.04	1,939.99	0.00	0.00	0.00	
9,100.00	90.00	89.42	6,439.00	-1,788.30	1,756.04	2,038.31	0.00	0.00	0.00	
9,200.00	90.00	89.42	6,439.00	-1,787.29	1,856.03	2,136.63	0.00	0.00	0.00	
9,300.00	90.00	89.42	6,439.00	-1,786.27	1,956.03	2,234.95	0.00	0.00	0.00	
9,400.00	90.00	89.42	6,439.00	-1,785.26	2,056.02	2,333.27	0.00	0.00	0.00	
9,500.00	90.00	89.42	6,439.00	-1,784.25	2,156.02	2,431.59	0.00	0.00	0.00	
9,600.00	90.00	89.42	6,439.00	-1,783.24	2,256.01	2,529.91	0.00	0.00	0.00	
9,700.00	90.00	89.42	6,439.00	-1,782.23	2,356.01	2,628.23	0.00	0.00	0.00	
9,800.00	90.00	89.42	6,439.00	-1,781.22	2,456.00	2,726.55	0.00	0.00	0.00	
9,900.00	90.00	89.42	6,439.00	-1,780.20	2,555.99	2,824.87	0.00	0.00	0.00	
10,000.00	90.00	89.42	6,439.00	-1,779.19	2,655.99	2,923.19	0.00	0.00	0.00	
10,100.00	90.00	89.42	6,439.00	-1,778.18	2,755.98	3,021.51	0.00	0.00	0.00	
10,200.00	90.00	89.42	6,439.00	-1,777.17	2,855.98	3,119.83	0.00	0.00	0.00	
10,300.00	90.00	89.42	6,439.00	-1,776.16	2,955.97	3,218.15	0.00	0.00	0.00	
10,400.00	90.00	89.42	6,439.00	-1,775.15	3,055.97	3,316.47	0.00	0.00	0.00	
10,500.00	90.00	89.42	6,439.00	-1,774.14	3,155.96	3,414.79	0.00	0.00	0.00	
10,600.00	90.00	89.42	6,439.00	-1,773.12	3,255.96	3,513.11	0.00	0.00	0.00	
10,700.00	90.00	89.42	6,439.00	-1,772.11	3,355.95	3,611.43	0.00	0.00	0.00	
10,800.00	90.00	89.42	6,439.00	-1,771.10	3,455.95	3,709.75	0.00	0.00	0.00	
10,900.00	90.00	89.42	6,439.00	-1,770.09	3,555.94	3,808.07	0.00	0.00	0.00	
11,000.00	90.00	89.42	6,439.00	-1,769.08	3,655.94	3,906.39	0.00	0.00	0.00	
11,100.00	90.00	89.42	6,439.00	-1,768.07	3,755.93	4,004.71	0.00	0.00	0.00	
11,200.00	90.00	89.42	6,439.00	-1,767.05	3,855.93	4,103.03	0.00	0.00	0.00	
11,300.00	90.00	89.42	6,439.00	-1,766.04	3,955.92	4,201.35	0.00	0.00	0.00	
11,400.00	90.00	89.42	6,439.00	-1,765.03	4,055.92	4,299.67	0.00	0.00	0.00	
11,500.00	90.00	89.42	6,439.00	-1,764.02	4,155.91	4,397.99	0.00	0.00	0.00	
11,600.00	90.00	89.42	6,439.00	-1,763.01	4,255.91	4,496.31	0.00	0.00	0.00	
11,700.00	90.00	89.42	6,439.00	-1,762.00	4,355.90	4,594.63	0.00	0.00	0.00	
11,800.00	90.00	89.42	6,439.00	-1,760.98	4,455.90	4,692.95	0.00	0.00	0.00	
11,900.00	90.00	89.42	6,439.00	-1,759.97	4,555.89	4,791.27	0.00	0.00	0.00	
12,000.00	90.00	89.42	6,439.00	-1,758.96	4,655.89	4,889.59	0.00	0.00	0.00	
12,100.00	90.00	89.42	6,439.00	-1,757.95	4,755.88	4,987.91	0.00	0.00	0.00	
12,200.00	90.00	89.42	6,439.00	-1,756.94	4,855.88	5,086.23	0.00	0.00	0.00	
12,300.00	90.00	89.42	6,439.00	-1,755.93	4,955.87	5,184.55	0.00	0.00	0.00	
12,400.00	90.00	89.42	6,439.00	-1,754.92	5,055.87	5,282.87	0.00	0.00	0.00	
12,500.00	90.00	89.42	6,439.00	-1,753.90	5,155.86	5,381.19	0.00	0.00	0.00	
12,600.00	90.00	89.42	6,439.00	-1,752.89	5,255.86	5,479.51	0.00	0.00	0.00	
12,700.00	90.00	89.42	6,439.00	-1,751.88	5,355.85	5,577.83	0.00	0.00	0.00	
12,800.00	90.00	89.42	6,439.00	-1,750.87	5,455.85	5,676.15	0.00	0.00	0.00	
12,900.00	90.00	89.42	6,439.00	-1,749.86	5,555.84	5,774.47	0.00	0.00	0.00	
13,000.00	90.00	89.42	6,439.00	-1,748.85	5,655.84	5,872.79	0.00	0.00	0.00	
13,100.00	90.00	89.42	6,439.00	-1,747.83	5,755.83	5,971.11	0.00	0.00	0.00	
13,200.00	90.00	89.42	6,439.00	-1,746.82	5,855.83	6,069.43	0.00	0.00	0.00	
13,300.00	90.00	89.42	6,439.00	-1,745.81	5,955.82	6,167.75	0.00	0.00	0.00	
13,400.00	90.00	89.42	6,439.00	-1,744.80	6,055.82	6,266.07	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-33-6HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

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)	
13,500.00	90.00	89.42	6,439.00	-1,743.79	6,155.81	6,364.39	0.00	0.00	0.00	
13,600.00	90.00	89.42	6,439.00	-1,742.78	6,255.81	6,462.71	0.00	0.00	0.00	
13,700.00	90.00	89.42	6,439.00	-1,741.76	6,355.80	6,561.03	0.00	0.00	0.00	
13,800.00	90.00	89.42	6,439.00	-1,740.75	6,455.80	6,659.35	0.00	0.00	0.00	
13,900.00	90.00	89.42	6,439.00	-1,739.74	6,555.79	6,757.67	0.00	0.00	0.00	
14,000.00	90.00	89.42	6,439.00	-1,738.73	6,655.79	6,855.99	0.00	0.00	0.00	
14,100.00	90.00	89.42	6,439.00	-1,737.72	6,755.78	6,954.31	0.00	0.00	0.00	
14,200.00	90.00	89.42	6,439.00	-1,736.71	6,855.77	7,052.63	0.00	0.00	0.00	
14,300.00	90.00	89.42	6,439.00	-1,735.70	6,955.77	7,150.95	0.00	0.00	0.00	
14,400.00	90.00	89.42	6,439.00	-1,734.68	7,055.76	7,249.27	0.00	0.00	0.00	
14,500.00	90.00	89.42	6,439.00	-1,733.67	7,155.76	7,347.59	0.00	0.00	0.00	
14,600.00	90.00	89.42	6,439.00	-1,732.66	7,255.75	7,445.91	0.00	0.00	0.00	
14,700.00	90.00	89.42	6,439.00	-1,731.65	7,355.75	7,544.23	0.00	0.00	0.00	
14,800.00	90.00	89.42	6,439.00	-1,730.64	7,455.74	7,642.55	0.00	0.00	0.00	
14,900.00	90.00	89.42	6,439.00	-1,729.63	7,555.74	7,740.87	0.00	0.00	0.00	
15,000.00	90.00	89.42	6,439.00	-1,728.61	7,655.73	7,839.19	0.00	0.00	0.00	
15,100.00	90.00	89.42	6,439.00	-1,727.60	7,755.73	7,937.51	0.00	0.00	0.00	
15,200.00	90.00	89.42	6,439.00	-1,726.59	7,855.72	8,035.83	0.00	0.00	0.00	
15,300.00	90.00	89.42	6,439.00	-1,725.58	7,955.72	8,134.15	0.00	0.00	0.00	
15,400.00	90.00	89.42	6,439.00	-1,724.57	8,055.71	8,232.47	0.00	0.00	0.00	
15,500.00	90.00	89.42	6,439.00	-1,723.56	8,155.71	8,330.79	0.00	0.00	0.00	
15,600.00	90.00	89.42	6,439.00	-1,722.54	8,255.70	8,429.11	0.00	0.00	0.00	
15,700.00	90.00	89.42	6,439.00	-1,721.53	8,355.70	8,527.43	0.00	0.00	0.00	
15,800.00	90.00	89.42	6,439.00	-1,720.52	8,455.69	8,625.75	0.00	0.00	0.00	
15,900.00	90.00	89.42	6,439.00	-1,719.51	8,555.69	8,724.07	0.00	0.00	0.00	
16,000.00	90.00	89.42	6,439.00	-1,718.50	8,655.68	8,822.39	0.00	0.00	0.00	
16,100.00	90.00	89.42	6,439.00	-1,717.49	8,755.68	8,920.71	0.00	0.00	0.00	
16,200.00	90.00	89.42	6,439.00	-1,716.48	8,855.67	9,019.03	0.00	0.00	0.00	
16,300.00	90.00	89.42	6,439.00	-1,715.46	8,955.67	9,117.35	0.00	0.00	0.00	
16,400.00	90.00	89.42	6,439.00	-1,714.45	9,055.66	9,215.67	0.00	0.00	0.00	
16,500.00	90.00	89.42	6,439.00	-1,713.44	9,155.66	9,313.99	0.00	0.00	0.00	
16,600.00	90.00	89.42	6,439.00	-1,712.43	9,255.65	9,412.31	0.00	0.00	0.00	
16,700.00	90.00	89.42	6,439.00	-1,711.42	9,355.65	9,510.63	0.00	0.00	0.00	
16,800.00	90.00	89.42	6,439.00	-1,710.41	9,455.64	9,608.95	0.00	0.00	0.00	
16,900.00	90.00	89.42	6,439.00	-1,709.39	9,555.64	9,707.27	0.00	0.00	0.00	
17,000.00	90.00	89.42	6,439.00	-1,708.38	9,655.63	9,805.59	0.00	0.00	0.00	
17,089.98	90.00	89.42	6,439.00	-1,707.47	9,745.61	9,894.06	0.00	0.00	0.00	
TD at 17089.98										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
CANVASBACK 32-33-6H	0.00	0.00	6,439.00	-1,707.47	9,745.61	1,502,050.47	3,391,307.87	40.702972°N	104.088630°W
- plan hits target center									
- Point									
CANVASBACK 32-33-6H	0.00	0.00	6,439.00	-1,808.50	-240.94	1,501,794.47	3,381,324.08	40.702700°N	104.124648°W
- plan hits target center									
- Point									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-33-6HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4973.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4973.00usft
Site:	SEC 32-T9N-R60W	North Reference:	True
Well:	CANVASBACK 32-33-6HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
263.00	263.00	Laramie Base				
684.15	683.00	Laramie Fox Hills Base				
994.79	988.00	Pierre Shale Base				
1,818.88	1,768.00	Upper Pierre Shale Base* (SFC min dep:				
3,567.32	3,413.00	Richard Sandstone				
3,694.87	3,533.00	Parkman Sandstone				
4,029.68	3,848.00	Parkman Sandstone Base				
6,549.95	6,204.00	Sharon Springs				
6,600.07	6,242.00	Niobrara Top				
6,841.06	6,383.00	Niobrara B2 Chalk Top				
7,102.92	6,439.00	Niobrara C Chalk Top (Target)				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Start Build 2.00	
1,290.38	1,270.77	-151.49	-76.01	Start 4823.36 hold at 1290.38 MD	
6,113.74	5,808.76	-1,612.39	-808.99	Start DLS 10.00 TFO -115.83	
7,102.92	6,439.00	-1,808.50	-240.94	Start 9987.07 hold at 7102.92 MD	
17,089.98	6,439.00	-1,707.47	9,745.61	TD at 17089.98	