

MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

NW SW SEC. 32 T9N R60W 6th P.M.

CANVASBACK 32-3HN

ORIGINAL WELLBORE

25 October, 2018

Plan: PROPOSAL #2





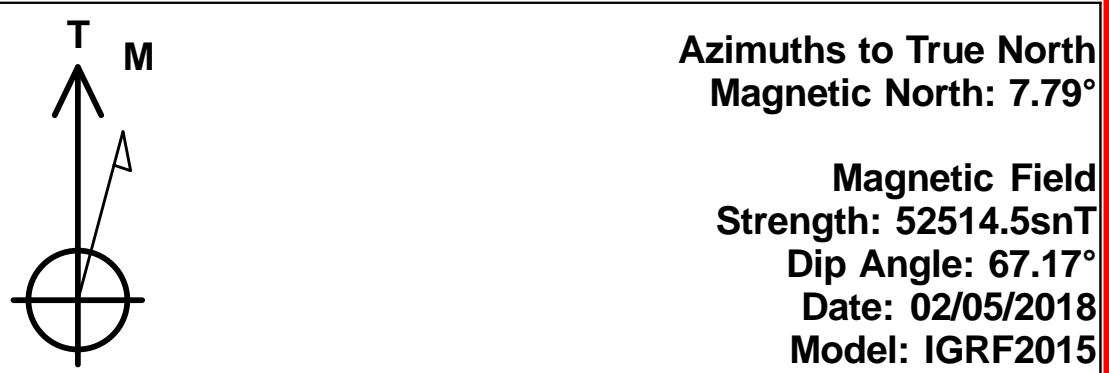
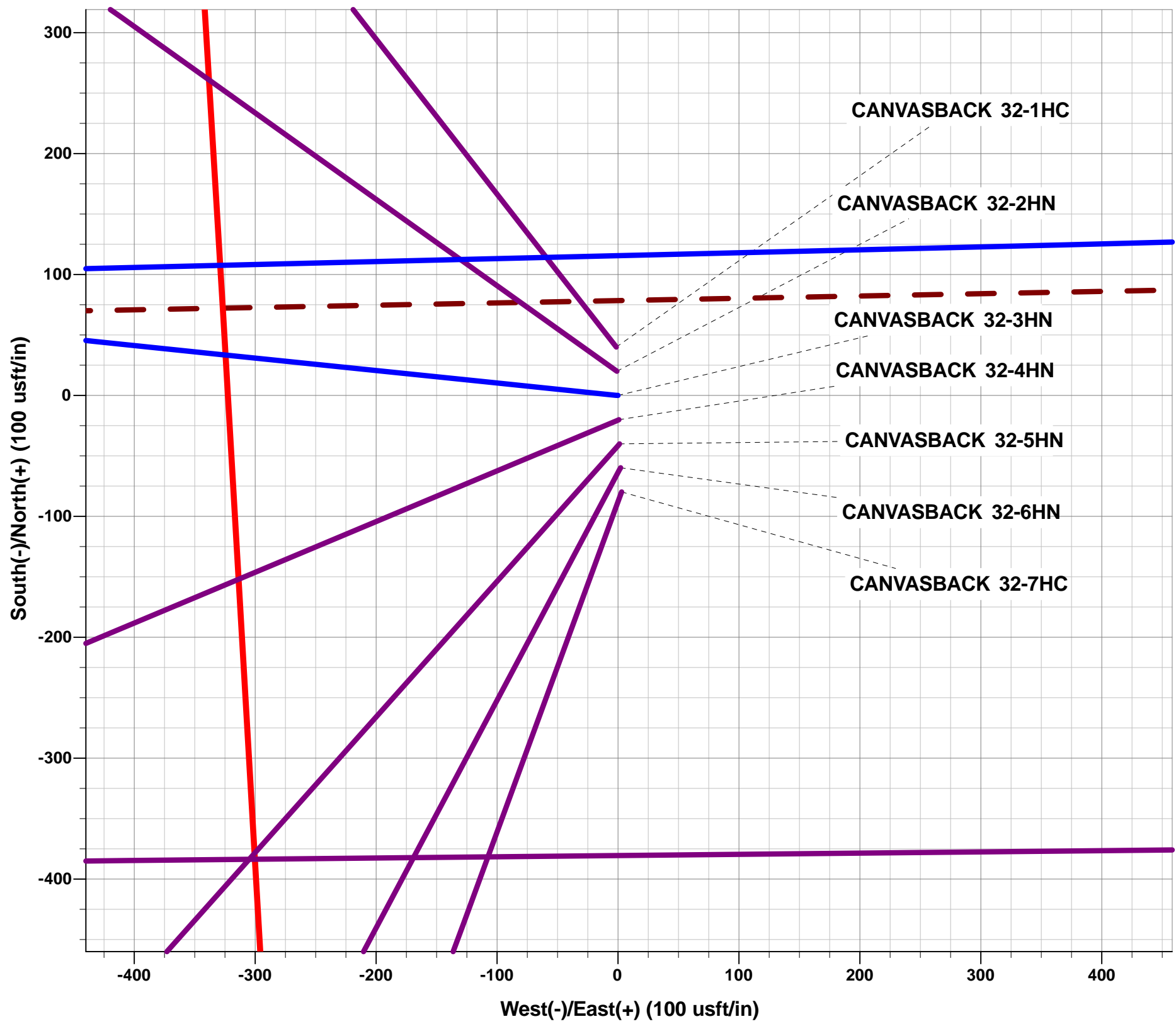
Project: WELD COUNTY, COLORADO (NAD 83)
Site: NW SW SEC. 32 T9N R60W 6th P.M.
Well: CANVASBACK 32-3HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #2

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2501ft FSL & 629ft FWL of Sec 32
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
895.62	900.00	12.00	275.89	6.42	-62.27	-61.87	62.60	EOB TO 12° INC
4599.71	4686.83	12.00	275.89	87.17	-845.45	-839.95	849.93	END OF TANGENT
5195.33	5286.83	0.00	0.00	93.59	-907.72	-901.81	912.53	EOD TO VERTICAL
5804.04	5895.55	0.00	0.00	93.59	-907.72	-901.81	912.53	KOP (10°/100ft BUR)
6377.00	6795.55	90.00	88.61	107.49	-334.93	-329.05	1485.49	HZ LP: 2561ft FNL & 301ft FWL of Sec 32
6376.98	11499.19	90.00	88.61	221.58	4367.33	4372.95	6189.14	BHL: 2560ft FNL & 300ft FEL of Sec 32

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CANVASBACK 32-3HN (P2)	5804.04	93.59	-907.72	40.705787	-104.126949
HZ LP - CANVASBACK 32-3HN (P2)	6377.00	107.49	-334.93	40.705825	-104.124883
BHL - CANVASBACK 32-3HN (P2)	6377.00	221.54	4367.33	40.706137	-104.107923

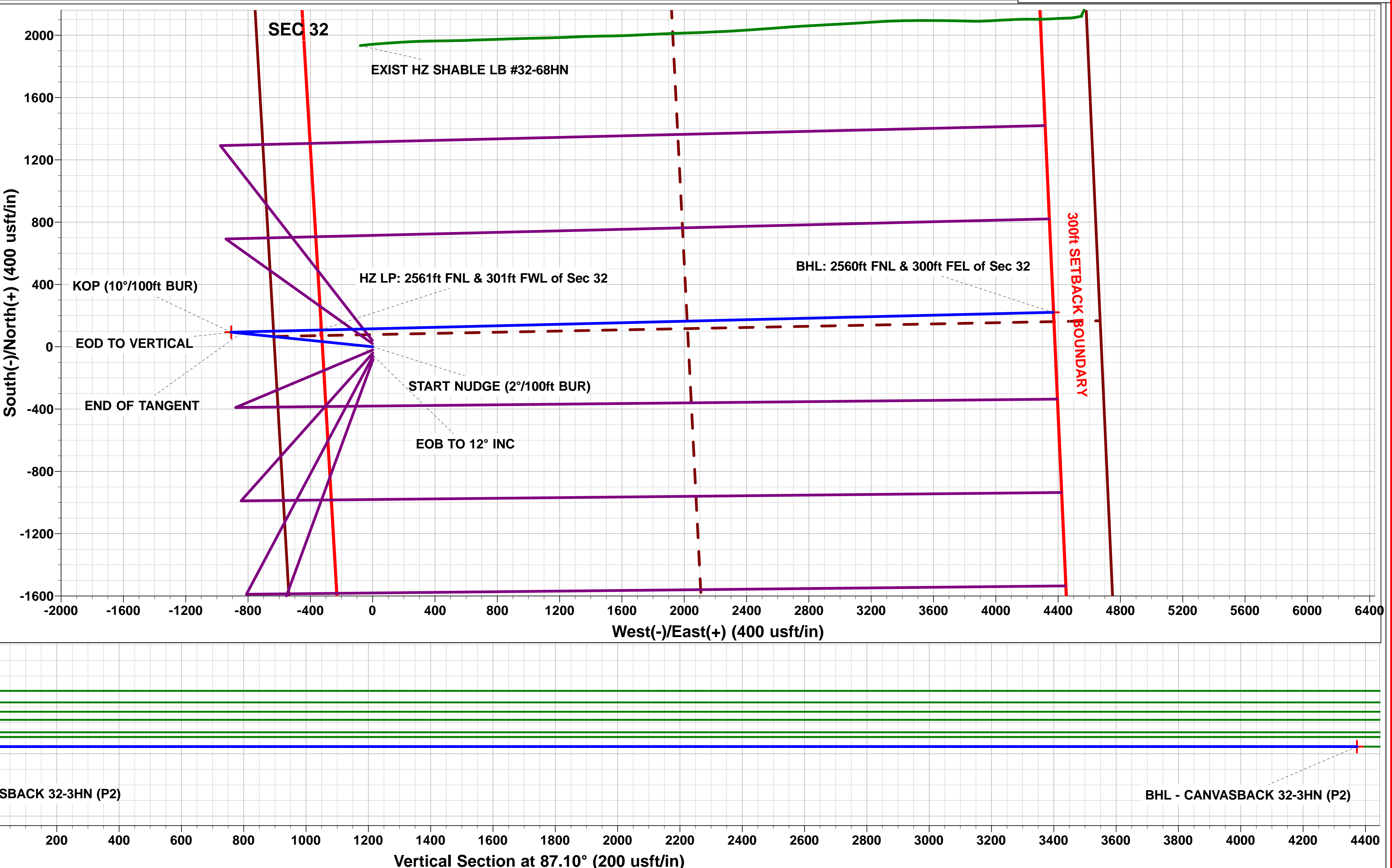
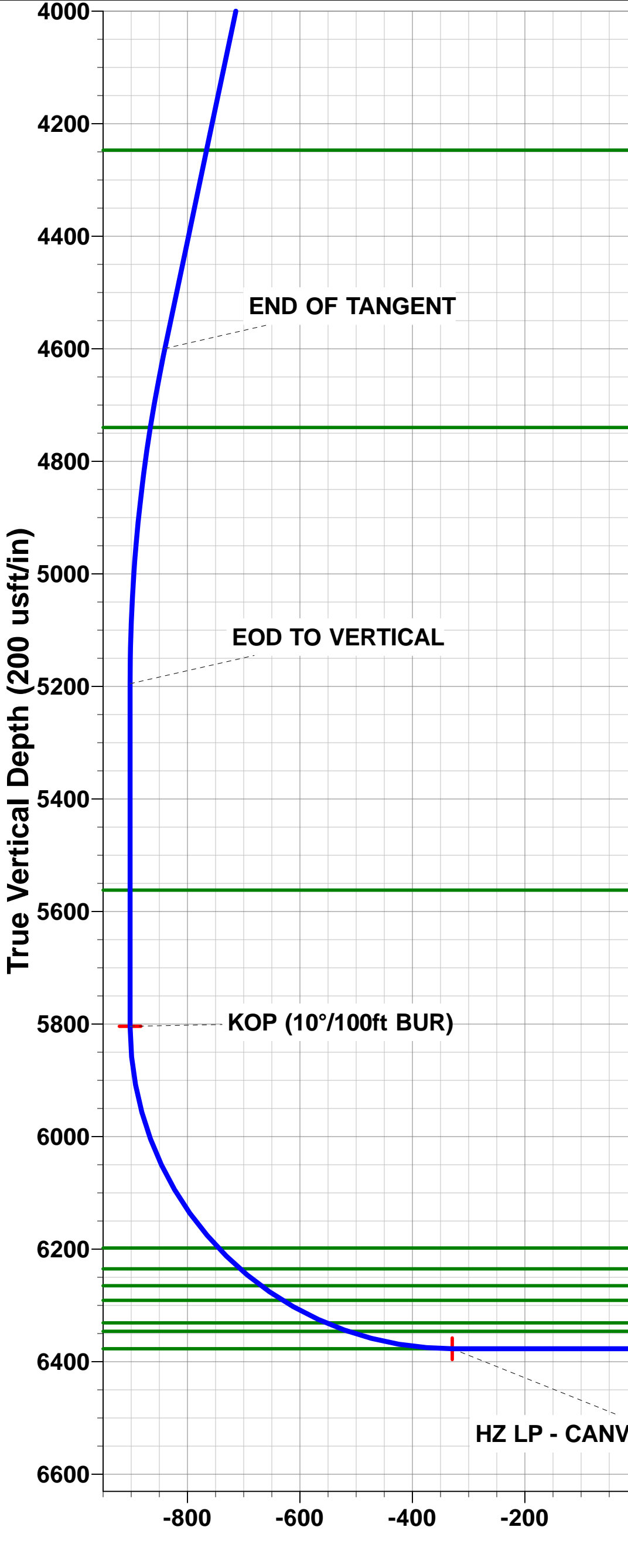
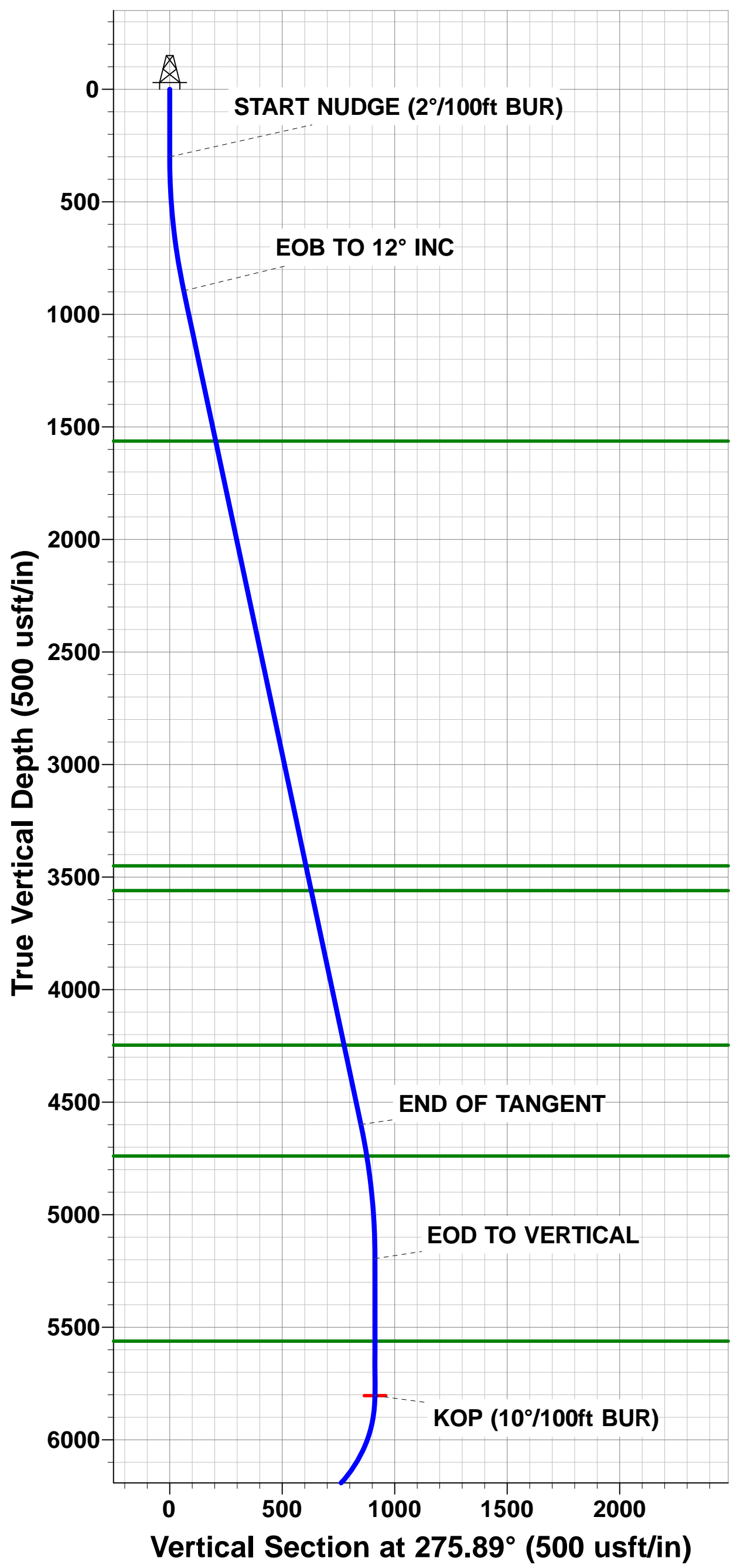


FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1563.00	1582.29	Pierre Shale Top
3450.00	3511.44	Richard Sandstone
3560.00	3623.90	Parkman Sandstone
4247.00	4326.25	Sussex Sandstone
4740.00	4829.57	Shannon Sandstone
5562.00	5653.51	TeePee Buttes
6198.00	6329.94	Sharon Springs
6235.00	6383.33	Niobrara Top
6265.00	6431.19	Niobrara A Chalk
6291.00	6477.56	Niobrara A Chalk Base
6331.00	6564.39	Niobrara B1 Chalk Top
6346.00	6606.21	Niobrara B1 Chalk Base
6377.00	6795.55	Niobrara B2 Chalk Top (Target)

PROPOSED LOCAL COORDINATES:

SHL: 2501ft FSL & 629ft FWL of Sec 32
HZ LP: 2561ft FNL & 301ft FWL of Sec 32
BHL: 2560ft FNL & 300ft FEL of Sec 32



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4965.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4965.00usft
Site:	NW SW SEC. 32 T9N R60W 6th P.M.	North Reference:	True
Well:	CANVASBACK 32-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	NW SW SEC. 32 T9N R60W 6th P.M.		
Site Position:		Northing:	1,503,686.24 usft
From:	Lat/Long	Easting:	3,381,532.92 usft
Position Uncertainty:	0.00 usft	Slot Radius:	1.10000ft
		Latitude:	40.707883
		Longitude:	-104.123789
		Grid Convergence:	0.89 °

Well	CANVASBACK 32-3HN		
Well Position	+N/-S	-857.28 usft	Northing:
	+E/-W	31.61 usft	Easting:
Position Uncertainty	0.00 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	02/05/2018	7.80	67.17	52,514

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 (°)
	6,377.00	0.00	0.00	87.10

Plan Sections											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100usf)	Turn Rate (°/100usf)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,965.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	-4,665.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	12.00	275.89	895.62	-4,069.38	6.42	-62.27	2.00	2.00	0.00	275.89	
4,686.83	12.00	275.89	4,599.71	-365.29	87.17	-845.45	0.00	0.00	0.00	0.00	
5,286.83	0.00	0.00	5,195.33	230.33	93.59	-907.72	2.00	-2.00	0.00	180.00	
5,895.55	0.00	0.00	5,804.04	839.04	93.59	-907.72	0.00	0.00	0.00	0.00	KOP - CANVASBA(
6,795.55	90.00	88.61	6,377.00	1,412.00	107.49	-334.93	10.00	10.00	9.85	88.61	HZ LP - CANVASB(
11,499.19	90.00	88.61	6,377.00	1,412.00	221.54	4,367.33	0.00	0.00	0.00	0.00	BHL - CANVASBA(

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4965.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4965.00usft
Site:	NW SW SEC. 32 T9N R60W 6th P.M.	North Reference:	True
Well:	CANVASBACK 32-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
SHL: 2501ft FSL & 629ft FWL of Sec 32										
0.00	0.00	0.00	0.00	4,965.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,865.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,765.00	0.00	0.00	0.00	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
300.00	0.00	0.00	300.00	4,665.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	275.89	399.98	4,565.02	0.18	-1.74	-1.72	2.00	2.00	0.00
500.00	4.00	275.89	499.84	4,465.16	0.72	-6.94	-6.90	2.00	2.00	0.00
600.00	6.00	275.89	599.45	4,365.55	1.61	-15.61	-15.51	2.00	2.00	0.00
700.00	8.00	275.89	698.70	4,266.30	2.86	-27.73	-27.55	2.00	2.00	0.00
800.00	10.00	275.89	797.47	4,167.53	4.46	-43.29	-43.01	2.00	2.00	0.00
EOB TO 12° INC										
900.00	12.00	275.89	895.62	4,069.38	6.42	-62.27	-61.87	2.00	2.00	0.00
1,000.00	12.00	275.89	993.44	3,971.56	8.55	-82.95	-82.41	0.00	0.00	0.00
1,100.00	12.00	275.89	1,091.25	3,873.75	10.69	-103.64	-102.96	0.00	0.00	0.00
1,200.00	12.00	275.89	1,189.07	3,775.93	12.82	-124.32	-123.51	0.00	0.00	0.00
1,300.00	12.00	275.89	1,286.88	3,678.12	14.95	-145.00	-144.05	0.00	0.00	0.00
1,400.00	12.00	275.89	1,384.70	3,580.30	17.08	-165.68	-164.60	0.00	0.00	0.00
1,500.00	12.00	275.89	1,482.51	3,482.49	19.21	-186.36	-185.15	0.00	0.00	0.00
Pierre Shale Top										
1,582.29	12.00	275.89	1,563.00	3,402.00	20.97	-203.38	-202.06	0.00	0.00	0.00
1,600.00	12.00	275.89	1,580.33	3,384.67	21.35	-207.04	-205.70	0.00	0.00	0.00
1,700.00	12.00	275.89	1,678.14	3,286.86	23.48	-227.72	-226.24	0.00	0.00	0.00
1,800.00	12.00	275.89	1,775.96	3,189.04	25.61	-248.41	-246.79	0.00	0.00	0.00
1,900.00	12.00	275.89	1,873.77	3,091.23	27.74	-269.09	-267.34	0.00	0.00	0.00
2,000.00	12.00	275.89	1,971.59	2,993.41	29.88	-289.77	-287.88	0.00	0.00	0.00
2,100.00	12.00	275.89	2,069.40	2,895.60	32.01	-310.45	-308.43	0.00	0.00	0.00
2,200.00	12.00	275.89	2,167.22	2,797.78	34.14	-331.13	-328.98	0.00	0.00	0.00
2,300.00	12.00	275.89	2,265.03	2,699.97	36.27	-351.81	-349.52	0.00	0.00	0.00
2,400.00	12.00	275.89	2,362.84	2,602.16	38.41	-372.50	-370.07	0.00	0.00	0.00
2,500.00	12.00	275.89	2,460.66	2,504.34	40.54	-393.18	-390.62	0.00	0.00	0.00
2,600.00	12.00	275.89	2,558.47	2,406.53	42.67	-413.86	-411.17	0.00	0.00	0.00
2,700.00	12.00	275.89	2,656.29	2,308.71	44.80	-434.54	-431.71	0.00	0.00	0.00
2,800.00	12.00	275.89	2,754.10	2,210.90	46.94	-455.22	-452.26	0.00	0.00	0.00
2,900.00	12.00	275.89	2,851.92	2,113.08	49.07	-475.90	-472.81	0.00	0.00	0.00
3,000.00	12.00	275.89	2,949.73	2,015.27	51.20	-496.58	-493.35	0.00	0.00	0.00
3,100.00	12.00	275.89	3,047.55	1,917.45	53.33	-517.27	-513.90	0.00	0.00	0.00
3,200.00	12.00	275.89	3,145.36	1,819.64	55.46	-537.95	-534.45	0.00	0.00	0.00
3,300.00	12.00	275.89	3,243.18	1,721.82	57.60	-558.63	-554.99	0.00	0.00	0.00
3,400.00	12.00	275.89	3,340.99	1,624.01	59.73	-579.31	-575.54	0.00	0.00	0.00
3,500.00	12.00	275.89	3,438.81	1,526.19	61.86	-599.99	-596.09	0.00	0.00	0.00
Richard Sandstone										
3,511.44	12.00	275.89	3,450.00	1,515.00	62.11	-602.36	-598.44	0.00	0.00	0.00
3,600.00	12.00	275.89	3,536.62	1,428.38	63.99	-620.67	-616.63	0.00	0.00	0.00
Parkman Sandstone										
3,623.90	12.00	275.89	3,560.00	1,405.00	64.50	-625.62	-621.55	0.00	0.00	0.00
3,700.00	12.00	275.89	3,634.44	1,330.56	66.13	-641.36	-637.18	0.00	0.00	0.00
3,800.00	12.00	275.89	3,732.25	1,232.75	68.26	-662.04	-657.73	0.00	0.00	0.00
3,900.00	12.00	275.89	3,830.07	1,134.93	70.39	-682.72	-678.28	0.00	0.00	0.00
4,000.00	12.00	275.89	3,927.88	1,037.12	72.52	-703.40	-698.82	0.00	0.00	0.00
4,100.00	12.00	275.89	4,025.70	939.30	74.66	-724.08	-719.37	0.00	0.00	0.00
4,200.00	12.00	275.89	4,123.51	841.49	76.79	-744.76	-739.92	0.00	0.00	0.00
4,300.00	12.00	275.89	4,221.32	743.68	78.92	-765.44	-760.46	0.00	0.00	0.00

Planning Report



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Well:	CANVASBACK 32-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Sussex Sandstone										
4,326.25	12.00	275.89	4,247.00	718.00	79.48	-770.87	-765.86	0.00	0.00	0.00
4,400.00	12.00	275.89	4,319.14	645.86	81.05	-786.13	-781.01	0.00	0.00	0.00
4,500.00	12.00	275.89	4,416.95	548.05	83.19	-806.81	-801.56	0.00	0.00	0.00
4,600.00	12.00	275.89	4,514.77	450.23	85.32	-827.49	-822.10	0.00	0.00	0.00
END OF TANGENT										
4,686.83	12.00	275.89	4,599.71	365.29	87.17	-845.45	-839.95	0.00	0.00	0.00
4,700.00	11.74	275.89	4,612.59	352.41	87.45	-848.14	-842.62	2.00	-2.00	0.00
4,800.00	9.74	275.89	4,710.83	254.17	89.36	-866.67	-861.03	2.00	-2.00	0.00
Shannon Sandstone										
4,829.57	9.15	275.89	4,740.00	225.00	89.86	-871.50	-865.82	2.00	-2.00	0.00
4,900.00	7.74	275.89	4,809.67	155.33	90.92	-881.78	-876.04	2.00	-2.00	0.00
5,000.00	5.74	275.89	4,908.97	56.03	92.12	-893.45	-887.63	2.00	-2.00	0.00
5,100.00	3.74	275.89	5,008.63	-43.63	92.97	-901.66	-895.79	2.00	-2.00	0.00
5,200.00	1.74	275.89	5,108.51	-143.51	93.46	-906.41	-900.51	2.00	-2.00	0.00
EOD TO VERTICAL										
5,286.83	0.00	0.00	5,195.33	-230.33	93.59	-907.72	-901.81	2.00	-2.00	0.00
5,300.00	0.00	0.00	5,208.49	-243.49	93.59	-907.72	-901.81	0.00	0.00	0.00
5,400.00	0.00	0.00	5,308.49	-343.49	93.59	-907.72	-901.81	0.00	0.00	0.00
5,500.00	0.00	0.00	5,408.49	-443.49	93.59	-907.72	-901.81	0.00	0.00	0.00
5,600.00	0.00	0.00	5,508.49	-543.49	93.59	-907.72	-901.81	0.00	0.00	0.00
TeePee Buttes										
5,653.51	0.00	0.00	5,562.00	-597.00	93.59	-907.72	-901.81	0.00	0.00	0.00
5,700.00	0.00	0.00	5,608.49	-643.49	93.59	-907.72	-901.81	0.00	0.00	0.00
5,800.00	0.00	0.00	5,708.49	-743.49	93.59	-907.72	-901.81	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,895.55	0.00	0.00	5,804.04	-839.04	93.59	-907.72	-901.81	0.00	0.00	0.00
5,900.00	0.45	88.61	5,808.49	-843.49	93.59	-907.70	-901.80	10.00	10.00	0.00
6,000.00	10.45	88.61	5,907.92	-942.92	93.82	-898.23	-892.32	10.00	10.00	0.00
6,100.00	20.45	88.61	6,004.18	-1,039.18	94.47	-871.64	-865.73	10.00	10.00	0.00
6,200.00	30.45	88.61	6,094.37	-1,129.37	95.51	-828.74	-822.84	10.00	10.00	0.00
6,300.00	40.45	88.61	6,175.73	-1,210.73	96.91	-770.84	-764.94	10.00	10.00	0.00
Sharon Springs										
6,329.94	43.44	88.61	6,198.00	-1,233.00	97.40	-750.83	-744.93	10.00	10.00	0.00
Niobrara Top										
6,383.33	48.78	88.61	6,235.00	-1,270.00	98.33	-712.38	-706.49	10.00	10.00	0.00
6,400.00	50.45	88.61	6,245.80	-1,280.80	98.64	-699.69	-693.79	10.00	10.00	0.00
Niobrara A Chalk										
6,431.19	53.56	88.61	6,265.00	-1,300.00	99.23	-675.12	-669.23	10.00	10.00	0.00
Niobrara A Chalk Base										
6,477.56	58.20	88.61	6,291.00	-1,326.00	100.16	-636.76	-630.86	10.00	10.00	0.00
6,500.00	60.45	88.61	6,302.45	-1,337.45	100.63	-617.46	-611.57	10.00	10.00	0.00
Niobrara B1 Chalk Top										
6,564.39	66.88	88.61	6,331.00	-1,366.00	102.03	-559.80	-553.91	10.00	10.00	0.00
6,600.00	70.45	88.61	6,343.95	-1,378.95	102.84	-526.65	-520.76	10.00	10.00	0.00
Niobrara B1 Chalk Base										
6,606.21	71.07	88.61	6,346.00	-1,381.00	102.98	-520.78	-514.90	10.00	10.00	0.00
6,700.00	80.45	88.61	6,369.05	-1,404.05	105.18	-430.01	-424.13	10.00	10.00	0.00
HZ LP: 2561ft FNL & 301ft FWL of Sec 32 - Niobrara B2 Chalk Top (Target)										
6,795.55	90.00	88.61	6,377.00	-1,412.00	107.49	-334.93	-329.05	10.00	10.00	0.00
6,800.00	90.00	88.61	6,377.00	-1,412.00	107.60	-330.48	-324.60	0.00	0.00	0.00
6,900.00	90.00	88.61	6,377.00	-1,412.00	110.02	-230.51	-224.64	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4965.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4965.00usft
Site:	NW SW SEC. 32 T9N R60W 6th P.M.	North Reference:	True
Well:	CANVASBACK 32-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Planned Survey										
MD (usft)	Inc (°)	Azi (°)	TVD (usft)	SS (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,000.00	90.00	88.61	6,377.00	-1,412.00	112.45	-130.54	-124.67	0.00	0.00	0.00
7,100.00	90.00	88.61	6,377.00	-1,412.00	114.87	-30.57	-24.71	0.00	0.00	0.00
7,200.00	90.00	88.61	6,377.00	-1,412.00	117.30	69.40	75.26	0.00	0.00	0.00
7,300.00	90.00	88.61	6,377.00	-1,412.00	119.72	169.37	175.22	0.00	0.00	0.00
7,400.00	90.00	88.61	6,377.00	-1,412.00	122.15	269.34	275.19	0.00	0.00	0.00
7,500.00	90.00	88.61	6,377.00	-1,412.00	124.57	369.32	375.15	0.00	0.00	0.00
7,600.00	90.00	88.61	6,377.00	-1,412.00	127.00	469.29	475.12	0.00	0.00	0.00
7,700.00	90.00	88.61	6,377.00	-1,412.00	129.43	569.26	575.08	0.00	0.00	0.00
7,800.00	90.00	88.61	6,377.00	-1,412.00	131.85	669.23	675.05	0.00	0.00	0.00
7,900.00	90.00	88.61	6,377.00	-1,412.00	134.28	769.20	775.01	0.00	0.00	0.00
8,000.00	90.00	88.61	6,377.00	-1,412.00	136.70	869.17	874.98	0.00	0.00	0.00
8,100.00	90.00	88.61	6,377.00	-1,412.00	139.13	969.14	974.94	0.00	0.00	0.00
8,200.00	90.00	88.61	6,377.00	-1,412.00	141.55	1,069.11	1,074.91	0.00	0.00	0.00
8,300.00	90.00	88.61	6,376.99	-1,411.99	143.98	1,169.08	1,174.87	0.00	0.00	0.00
8,400.00	90.00	88.61	6,376.99	-1,411.99	146.41	1,269.05	1,274.84	0.00	0.00	0.00
8,500.00	90.00	88.61	6,376.99	-1,411.99	148.83	1,369.02	1,374.80	0.00	0.00	0.00
8,600.00	90.00	88.61	6,376.99	-1,411.99	151.26	1,468.99	1,474.77	0.00	0.00	0.00
8,700.00	90.00	88.61	6,376.99	-1,411.99	153.68	1,568.96	1,574.73	0.00	0.00	0.00
8,800.00	90.00	88.61	6,376.99	-1,411.99	156.11	1,668.93	1,674.70	0.00	0.00	0.00
8,900.00	90.00	88.61	6,376.99	-1,411.99	158.53	1,768.90	1,774.66	0.00	0.00	0.00
9,000.00	90.00	88.61	6,376.99	-1,411.99	160.96	1,868.87	1,874.63	0.00	0.00	0.00
9,100.00	90.00	88.61	6,376.99	-1,411.99	163.38	1,968.84	1,974.59	0.00	0.00	0.00
9,200.00	90.00	88.61	6,376.99	-1,411.99	165.81	2,068.82	2,074.56	0.00	0.00	0.00
9,300.00	90.00	88.61	6,376.99	-1,411.99	168.24	2,168.79	2,174.52	0.00	0.00	0.00
9,400.00	90.00	88.61	6,376.99	-1,411.99	170.66	2,268.76	2,274.49	0.00	0.00	0.00
9,500.00	90.00	88.61	6,376.99	-1,411.99	173.09	2,368.73	2,374.45	0.00	0.00	0.00
9,600.00	90.00	88.61	6,376.99	-1,411.99	175.51	2,468.70	2,474.42	0.00	0.00	0.00
9,700.00	90.00	88.61	6,376.99	-1,411.99	177.94	2,568.67	2,574.38	0.00	0.00	0.00
9,800.00	90.00	88.61	6,376.99	-1,411.99	180.36	2,668.64	2,674.35	0.00	0.00	0.00
9,900.00	90.00	88.61	6,376.99	-1,411.99	182.79	2,768.61	2,774.31	0.00	0.00	0.00
10,000.00	90.00	88.61	6,376.99	-1,411.99	185.22	2,868.58	2,874.28	0.00	0.00	0.00
10,100.00	90.00	88.61	6,376.99	-1,411.99	187.64	2,968.55	2,974.24	0.00	0.00	0.00
10,200.00	90.00	88.61	6,376.99	-1,411.99	190.07	3,068.52	3,074.21	0.00	0.00	0.00
10,300.00	90.00	88.61	6,376.99	-1,411.99	192.49	3,168.49	3,174.17	0.00	0.00	0.00
10,400.00	90.00	88.61	6,376.99	-1,411.99	194.92	3,268.46	3,274.14	0.00	0.00	0.00
10,500.00	90.00	88.61	6,376.99	-1,411.99	197.34	3,368.43	3,374.11	0.00	0.00	0.00
10,600.00	90.00	88.61	6,376.99	-1,411.99	199.77	3,468.40	3,474.07	0.00	0.00	0.00
10,700.00	90.00	88.61	6,376.99	-1,411.99	202.19	3,568.37	3,574.04	0.00	0.00	0.00
10,800.00	90.00	88.61	6,376.99	-1,411.99	204.62	3,668.34	3,674.00	0.00	0.00	0.00
10,900.00	90.00	88.61	6,376.99	-1,411.99	207.05	3,768.32	3,773.97	0.00	0.00	0.00
11,000.00	90.00	88.61	6,376.99	-1,411.99	209.47	3,868.29	3,873.93	0.00	0.00	0.00
11,100.00	90.00	88.61	6,376.99	-1,411.99	211.90	3,968.26	3,973.90	0.00	0.00	0.00
11,200.00	90.00	88.61	6,376.99	-1,411.99	214.32	4,068.23	4,073.86	0.00	0.00	0.00
11,300.00	90.00	88.61	6,376.98	-1,411.98	216.75	4,168.20	4,173.83	0.00	0.00	0.00
11,400.00	90.00	88.61	6,376.98	-1,411.98	219.17	4,268.17	4,273.79	0.00	0.00	0.00
BHL: 2560ft FNL & 300ft FEL of Sec 32										
11,499.19	90.00	88.61	6,377.00	-1,412.00	221.54	4,367.33	4,372.95	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CANVASBACK 32-3HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4965.00usft
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4965.00usft
Site:	NW SW SEC. 32 T9N R60W 6th P.M.	North Reference:	True
Well:	CANVASBACK 32-3HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Formations					
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,582.29	1,563.00	Pierre Shale Top			
3,511.44	3,450.00	Richard Sandstone			
3,623.90	3,560.00	Parkman Sandstone			
4,326.25	4,247.00	Sussex Sandstone			
4,829.57	4,740.00	Shannon Sandstone			
5,653.51	5,562.00	TeePee Buttes			
6,329.94	6,198.00	Sharon Springs			
6,383.33	6,235.00	Niobrara Top			
6,431.19	6,265.00	Niobrara A Chalk			
6,477.56	6,291.00	Niobrara A Chalk Base			
6,564.39	6,331.00	Niobrara B1 Chalk Top			
6,606.21	6,346.00	Niobrara B1 Chalk Base			
6,795.55	6,377.00	Niobrara B2 Chalk Top (Target)			

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 2501ft FSL & 629ft FWL of Sec 32
300.00	300.00	0.00	0.00	START NUDGE (2°/100ft BUR)
900.00	895.62	6.42	-62.27	EOB TO 12° INC
4,686.83	4,599.71	87.17	-845.45	END OF TANGENT
5,286.83	5,195.33	93.59	-907.72	EOD TO VERTICAL
5,895.55	5,804.04	93.59	-907.72	KOP (10°/100ft BUR)
6,795.55	6,377.00	107.49	-334.93	HZ LP: 2561ft FNL & 301ft FWL of Sec 32
11,499.19	6,377.00	221.54	4,367.33	BHL: 2560ft FNL & 300ft FEL of Sec 32