

MALLARD EXPLORATION

WELD COUNTY

SEC 35-T8N-R60W

CINNAMON TEAL FED 35-1HN

OWB

Plan: PROPOSAL 1

Standard Planning Report

11 May, 2021



Project: WELD COUNTY
Site: SEC 35-T8N-R60W
Well: CINNAMON TEAL FED 35-1HN
Wellbore: OWB
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: 7.50°
Magnetic Field
Strength: 52145.2nT
Dip Angle: 66.93°
Date: 5/11/2021
Model: IGRF2020

WELL DETAILS: CINNAMON TEAL FED 35-1HN

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1469418.65	3399374.64	40.613059°N	104.061449°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	1268.02	23.36	243.64	1235.93	-104.27	-210.41	2.00	243.64	-28.23	
4	4800.64	23.36	243.64	4478.97	-726.24	-1465.49	0.00	0.00	-196.62	
5	5968.66	0.00	0.00	5614.90	-830.51	-1675.90	2.00	180.00	-224.85	
6	6068.66	0.00	0.00	5714.90	-830.51	-1675.90	0.00	0.00	-224.85	
7	6968.90	90.00	1.15	6288.00	-257.51	-1664.44	10.00	1.15	311.61	CT FED 1HN - LP
8	11672.44	90.00	1.15	6288.00	4445.09	-1570.30	0.00	0.00	4714.30	CT FED 1HN - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
151.00	151.00	Laramie Shale Base
535.00	536.69	Laramie Fox Hills Base
835.00	843.31	Pierre Shale Base
1546.00	1605.78	Upper Pierre Shale Base
3315.00	3532.74	Richard Sandstone
3429.00	3656.91	Parkman Sandstone
3769.00	4027.27	Lower Pierre Shale
6104.00	6496.37	Sharon Springs
6147.00	6558.14	Niobrara Top
6266.00	6809.57	Niobrara B Chalk Target Reservoir Top
6278.00	6861.67	Niobrara B Chalk Target Top
6288.00	6968.90	Niobrara B Chalk Target Landing Point

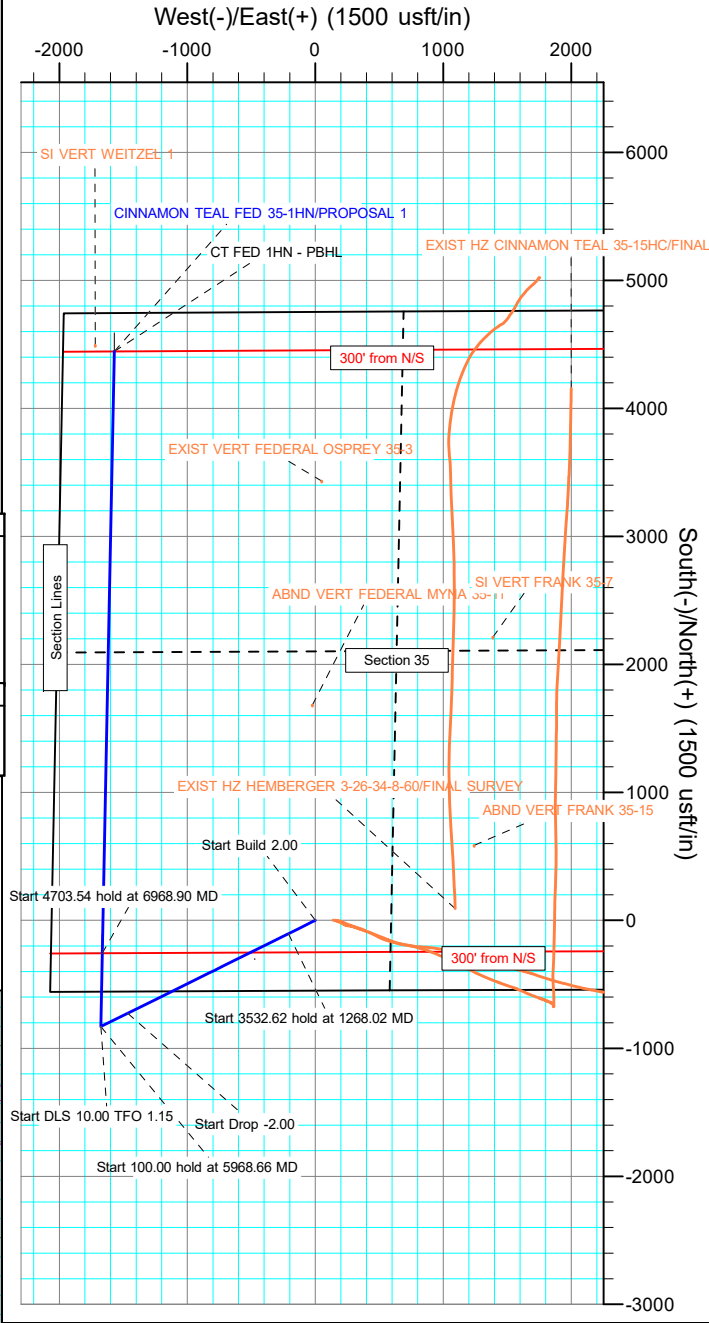
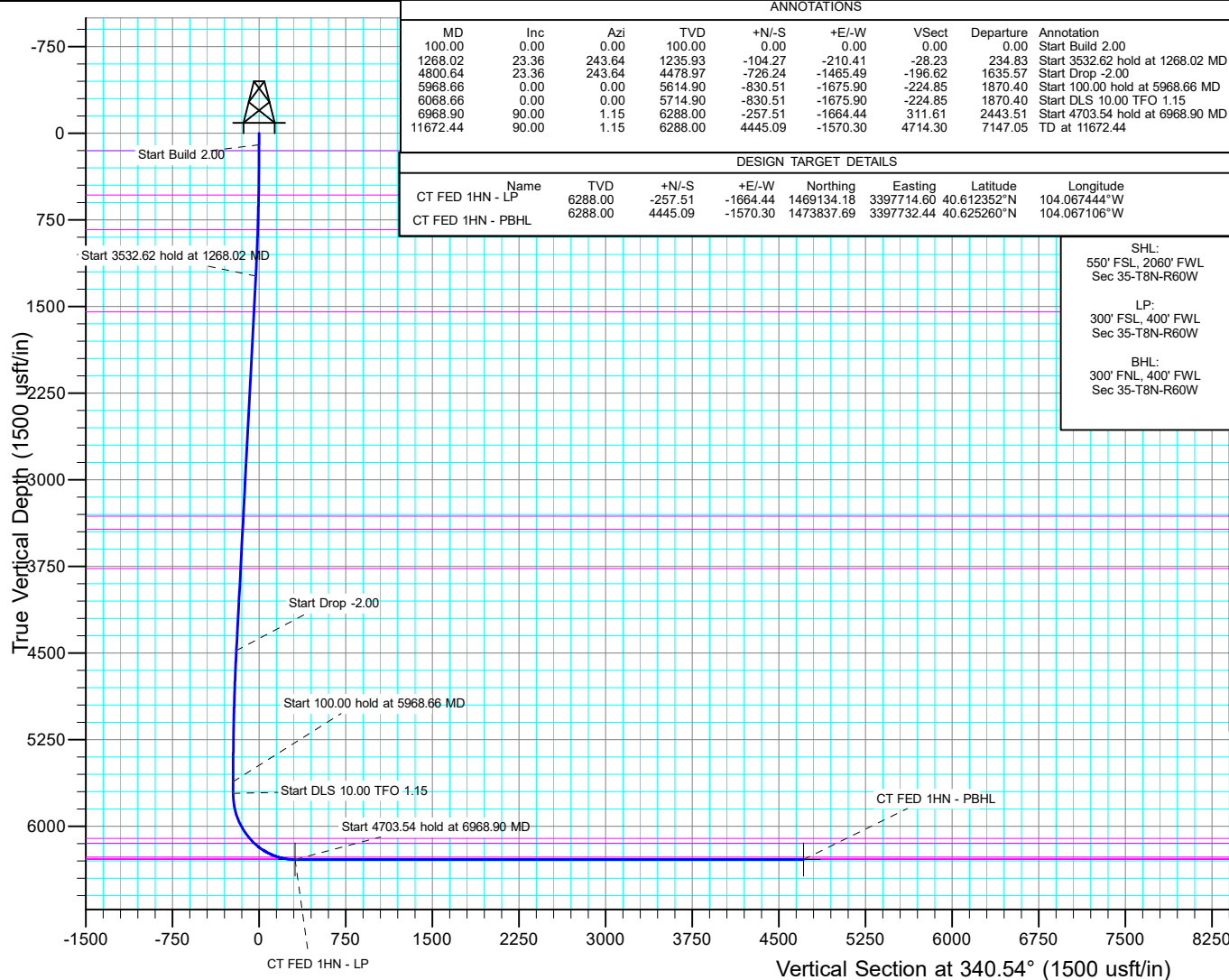
ANNOTATIONS

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
1268.02	23.36	243.64	1235.93	-104.27	-210.41	-28.23	234.83	Start 3532.62 hold at 1268.02 MD
4800.64	23.36	243.64	4478.97	-726.24	-1465.49	-196.62	1635.57	Start Drop -2.00
5968.66	0.00	0.00	5614.90	-830.51	-1675.90	-224.85	1870.40	Start 100.00 hold at 5968.66 MD
6068.66	0.00	0.00	5714.90	-830.51	-1675.90	-224.85	1870.40	Start DLS 10.00 TFO 1.15
6968.90	90.00	1.15	6288.00	-257.51	-1664.44	311.61	2443.51	Start 4703.54 hold at 6968.90 MD
11672.44	90.00	1.15	6288.00	4445.09	-1570.30	4714.30	7147.05	TD at 11672.44

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
CT FED 1HN - LP	6288.00	-257.51	-1664.44	1469134.18	3397714.60	40.612352°N	104.067444°W
CT FED 1HN - PBHL	6288.00	4445.09	-1570.30	1473837.69	3397732.44	40.625260°N	104.067106°W

SHL:
550' FSL, 2060' FWL
Sec 35-T8N-R60W
LP:
300' FSL, 400' FWL
Sec 35-T8N-R60W
BHL:
300' FNL, 400' FWL
Sec 35-T8N-R60W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL FED 35-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4951.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4951.00usft
Site:	SEC 35-T8N-R60W	North Reference:	True
Well:	CINNAMON TEAL FED 35-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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 35-T8N-R60W			
Site Position:		Northing:	1,468,880.97 usft	Latitude: 40.611557°N
From:	Lat/Long	Easting:	3,399,964.54 usft	Longitude: 104.059356°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	

Well	CINNAMON TEAL FED 35-1HN			
Well Position	+N/-S	0.00 usft	Northing:	1,469,418.66 usft
	+E/-W	0.00 usft	Easting:	3,399,374.64 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft
Grid Convergence:		0.93 °	Ground Level:	4,924.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	5/11/2021	7.50	66.93	52,145.15333395

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	340.54

Plan Survey Tool Program	Date	5/11/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	11,671.78 PROPOSAL 1 (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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,268.02	23.36	243.64	1,235.93	-104.27	-210.41	2.00	2.00	0.00	243.64	
4,800.64	23.36	243.64	4,478.97	-726.24	-1,465.49	0.00	0.00	0.00	0.00	
5,968.66	0.00	0.00	5,614.90	-830.51	-1,675.90	2.00	-2.00	0.00	180.00	
6,068.66	0.00	0.00	5,714.90	-830.51	-1,675.90	0.00	0.00	0.00	0.00	
6,968.90	90.00	1.15	6,288.00	-257.51	-1,664.44	10.00	10.00	0.13	1.15	CT FED 1HN - LP
11,672.44	90.00	1.15	6,288.00	4,445.09	-1,570.30	0.00	0.00	0.00	0.00	CT FED 1HN - PBHL

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Project:	WELD COUNTY	MD Reference:	KB 27' @ 4951.00usft
Site:	SEC 35-T8N-R60W	North Reference:	True
Well:	CINNAMON TEAL FED 35-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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									
151.00	1.02	243.64	151.00	-0.20	-0.41	-0.05	2.00	2.00	0.00
Laramie Shale Base									
200.00	2.00	243.64	199.98	-0.77	-1.56	-0.21	2.00	2.00	0.00
300.00	4.00	243.64	299.84	-3.10	-6.25	-0.84	2.00	2.00	0.00
400.00	6.00	243.64	399.45	-6.97	-14.06	-1.89	2.00	2.00	0.00
500.00	8.00	243.64	498.70	-12.38	-24.98	-3.35	2.00	2.00	0.00
536.69	8.73	243.64	535.00	-14.75	-29.76	-3.99	2.00	2.00	0.00
Laramie Fox Hills Base									
600.00	10.00	243.64	597.47	-19.33	-39.00	-5.23	2.00	2.00	0.00
700.00	12.00	243.64	695.62	-27.80	-56.09	-7.53	2.00	2.00	0.00
800.00	14.00	243.64	793.06	-37.79	-76.25	-10.23	2.00	2.00	0.00
843.31	14.87	243.64	835.00	-42.58	-85.92	-11.53	2.00	2.00	0.00
Pierre Shale Base									
900.00	16.00	243.64	889.64	-49.28	-99.44	-13.34	2.00	2.00	0.00
1,000.00	18.00	243.64	985.27	-62.26	-125.63	-16.86	2.00	2.00	0.00
1,100.00	20.00	243.64	1,079.82	-76.71	-154.80	-20.77	2.00	2.00	0.00
1,200.00	22.00	243.64	1,173.17	-92.63	-186.91	-25.08	2.00	2.00	0.00
1,268.02	23.36	243.64	1,235.93	-104.27	-210.41	-28.23	2.00	2.00	0.00
Start 3532.62 hold at 1268.02 MD									
1,300.00	23.36	243.64	1,265.29	-109.90	-221.77	-29.76	0.00	0.00	0.00
1,400.00	23.36	243.64	1,357.09	-127.51	-257.30	-34.52	0.00	0.00	0.00
1,500.00	23.36	243.64	1,448.89	-145.11	-292.83	-39.29	0.00	0.00	0.00
1,600.00	23.36	243.64	1,540.69	-162.72	-328.36	-44.06	0.00	0.00	0.00
1,605.78	23.36	243.64	1,546.00	-163.74	-330.41	-44.33	0.00	0.00	0.00
Upper Pierre Shale Base									
1,700.00	23.36	243.64	1,632.50	-180.33	-363.89	-48.82	0.00	0.00	0.00
1,800.00	23.36	243.64	1,724.30	-197.93	-399.41	-53.59	0.00	0.00	0.00
1,900.00	23.36	243.64	1,816.10	-215.54	-434.94	-58.36	0.00	0.00	0.00
2,000.00	23.36	243.64	1,907.91	-233.15	-470.47	-63.12	0.00	0.00	0.00
2,100.00	23.36	243.64	1,999.71	-250.75	-506.00	-67.89	0.00	0.00	0.00
2,200.00	23.36	243.64	2,091.51	-268.36	-541.53	-72.66	0.00	0.00	0.00
2,300.00	23.36	243.64	2,183.31	-285.97	-577.06	-77.42	0.00	0.00	0.00
2,400.00	23.36	243.64	2,275.12	-303.57	-612.58	-82.19	0.00	0.00	0.00
2,500.00	23.36	243.64	2,366.92	-321.18	-648.11	-86.96	0.00	0.00	0.00
2,600.00	23.36	243.64	2,458.72	-338.79	-683.64	-91.72	0.00	0.00	0.00
2,700.00	23.36	243.64	2,550.53	-356.39	-719.17	-96.49	0.00	0.00	0.00
2,800.00	23.36	243.64	2,642.33	-374.00	-754.70	-101.26	0.00	0.00	0.00
2,900.00	23.36	243.64	2,734.13	-391.60	-790.22	-106.02	0.00	0.00	0.00
3,000.00	23.36	243.64	2,825.93	-409.21	-825.75	-110.79	0.00	0.00	0.00
3,100.00	23.36	243.64	2,917.74	-426.82	-861.28	-115.56	0.00	0.00	0.00
3,200.00	23.36	243.64	3,009.54	-444.42	-896.81	-120.32	0.00	0.00	0.00
3,300.00	23.36	243.64	3,101.34	-462.03	-932.34	-125.09	0.00	0.00	0.00
3,400.00	23.36	243.64	3,193.15	-479.64	-967.87	-129.86	0.00	0.00	0.00
3,500.00	23.36	243.64	3,284.95	-497.24	-1,003.39	-134.62	0.00	0.00	0.00
3,532.74	23.36	243.64	3,315.00	-503.01	-1,015.02	-136.18	0.00	0.00	0.00
Richard Sandstone									
3,600.00	23.36	243.64	3,376.75	-514.85	-1,038.92	-139.39	0.00	0.00	0.00
3,656.91	23.36	243.64	3,429.00	-524.87	-1,059.14	-142.10	0.00	0.00	0.00
Parkman Sandstone									
3,700.00	23.36	243.64	3,468.55	-532.46	-1,074.45	-144.16	0.00	0.00	0.00

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4951.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4951.00usft
Site:	SEC 35-T8N-R60W	North Reference:	True
Well:	CINNAMON TEAL FED 35-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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)
3,800.00	23.36	243.64	3,560.36	-550.06	-1,109.98	-148.92	0.00	0.00	0.00
3,900.00	23.36	243.64	3,652.16	-567.67	-1,145.51	-153.69	0.00	0.00	0.00
4,000.00	23.36	243.64	3,743.96	-585.27	-1,181.04	-158.46	0.00	0.00	0.00
4,027.27	23.36	243.64	3,769.00	-590.08	-1,190.73	-159.76	0.00	0.00	0.00
Lower Pierre Shale									
4,100.00	23.36	243.64	3,835.77	-602.88	-1,216.56	-163.23	0.00	0.00	0.00
4,200.00	23.36	243.64	3,927.57	-620.49	-1,252.09	-167.99	0.00	0.00	0.00
4,300.00	23.36	243.64	4,019.37	-638.09	-1,287.62	-172.76	0.00	0.00	0.00
4,400.00	23.36	243.64	4,111.17	-655.70	-1,323.15	-177.53	0.00	0.00	0.00
4,500.00	23.36	243.64	4,202.98	-673.31	-1,358.68	-182.29	0.00	0.00	0.00
4,600.00	23.36	243.64	4,294.78	-690.91	-1,394.21	-187.06	0.00	0.00	0.00
4,700.00	23.36	243.64	4,386.58	-708.52	-1,429.73	-191.83	0.00	0.00	0.00
4,800.64	23.36	243.64	4,478.97	-726.24	-1,465.49	-196.62	0.00	0.00	0.00
Start Drop -2.00									
4,900.00	21.37	243.64	4,570.85	-743.03	-1,499.37	-201.17	2.00	-2.00	0.00
5,000.00	19.37	243.64	4,664.59	-758.48	-1,530.56	-205.35	2.00	-2.00	0.00
5,100.00	17.37	243.64	4,759.49	-772.48	-1,558.80	-209.14	2.00	-2.00	0.00
5,200.00	15.37	243.64	4,855.43	-785.00	-1,584.06	-212.53	2.00	-2.00	0.00
5,300.00	13.37	243.64	4,952.29	-796.02	-1,606.30	-215.52	2.00	-2.00	0.00
5,400.00	11.37	243.64	5,049.97	-805.53	-1,625.50	-218.09	2.00	-2.00	0.00
5,500.00	9.37	243.64	5,148.33	-813.53	-1,641.63	-220.26	2.00	-2.00	0.00
5,600.00	7.37	243.64	5,247.26	-819.99	-1,654.68	-222.01	2.00	-2.00	0.00
5,700.00	5.37	243.64	5,346.63	-824.92	-1,664.62	-223.34	2.00	-2.00	0.00
5,800.00	3.37	243.64	5,446.34	-828.31	-1,671.45	-224.26	2.00	-2.00	0.00
5,900.00	1.37	243.64	5,546.25	-830.14	-1,675.16	-224.76	2.00	-2.00	0.00
5,968.66	0.00	0.00	5,614.90	-830.51	-1,675.90	-224.85	2.00	-2.00	0.00
Start 100.00 hold at 5968.66 MD									
6,000.00	0.00	0.00	5,646.24	-830.51	-1,675.90	-224.85	0.00	0.00	0.00
6,068.66	0.00	0.00	5,714.90	-830.51	-1,675.90	-224.85	0.00	0.00	0.00
Start DLS 10.00 TFO 1.15									
6,100.00	3.13	1.15	5,746.22	-829.65	-1,675.88	-224.05	10.00	10.00	0.00
6,150.00	8.13	1.15	5,795.97	-824.75	-1,675.78	-219.46	10.00	10.00	0.00
6,200.00	13.13	1.15	5,845.09	-815.53	-1,675.60	-210.83	10.00	10.00	0.00
6,250.00	18.13	1.15	5,893.23	-802.06	-1,675.33	-198.22	10.00	10.00	0.00
6,300.00	23.13	1.15	5,940.01	-784.46	-1,674.98	-181.74	10.00	10.00	0.00
6,350.00	28.13	1.15	5,985.08	-762.84	-1,674.55	-161.50	10.00	10.00	0.00
6,400.00	33.13	1.15	6,028.09	-737.38	-1,674.04	-137.67	10.00	10.00	0.00
6,450.00	38.12	1.15	6,068.72	-708.28	-1,673.46	-110.41	10.00	10.00	0.00
6,496.37	42.76	1.15	6,104.00	-678.21	-1,672.85	-82.26	10.00	10.00	0.00
Sharon Springs									
6,500.00	43.12	1.15	6,106.65	-675.74	-1,672.80	-79.95	10.00	10.00	0.00
6,550.00	48.12	1.15	6,141.61	-640.02	-1,672.09	-46.51	10.00	10.00	0.00
6,558.14	48.94	1.15	6,147.00	-633.92	-1,671.97	-40.80	10.00	10.00	0.00
Niobrara Top									
6,600.00	53.12	1.15	6,173.32	-601.39	-1,671.32	-10.34	10.00	10.00	0.00
6,650.00	58.12	1.15	6,201.55	-560.15	-1,670.49	28.27	10.00	10.00	0.00
6,700.00	63.12	1.15	6,226.07	-516.60	-1,669.62	69.04	10.00	10.00	0.00
6,750.00	68.12	1.15	6,246.71	-471.08	-1,668.71	111.65	10.00	10.00	0.00
6,800.00	73.12	1.15	6,263.30	-423.94	-1,667.77	155.79	10.00	10.00	0.00
6,809.57	74.07	1.15	6,266.00	-414.76	-1,667.58	164.39	10.00	10.00	0.00
Niobrara B Chalk Target Reservoir Top									
6,850.00	78.11	1.15	6,275.71	-375.53	-1,666.80	201.11	10.00	10.00	0.00
6,861.67	79.28	1.15	6,278.00	-364.10	-1,666.57	211.82	10.00	10.00	0.00

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Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4951.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4951.00usft
Site:	SEC 35-T8N-R60W	North Reference:	True
Well:	CINNAMON TEAL FED 35-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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)	
Niobrara B Chalk Target Top										
6,900.00	83.11	1.15	6,283.87	-326.23	-1,665.81	247.27	10.00	10.00	0.00	
6,950.00	88.11	1.15	6,287.69	-276.40	-1,664.82	293.92	10.00	10.00	0.00	
6,968.90	90.00	1.15	6,288.00	-257.51	-1,664.44	311.61	10.00	10.00	0.00	
Start 4703.54 hold at 6968.90 MD - Niobrara B Chalk Target Landing Point										
7,000.00	90.00	1.15	6,288.00	-226.41	-1,663.82	340.72	0.00	0.00	0.00	
7,100.00	90.00	1.15	6,288.00	-126.43	-1,661.82	434.32	0.00	0.00	0.00	
7,200.00	90.00	1.15	6,287.99	-26.45	-1,659.82	527.93	0.00	0.00	0.00	
7,300.00	90.00	1.15	6,287.99	73.53	-1,657.82	621.53	0.00	0.00	0.00	
7,400.00	90.00	1.15	6,287.99	173.51	-1,655.82	715.14	0.00	0.00	0.00	
7,500.00	90.00	1.15	6,287.98	273.49	-1,653.82	808.74	0.00	0.00	0.00	
7,600.00	90.00	1.15	6,287.98	373.47	-1,651.82	902.35	0.00	0.00	0.00	
7,700.00	90.00	1.15	6,287.98	473.45	-1,649.82	995.95	0.00	0.00	0.00	
7,800.00	90.00	1.15	6,287.98	573.43	-1,647.82	1,089.56	0.00	0.00	0.00	
7,900.00	90.00	1.15	6,287.97	673.41	-1,645.82	1,183.16	0.00	0.00	0.00	
8,000.00	90.00	1.15	6,287.97	773.39	-1,643.82	1,276.76	0.00	0.00	0.00	
8,100.00	90.00	1.15	6,287.97	873.37	-1,641.82	1,370.37	0.00	0.00	0.00	
8,200.00	90.00	1.15	6,287.96	973.35	-1,639.82	1,463.97	0.00	0.00	0.00	
8,300.00	90.00	1.15	6,287.96	1,073.33	-1,637.82	1,557.58	0.00	0.00	0.00	
8,400.00	90.00	1.15	6,287.96	1,173.31	-1,635.82	1,651.18	0.00	0.00	0.00	
8,500.00	90.00	1.15	6,287.95	1,273.29	-1,633.82	1,744.79	0.00	0.00	0.00	
8,600.00	90.00	1.15	6,287.95	1,373.27	-1,631.82	1,838.39	0.00	0.00	0.00	
8,700.00	90.00	1.15	6,287.95	1,473.25	-1,629.82	1,932.00	0.00	0.00	0.00	
8,800.00	90.00	1.15	6,287.95	1,573.23	-1,627.82	2,025.60	0.00	0.00	0.00	
8,900.00	90.00	1.15	6,287.94	1,673.21	-1,625.82	2,119.21	0.00	0.00	0.00	
9,000.00	90.00	1.15	6,287.94	1,773.19	-1,623.82	2,212.81	0.00	0.00	0.00	
9,100.00	90.00	1.15	6,287.94	1,873.17	-1,621.82	2,306.41	0.00	0.00	0.00	
9,200.00	90.00	1.15	6,287.93	1,973.15	-1,619.82	2,400.02	0.00	0.00	0.00	
9,300.00	90.00	1.15	6,287.93	2,073.13	-1,617.82	2,493.62	0.00	0.00	0.00	
9,400.00	90.00	1.15	6,287.93	2,173.11	-1,615.83	2,587.23	0.00	0.00	0.00	
9,500.00	90.00	1.15	6,287.92	2,273.09	-1,613.83	2,680.83	0.00	0.00	0.00	
9,600.00	90.00	1.15	6,287.92	2,373.07	-1,611.83	2,774.44	0.00	0.00	0.00	
9,700.00	90.00	1.15	6,287.92	2,473.05	-1,609.83	2,868.04	0.00	0.00	0.00	
9,800.00	90.00	1.15	6,287.92	2,573.03	-1,607.83	2,961.65	0.00	0.00	0.00	
9,900.00	90.00	1.15	6,287.91	2,673.01	-1,605.83	3,055.25	0.00	0.00	0.00	
10,000.00	90.00	1.15	6,287.91	2,772.99	-1,603.83	3,148.85	0.00	0.00	0.00	
10,100.00	90.00	1.15	6,287.91	2,872.97	-1,601.83	3,242.46	0.00	0.00	0.00	
10,200.00	90.00	1.15	6,287.90	2,972.95	-1,599.83	3,336.06	0.00	0.00	0.00	
10,300.00	90.00	1.15	6,287.90	3,072.93	-1,597.83	3,429.67	0.00	0.00	0.00	
10,400.00	90.00	1.15	6,287.90	3,172.91	-1,595.83	3,523.27	0.00	0.00	0.00	
10,500.00	90.00	1.15	6,287.89	3,272.89	-1,593.83	3,616.88	0.00	0.00	0.00	
10,600.00	90.00	1.15	6,287.89	3,372.87	-1,591.83	3,710.48	0.00	0.00	0.00	
10,700.00	90.00	1.15	6,287.89	3,472.85	-1,589.83	3,804.09	0.00	0.00	0.00	
10,800.00	90.00	1.15	6,287.89	3,572.83	-1,587.83	3,897.69	0.00	0.00	0.00	
10,900.00	90.00	1.15	6,287.88	3,672.81	-1,585.83	3,991.29	0.00	0.00	0.00	
11,000.00	90.00	1.15	6,287.88	3,772.79	-1,583.83	4,084.90	0.00	0.00	0.00	
11,100.00	90.00	1.15	6,287.88	3,872.77	-1,581.83	4,178.50	0.00	0.00	0.00	
11,200.00	90.00	1.15	6,287.87	3,972.75	-1,579.83	4,272.11	0.00	0.00	0.00	
11,300.00	90.00	1.15	6,287.87	4,072.73	-1,577.83	4,365.71	0.00	0.00	0.00	
11,400.00	90.00	1.15	6,287.87	4,172.71	-1,575.83	4,459.32	0.00	0.00	0.00	
11,500.00	90.00	1.15	6,287.86	4,272.69	-1,573.83	4,552.92	0.00	0.00	0.00	
11,600.00	90.00	1.15	6,287.86	4,372.67	-1,571.83	4,646.53	0.00	0.00	0.00	
11,672.44	90.00	1.15	6,288.00	4,445.09	-1,570.30	4,714.30	0.00	0.00	0.00	

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL FED 35-1HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB 27' @ 4951.00usft
Project:	WELD COUNTY	MD Reference:	KB 27' @ 4951.00usft
Site:	SEC 35-T8N-R60W	North Reference:	True
Well:	CINNAMON TEAL FED 35-1HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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)
TD at 11672.44									

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
CT FED 1HN - PBHL - plan hits target center - Point	0.00	0.00	6,288.00	4,445.09	-1,570.30	1,473,837.69	3,397,732.44	40.625260°N	104.067106°W
CT FED 1HN - LP - plan hits target center - Point	0.00	0.00	6,288.00	-257.51	-1,664.44	1,469,134.18	3,397,714.60	40.612352°N	104.067444°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
151.00	151.00	Laramie Shale Base				
536.69	535.00	Laramie Fox Hills Base				
843.31	835.00	Pierre Shale Base				
1,605.78	1,546.00	Upper Pierre Shale Base				
3,532.74	3,315.00	Richard Sandstone				
3,656.91	3,429.00	Parkman Sandstone				
4,027.27	3,769.00	Lower Pierre Shale				
6,496.37	6,104.00	Sharon Springs				
6,558.14	6,147.00	Niobrara Top				
6,809.57	6,266.00	Niobrara B Chalk Target Reservoir Top				
6,861.67	6,278.00	Niobrara B Chalk Target Top				
6,968.90	6,288.00	Niobrara B Chalk Target Landing Point				

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	
1,268.02	1,235.93	-104.27	-210.41	Start 3532.62 hold at 1268.02 MD	
4,800.64	4,478.97	-726.24	-1,465.49	Start Drop -2.00	
5,968.66	5,614.90	-830.51	-1,675.90	Start 100.00 hold at 5968.66 MD	
6,068.66	5,714.90	-830.51	-1,675.90	Start DLS 10.00 TFO 1.15	
6,968.90	6,288.00	-257.51	-1,664.44	Start 4703.54 hold at 6968.90 MD	
11,672.44	6,288.00	4,445.09	-1,570.30	TD at 11672.44	