

MALLARD EXPLORATION

WELD COUNTY

SEC 35-T8N-R60W

CINNAMON TEAL FED 35-4HN

OWB

Plan: PROPOSAL 1

Standard Planning Report

11 May, 2021



Project: WELD COUNTY
Site: SEC 35-T8N-R60W
Well: CINNAMON TEAL FED 35-4HN
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 35-4HN

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1469419.99	3399434.60	40.613060°N	104.061233°W	

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	1239.98	10.80	165.39	1236.78	-49.10	2.00	165.39	-48.06	
4	5231.01	10.80	165.39	5157.14	-772.72	0.00	0.00	-756.32	
5	5770.99	0.00	0.00	5693.92	-821.82	2.00	180.00	-804.37	
6	5870.99	0.00	0.00	5793.92	-821.82	0.00	0.00	-804.37	
7	6771.22	90.00	1.15	6367.00	-248.82	10.00	1.15	-232.02	CT FED 35-4HN - LP
8	11476.58	90.00	1.15	6367.00	4455.61	0.00	-174.78	4467.07	CT FED 35-4HN - PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
151.00	151.00	Laramie Shale Base
535.00	535.00	Laramie Fox Hills Base
835.00	835.05	Pierre Shale Base
1546.00	1554.77	Upper Pierre Shale Base
3312.00	3352.61	Richard Sandstone
3426.00	3468.66	Parkman Sandstone
3766.00	3814.79	Lower Pierre Shale
6101.00	6195.07	Sharon Springs
6144.00	6247.60	Niobrara Top
6273.00	6438.28	Niobrara P2 Chalk Top
6334.00	6575.75	Niobrara C Chalk Target Reservoir Top
6356.00	6658.72	Niobrara C Chalk Target Top
6367.00	6771.22	Niobrara C Chalk Target Landing Point

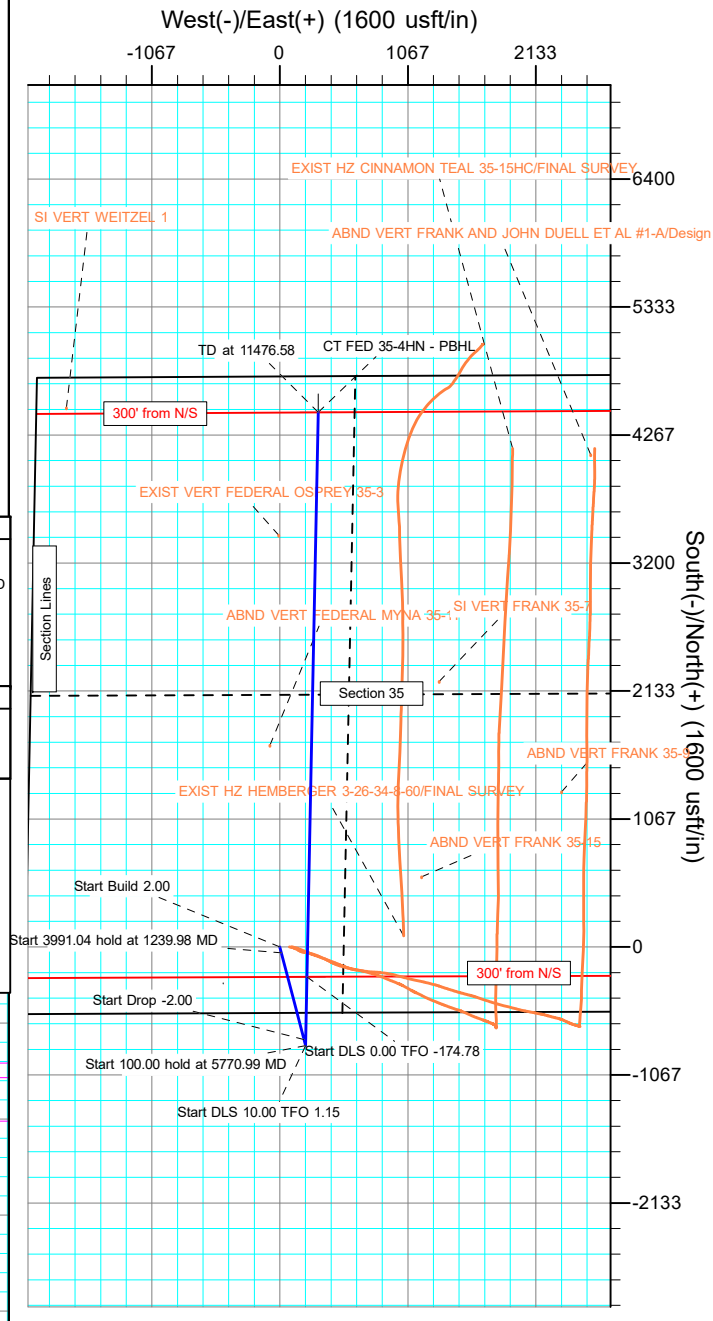
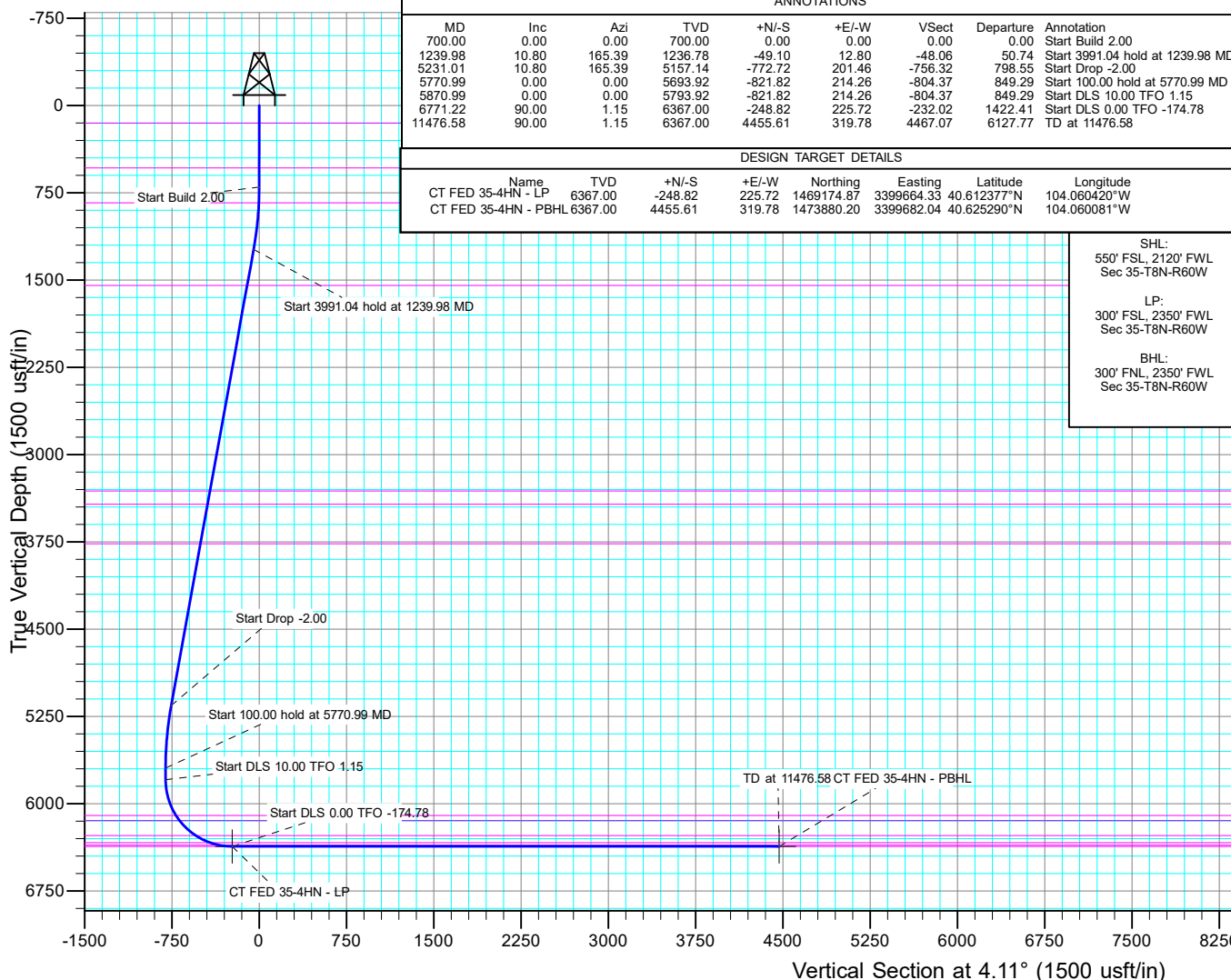
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VFace	Departure	Annotation
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	Start Build 2.00
1239.98	10.80	165.39	1236.78	-49.10	12.80	-48.06	50.74	Start 3991.04 hold at 1239.98 MD
5231.01	10.80	165.39	5157.14	-772.72	201.46	-756.32	798.55	Start Drop -2.00
5770.99	0.00	0.00	5693.92	-821.82	214.26	-804.37	849.29	Start 100.00 hold at 5770.99 MD
5870.99	0.00	0.00	5793.92	-821.82	214.26	-804.37	849.29	Start DLS 10.00 TFO 1.15
6771.22	90.00	1.15	6367.00	-248.82	225.72	-232.02	1422.41	Start DLS 0.00 TFO -174.78
11476.58	90.00	1.15	6367.00	4455.61	319.78	4467.07	6127.77	TD at 11476.58

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	North	East	Lat	Long
CT FED 35-4HN - LP	6367.00	-248.82	225.72	1469174.87	3399664.33	40.612377°N	104.060420°W
CT FED 35-4HN - PBHL	6367.00	4455.61	319.78	1473880.20	3399682.04	40.625290°N	104.060081°W

SHL:
550' FSL, 2120' FWL
Sec 35-T8N-R60W
LP:
300' FSL, 2350' FWL
Sec 35-T8N-R60W
BHL:
300' FNL, 2350' FWL
Sec 35-T8N-R60W



Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL FED 35-4HN
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 35-4HN	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 35-4HN				
Well Position	+N/-S	0.00 usft	Northing:	1,469,419.99 usft	Latitude:	40.613060°N
	+E/-W	0.00 usft	Easting:	3,399,434.59 usft	Longitude:	104.061233°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,924.00 usft
Grid Convergence:		0.93 °				

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	5/11/2021	7.50	66.93	52,145.17520733

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	4.11

Plan Survey Tool Program	Date	5/11/2021			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	11,476.55 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	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,239.98	10.80	165.39	1,236.78	-49.10	12.80	2.00	2.00	0.00	165.39	
5,231.01	10.80	165.39	5,157.14	-772.72	201.46	0.00	0.00	0.00	0.00	
5,770.99	0.00	0.00	5,693.92	-821.82	214.26	2.00	-2.00	0.00	180.00	
5,870.99	0.00	0.00	5,793.92	-821.82	214.26	0.00	0.00	0.00	0.00	
6,771.22	90.00	1.15	6,367.00	-248.82	225.72	10.00	10.00	0.13	1.15	CT FED 35-4HN - LP
11,476.58	90.00	1.15	6,367.00	4,455.61	319.78	0.00	0.00	0.00	-174.78	CT FED 35-4HN - PB

Planning Report

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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 35-4HN	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	
151.00	0.00	0.00	151.00	0.00	0.00	0.00	0.00	0.00	0.00	
Laramie Shale Base										
535.00	0.00	0.00	535.00	0.00	0.00	0.00	0.00	0.00	0.00	
Laramie Fox Hills Base										
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
Start Build 2.00										
800.00	2.00	165.39	799.98	-1.69	0.44	-1.65	2.00	2.00	0.00	
835.05	2.70	165.39	835.00	-3.08	0.80	-3.01	2.00	2.00	0.00	
Pierre Shale Base										
900.00	4.00	165.39	899.84	-6.75	1.76	-6.61	2.00	2.00	0.00	
1,000.00	6.00	165.39	999.45	-15.19	3.96	-14.86	2.00	2.00	0.00	
1,100.00	8.00	165.39	1,098.70	-26.98	7.03	-26.41	2.00	2.00	0.00	
1,200.00	10.00	165.39	1,197.47	-42.11	10.98	-41.22	2.00	2.00	0.00	
1,239.98	10.80	165.39	1,236.78	-49.10	12.80	-48.06	2.00	2.00	0.00	
Start 3991.04 hold at 1239.98 MD										
1,300.00	10.80	165.39	1,295.75	-59.98	15.64	-58.71	0.00	0.00	0.00	
1,400.00	10.80	165.39	1,393.97	-78.11	20.36	-76.45	0.00	0.00	0.00	
1,500.00	10.80	165.39	1,492.20	-96.24	25.09	-94.20	0.00	0.00	0.00	
1,554.77	10.80	165.39	1,546.00	-106.17	27.68	-103.92	0.00	0.00	0.00	
Upper Pierre Shale Base										
1,600.00	10.80	165.39	1,590.43	-114.37	29.82	-111.95	0.00	0.00	0.00	
1,700.00	10.80	165.39	1,688.66	-132.51	34.55	-129.69	0.00	0.00	0.00	
1,800.00	10.80	165.39	1,786.89	-150.64	39.27	-147.44	0.00	0.00	0.00	
1,900.00	10.80	165.39	1,885.12	-168.77	44.00	-165.19	0.00	0.00	0.00	
2,000.00	10.80	165.39	1,983.35	-186.90	48.73	-182.93	0.00	0.00	0.00	
2,100.00	10.80	165.39	2,081.58	-205.03	53.45	-200.68	0.00	0.00	0.00	
2,200.00	10.80	165.39	2,179.81	-223.16	58.18	-218.42	0.00	0.00	0.00	
2,300.00	10.80	165.39	2,278.03	-241.29	62.91	-236.17	0.00	0.00	0.00	
2,400.00	10.80	165.39	2,376.26	-259.42	67.64	-253.92	0.00	0.00	0.00	
2,500.00	10.80	165.39	2,474.49	-277.56	72.36	-271.66	0.00	0.00	0.00	
2,600.00	10.80	165.39	2,572.72	-295.69	77.09	-289.41	0.00	0.00	0.00	
2,700.00	10.80	165.39	2,670.95	-313.82	81.82	-307.16	0.00	0.00	0.00	
2,800.00	10.80	165.39	2,769.18	-331.95	86.54	-324.90	0.00	0.00	0.00	
2,900.00	10.80	165.39	2,867.41	-350.08	91.27	-342.65	0.00	0.00	0.00	
3,000.00	10.80	165.39	2,965.64	-368.21	96.00	-360.40	0.00	0.00	0.00	
3,100.00	10.80	165.39	3,063.87	-386.34	100.73	-378.14	0.00	0.00	0.00	
3,200.00	10.80	165.39	3,162.09	-404.47	105.45	-395.89	0.00	0.00	0.00	
3,300.00	10.80	165.39	3,260.32	-422.61	110.18	-413.63	0.00	0.00	0.00	
3,352.61	10.80	165.39	3,312.00	-432.14	112.67	-422.97	0.00	0.00	0.00	
Richard Sandstone										
3,400.00	10.80	165.39	3,358.55	-440.74	114.91	-431.38	0.00	0.00	0.00	
3,468.66	10.80	165.39	3,426.00	-453.19	118.15	-443.57	0.00	0.00	0.00	
Parkman Sandstone										
3,500.00	10.80	165.39	3,456.78	-458.87	119.63	-449.13	0.00	0.00	0.00	
3,600.00	10.80	165.39	3,555.01	-477.00	124.36	-466.87	0.00	0.00	0.00	
3,700.00	10.80	165.39	3,653.24	-495.13	129.09	-484.62	0.00	0.00	0.00	
3,800.00	10.80	165.39	3,751.47	-513.26	133.81	-502.37	0.00	0.00	0.00	
3,814.79	10.80	165.39	3,766.00	-515.94	134.51	-504.99	0.00	0.00	0.00	
Lower Pierre Shale										
3,900.00	10.80	165.39	3,849.70	-531.39	138.54	-520.11	0.00	0.00	0.00	
4,000.00	10.80	165.39	3,947.93	-549.52	143.27	-537.86	0.00	0.00	0.00	
4,100.00	10.80	165.39	4,046.15	-567.66	148.00	-555.60	0.00	0.00	0.00	

Planning Report

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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 35-4HN	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)
4,200.00	10.80	165.39	4,144.38	-585.79	152.72	-573.35	0.00	0.00	0.00
4,300.00	10.80	165.39	4,242.61	-603.92	157.45	-591.10	0.00	0.00	0.00
4,400.00	10.80	165.39	4,340.84	-622.05	162.18	-608.84	0.00	0.00	0.00
4,500.00	10.80	165.39	4,439.07	-640.18	166.90	-626.59	0.00	0.00	0.00
4,600.00	10.80	165.39	4,537.30	-658.31	171.63	-644.34	0.00	0.00	0.00
4,700.00	10.80	165.39	4,635.53	-676.44	176.36	-662.08	0.00	0.00	0.00
4,800.00	10.80	165.39	4,733.76	-694.57	181.09	-679.83	0.00	0.00	0.00
4,900.00	10.80	165.39	4,831.99	-712.71	185.81	-697.58	0.00	0.00	0.00
5,000.00	10.80	165.39	4,930.21	-730.84	190.54	-715.32	0.00	0.00	0.00
5,100.00	10.80	165.39	5,028.44	-748.97	195.27	-733.07	0.00	0.00	0.00
5,200.00	10.80	165.39	5,126.67	-767.10	199.99	-750.81	0.00	0.00	0.00
5,231.01	10.80	165.39	5,157.14	-772.72	201.46	-756.32	0.00	0.00	0.00
Start Drop -2.00									
5,300.00	9.42	165.39	5,225.05	-784.44	204.51	-767.79	2.00	-2.00	0.00
5,400.00	7.42	165.39	5,323.97	-798.61	208.21	-781.65	2.00	-2.00	0.00
5,500.00	5.42	165.39	5,423.33	-809.43	211.03	-792.24	2.00	-2.00	0.00
5,600.00	3.42	165.39	5,523.03	-816.88	212.97	-799.54	2.00	-2.00	0.00
5,700.00	1.42	165.39	5,622.94	-820.97	214.04	-803.54	2.00	-2.00	0.00
5,770.99	0.00	0.00	5,693.92	-821.82	214.26	-804.37	2.00	-2.00	-232.97
Start 100.00 hold at 5770.99 MD									
5,800.00	0.00	0.00	5,722.93	-821.82	214.26	-804.37	0.00	0.00	0.00
5,870.99	0.00	0.00	5,793.92	-821.82	214.26	-804.37	0.00	0.00	0.00
Start DLS 10.00 TFO 1.15									
5,900.00	2.90	1.15	5,822.92	-821.09	214.27	-803.64	10.00	10.00	0.00
5,950.00	7.90	1.15	5,872.68	-816.38	214.37	-798.94	10.00	10.00	0.00
6,000.00	12.90	1.15	5,921.84	-807.36	214.55	-789.93	10.00	10.00	0.00
6,050.00	17.90	1.15	5,970.03	-794.09	214.81	-776.68	10.00	10.00	0.00
6,100.00	22.90	1.15	6,016.88	-776.68	215.16	-759.28	10.00	10.00	0.00
6,150.00	27.90	1.15	6,062.04	-755.24	215.59	-737.87	10.00	10.00	0.00
6,195.07	32.40	1.15	6,101.00	-732.62	216.04	-715.27	10.00	10.00	0.00
Sharon Springs									
6,200.00	32.89	1.15	6,105.15	-729.96	216.10	-712.62	10.00	10.00	0.00
6,247.60	37.65	1.15	6,144.00	-702.49	216.65	-685.18	10.00	10.00	0.00
Niobrara Top									
6,250.00	37.89	1.15	6,145.90	-701.02	216.68	-683.71	10.00	10.00	0.00
6,300.00	42.89	1.15	6,183.97	-668.63	217.32	-651.36	10.00	10.00	0.00
6,350.00	47.89	1.15	6,219.07	-633.05	218.04	-615.82	10.00	10.00	0.00
6,400.00	52.89	1.15	6,250.94	-594.55	218.81	-577.36	10.00	10.00	0.00
6,438.28	56.72	1.15	6,273.00	-563.28	219.43	-546.13	10.00	10.00	0.00
Niobrara B2 Chalk Top									
6,450.00	57.89	1.15	6,279.33	-553.42	219.63	-536.28	10.00	10.00	0.00
6,500.00	62.89	1.15	6,304.03	-509.98	220.50	-492.88	10.00	10.00	0.00
6,550.00	67.89	1.15	6,324.84	-464.54	221.41	-447.50	10.00	10.00	0.00
6,575.75	70.46	1.15	6,334.00	-440.48	221.89	-423.46	10.00	10.00	0.00
Niobrara C Chalk Target Reservoir Top									
6,600.00	72.89	1.15	6,341.62	-417.47	222.35	-400.48	10.00	10.00	0.00
6,650.00	77.88	1.15	6,354.24	-369.11	223.31	-352.18	10.00	10.00	0.00
6,658.72	78.76	1.15	6,356.00	-360.58	223.48	-343.65	10.00	10.00	0.00
Niobrara C Chalk Target Top									
6,700.00	82.88	1.15	6,362.59	-319.84	224.30	-302.96	10.00	10.00	0.00
6,750.00	87.88	1.15	6,366.61	-270.03	225.30	-253.21	10.00	10.00	0.00
6,771.22	90.00	1.15	6,367.00	-248.82	225.72	-232.02	10.00	10.00	0.00
Start DLS 0.00 TFO -174.78 - Niobrara C Chalk Target Landing Point									

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL FED 35-4HN
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 35-4HN	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)	
6,800.00	90.00	1.15	6,367.00	-220.04	226.30	-203.28	0.00	0.00	0.00	
6,900.00	90.00	1.15	6,366.99	-120.06	228.29	-103.41	0.00	0.00	0.00	
7,000.00	90.00	1.15	6,366.99	-20.08	230.29	-3.54	0.00	0.00	0.00	
7,100.00	90.00	1.15	6,366.98	79.90	232.29	96.32	0.00	0.00	0.00	
7,200.00	90.00	1.15	6,366.98	179.88	234.29	196.19	0.00	0.00	0.00	
7,300.00	90.00	1.15	6,366.97	279.86	236.29	296.06	0.00	0.00	0.00	
7,400.00	90.00	1.15	6,366.97	379.84	238.29	395.92	0.00	0.00	0.00	
7,500.00	90.00	1.15	6,366.96	479.82	240.29	495.79	0.00	0.00	0.00	
7,600.00	90.00	1.15	6,366.96	579.80	242.29	595.66	0.00	0.00	0.00	
7,700.00	90.00	1.15	6,366.95	679.78	244.29	695.52	0.00	0.00	0.00	
7,800.00	90.00	1.15	6,366.95	779.76	246.29	795.39	0.00	0.00	0.00	
7,900.00	90.00	1.15	6,366.95	879.74	248.29	895.26	0.00	0.00	0.00	
8,000.00	90.00	1.15	6,366.94	979.72	250.29	995.12	0.00	0.00	0.00	
8,100.00	90.00	1.15	6,366.94	1,079.70	252.29	1,094.99	0.00	0.00	0.00	
8,200.00	90.00	1.15	6,366.94	1,179.68	254.29	1,194.86	0.00	0.00	0.00	
8,300.00	90.00	1.15	6,366.94	1,279.66	256.29	1,294.72	0.00	0.00	0.00	
8,400.00	90.00	1.15	6,366.93	1,379.64	258.28	1,394.59	0.00	0.00	0.00	
8,500.00	90.00	1.15	6,366.93	1,479.62	260.28	1,494.46	0.00	0.00	0.00	
8,600.00	90.00	1.15	6,366.93	1,579.60	262.28	1,594.32	0.00	0.00	0.00	
8,700.00	90.00	1.15	6,366.93	1,679.58	264.28	1,694.19	0.00	0.00	0.00	
8,800.00	90.00	1.15	6,366.93	1,779.56	266.28	1,794.05	0.00	0.00	0.00	
8,900.00	90.00	1.15	6,366.93	1,879.54	268.28	1,893.92	0.00	0.00	0.00	
9,000.00	90.00	1.15	6,366.93	1,979.52	270.28	1,993.79	0.00	0.00	0.00	
9,100.00	90.00	1.15	6,366.93	2,079.50	272.28	2,093.65	0.00	0.00	0.00	
9,200.00	90.00	1.15	6,366.93	2,179.48	274.28	2,193.52	0.00	0.00	0.00	
9,300.00	90.00	1.15	6,366.93	2,279.46	276.28	2,293.39	0.00	0.00	0.00	
9,400.00	90.00	1.15	6,366.93	2,379.44	278.27	2,393.25	0.00	0.00	0.00	
9,500.00	90.00	1.15	6,366.93	2,479.42	280.27	2,493.12	0.00	0.00	0.00	
9,600.00	90.00	1.15	6,366.93	2,579.40	282.27	2,592.99	0.00	0.00	0.00	
9,700.00	90.00	1.15	6,366.93	2,679.38	284.27	2,692.85	0.00	0.00	0.00	
9,800.00	90.00	1.15	6,366.93	2,779.36	286.27	2,792.72	0.00	0.00	0.00	
9,900.00	90.00	1.15	6,366.94	2,879.34	288.27	2,892.59	0.00	0.00	0.00	
10,000.00	90.00	1.15	6,366.94	2,979.32	290.27	2,992.45	0.00	0.00	0.00	
10,100.00	90.00	1.15	6,366.94	3,079.30	292.27	3,092.32	0.00	0.00	0.00	
10,200.00	90.00	1.15	6,366.94	3,179.28	294.26	3,192.19	0.00	0.00	0.00	
10,300.00	90.00	1.15	6,366.95	3,279.26	296.26	3,292.05	0.00	0.00	0.00	
10,400.00	90.00	1.15	6,366.95	3,379.24	298.26	3,391.92	0.00	0.00	0.00	
10,500.00	90.00	1.15	6,366.95	3,479.22	300.26	3,491.79	0.00	0.00	0.00	
10,600.00	90.00	1.15	6,366.96	3,579.20	302.26	3,591.65	0.00	0.00	0.00	
10,700.00	90.00	1.15	6,366.96	3,679.18	304.26	3,691.52	0.00	0.00	0.00	
10,800.00	90.00	1.15	6,366.96	3,779.16	306.26	3,791.39	0.00	0.00	0.00	
10,900.00	90.00	1.15	6,366.97	3,879.14	308.25	3,891.25	0.00	0.00	0.00	
11,000.00	90.00	1.15	6,366.97	3,979.12	310.25	3,991.12	0.00	0.00	0.00	
11,100.00	90.00	1.15	6,366.98	4,079.10	312.25	4,090.99	0.00	0.00	0.00	
11,200.00	90.00	1.15	6,366.98	4,179.08	314.25	4,190.85	0.00	0.00	0.00	
11,300.00	90.00	1.15	6,366.99	4,279.06	316.25	4,290.72	0.00	0.00	0.00	
11,400.00	90.00	1.15	6,367.00	4,379.04	318.25	4,390.59	0.00	0.00	0.00	
11,476.58	90.00	1.15	6,367.00	4,455.61	319.78	4,467.07	0.00	0.00	0.00	
TD at 11476.58										

Planning Report

Database:	EDM 5000.16 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL FED 35-4HN
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 35-4HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
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
CT FED 35-4HN - PBHL - plan hits target center - Point	0.00	0.00	6,367.00	4,455.61	319.78	1,473,880.20	3,399,682.04	40.625290°N	104.060081°W
CT FED 35-4HN - LP - plan hits target center - Point	0.00	0.00	6,367.00	-248.82	225.72	1,469,174.87	3,399,664.32	40.612377°N	104.060420°W

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
151.00	151.00	Laramie Shale Base			
535.00	535.00	Laramie Fox Hills Base			
835.05	835.00	Pierre Shale Base			
1,554.77	1,546.00	Upper Pierre Shale Base			
3,352.61	3,312.00	Richard Sandstone			
3,468.66	3,426.00	Parkman Sandstone			
3,814.79	3,766.00	Lower Pierre Shale			
6,195.07	6,101.00	Sharon Springs			
6,247.60	6,144.00	Niobrara Top			
6,438.28	6,273.00	Niobrara B2 Chalk Top			
6,575.75	6,334.00	Niobrara C Chalk Target Reservoir Top			
6,658.72	6,356.00	Niobrara C Chalk Target Top			
6,771.22	6,367.00	Niobrara C Chalk Target Landing Point			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.00	700.00	0.00	0.00	Start Build 2.00
1,239.98	1,236.78	-49.10	12.80	Start 3991.04 hold at 1239.98 MD
5,231.01	5,157.14	-772.72	201.46	Start Drop -2.00
5,770.99	5,693.92	-821.82	214.26	Start 100.00 hold at 5770.99 MD
5,870.99	5,793.92	-821.82	214.26	Start DLS 10.00 TFO 1.15
6,771.22	6,367.00	-248.82	225.72	Start DLS 0.00 TFO -174.78
11,476.58	6,367.00	4,455.61	319.78	TD at 11476.58