

MALLARD EXPLORATION

WELD COUNTY, COLORADO (NAD 83)

SE SW SEC. 35 T8N R60W 6th P.M.

CINNAMON TEAL 35-13HN

ORIGINAL WELLBORE

18 September, 2017

Plan: PROPOSAL #1





Project: WELD COUNTY, COLORADO (NAD 83)
Site: SE SW SEC. 35 T8N R60W 6th P.M.
Well: CINNAMON TEAL 35-13HN
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 550ft FSL & 2160ft FWL of Sec 35	
400.0	400.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2"/100ft BUR)	
1613.7	1653.3	25.07	106.37	-76.1	258.9	36.7	269.8	EOB TO 25.07° INC	
4378.4	4705.4	25.07	106.37	-440.5	1499.5	212.8	1562.9	END OF TANGENT	
5592.1	5958.8	0.00	0.00	-516.6	1758.4	249.6	1832.7	EOD TO VERTICAL	
5692.1	6058.8	0.00	0.00	-516.6	1758.4	249.6	1832.7	KOP (10"/100ft BUR)	
6265.0	6958.7	90.00	1.38	56.2	1772.2	777.7	2405.7	HZ LP: 600ft FSL & 1345ft FEL of Sec 35	
6265.0	11066.9	90.00	1.38	4163.2	1871.0	4564.3	6513.9	BHL: 600ft FNL & 1345ft FEL of Sec 35	

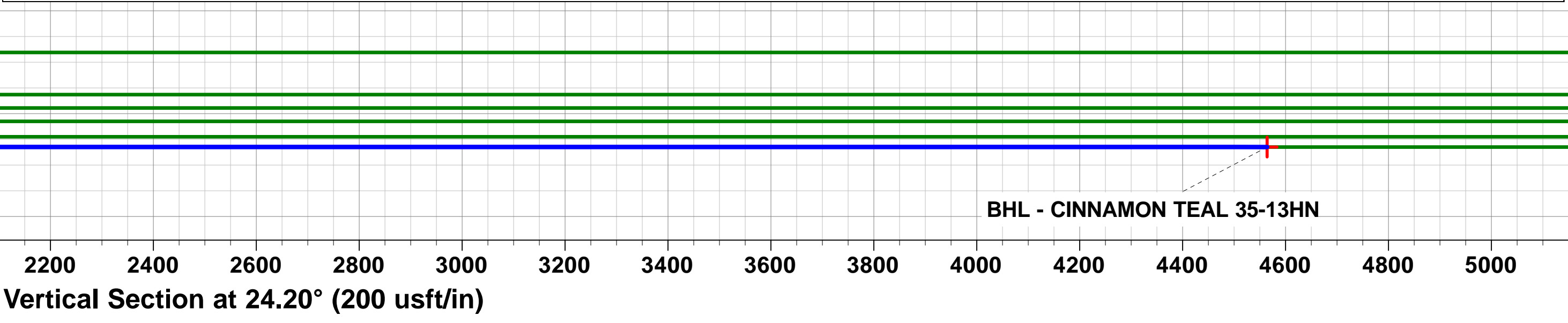
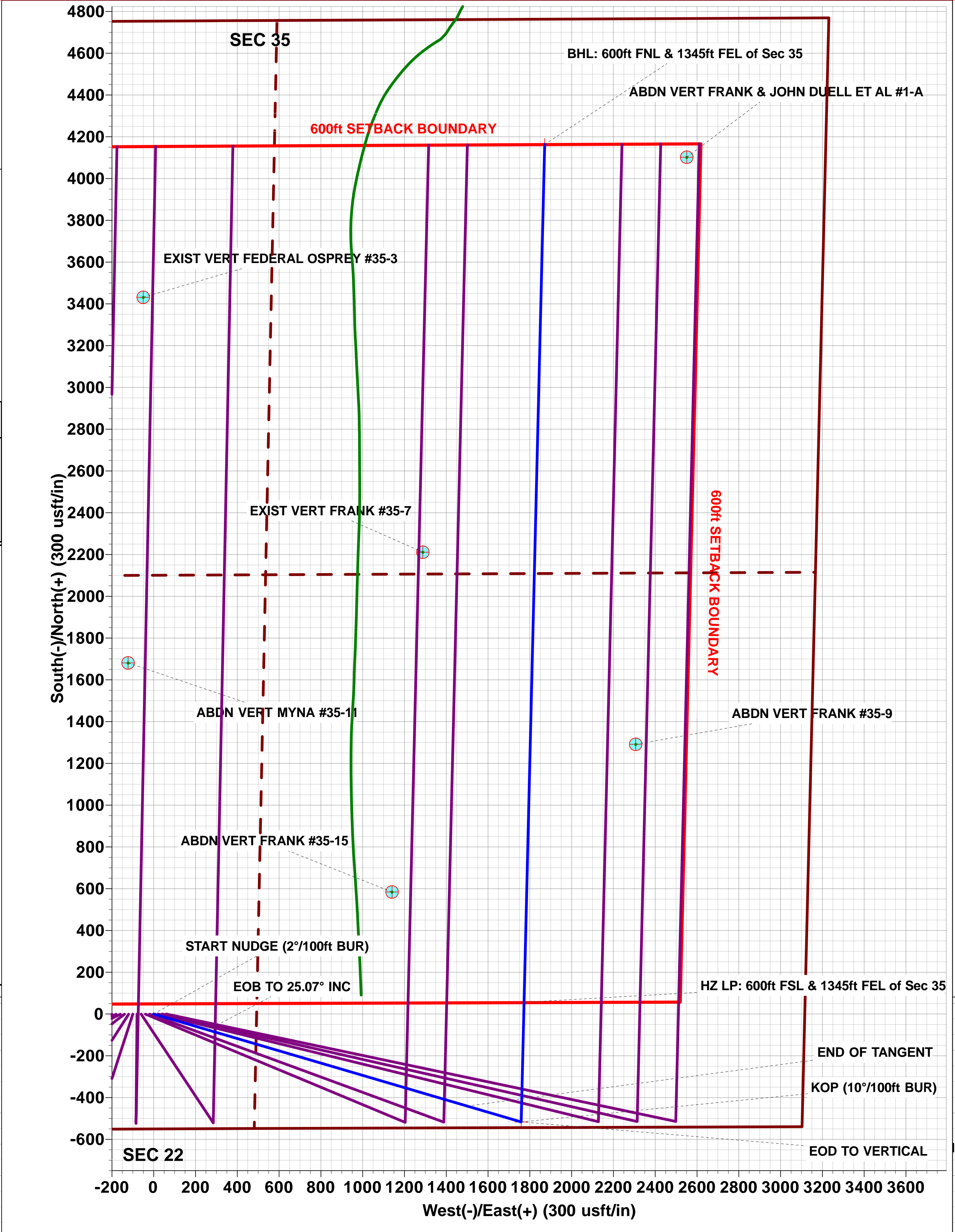
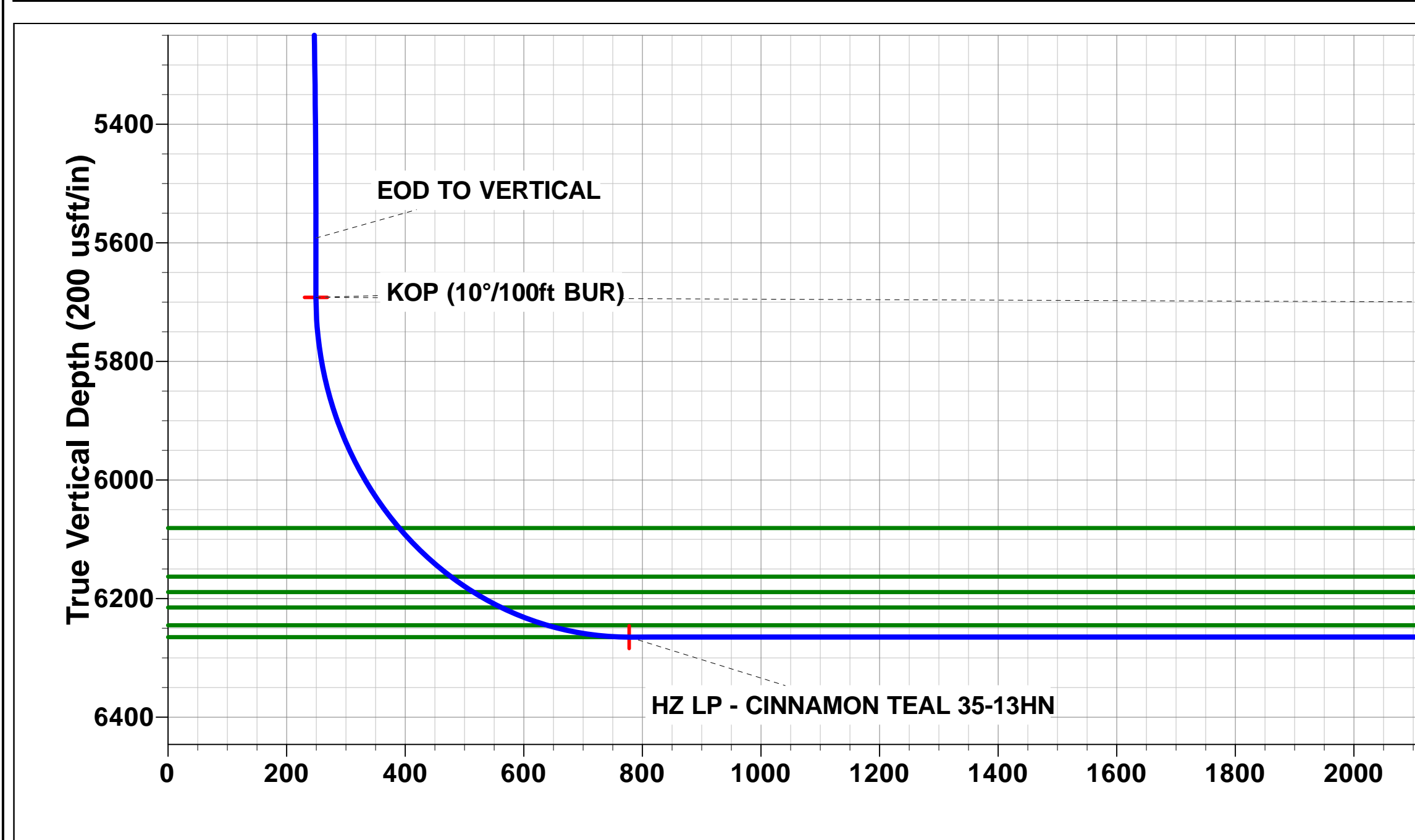
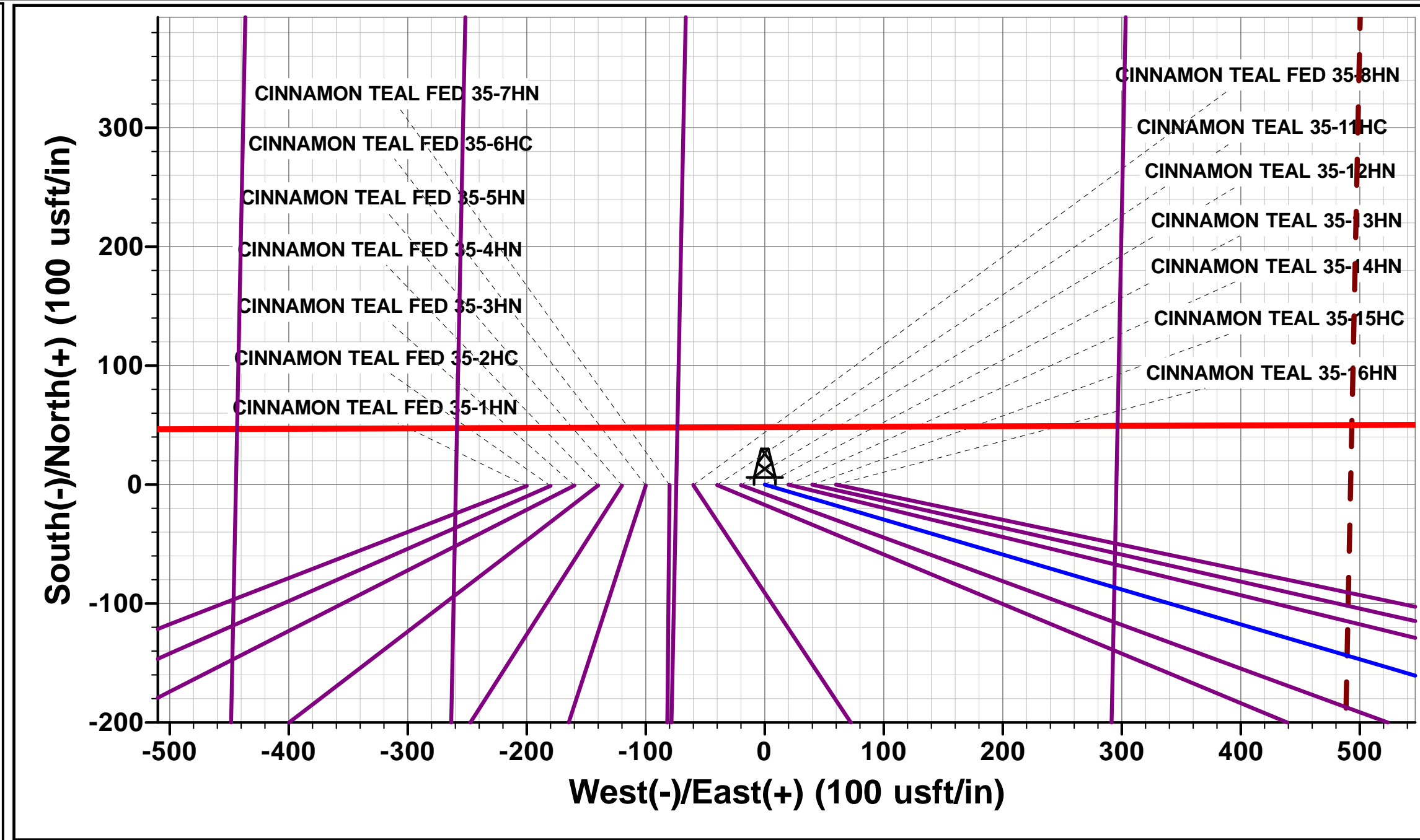
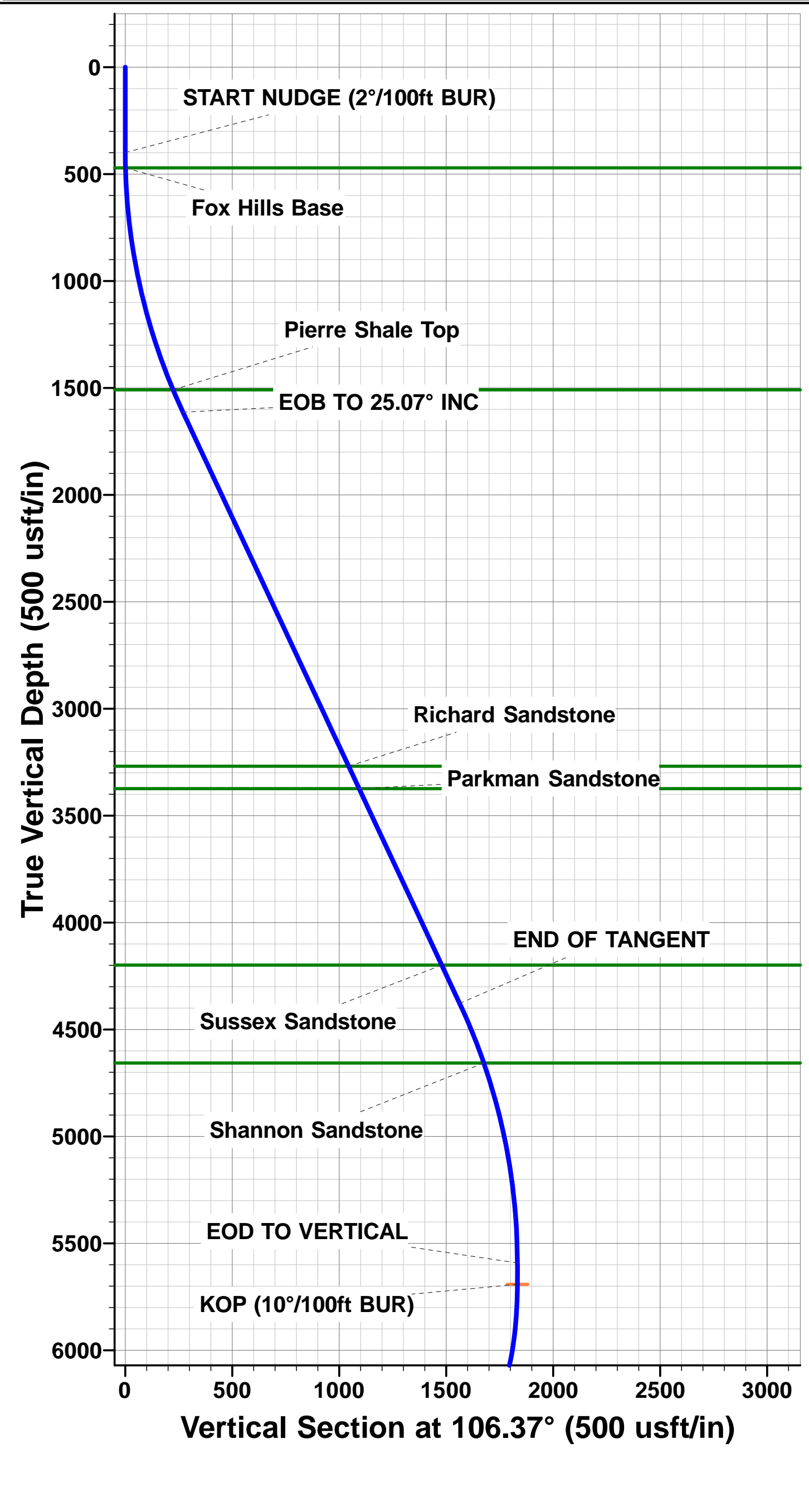
PROPOSED LOCAL COORDINATES:

SHL: 550ft FSL & 2160ft FWL Sec 35

HZ LP: 600ft FSL & 1345ft FEL Sec 35

BHL: 600ft FNL & 1345ft FEL of Sec 35

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CINNAMON TEAL 35-13HN	5692.1	-516.6	1758.4	40.611643	-104.054756
HZ LP - CINNAMON TEAL 35-13HN	6265.0	56.2	1772.2	40.613215	-104.054706
BHL - CINNAMON TEAL 35-13HN	6265.0	4163.2	1871.0	40.624488	-104.054349



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL 35-13HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4940.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4940.0usft (Original Well Elev)
Site:	SE SW SEC. 35 T8N R60W 6th P.M.	North Reference:	True
Well:	CINNAMON TEAL 35-13HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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	SE SW SEC. 35 T8N R60W 6th P.M.		
Site Position:		Northing:	1,469,416.68 usft
From:	Lat/Long	Easting:	3,399,274.71 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.613058
		Longitude:	-104.061809
		Grid Convergence:	0.93 °

Well	CINNAMON TEAL 35-13HN		
Well Position	+N/-S	1.1 usft	Northing:
	+E/-W	199.9 usft	Easting:
Position Uncertainty		0.0 usft	Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	18/09/2017	7.82	67.12	52,544

Design	PROPOSAL #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,265.0	0.0	0.0	24.20

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
0.0	0.00	0.00	0.0	-4,940.0	0.0	0.0	0.00	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	-4,540.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,653.3	25.07	106.37	1,613.7	-3,326.3	-76.1	258.9	2.00	2.00	0.00	106.37	
4,705.4	25.07	106.37	4,378.4	-561.6	-440.5	1,499.5	0.00	0.00	0.00	0.00	
5,958.8	0.00	0.00	5,592.1	652.1	-516.6	1,758.4	2.00	-2.00	0.00	180.00	
6,058.8	0.00	0.00	5,692.1	752.1	-516.6	1,758.4	0.00	0.00	0.00	0.00	KOP - CINNAMON
6,958.7	90.00	1.38	6,265.0	1,325.0	56.2	1,772.2	10.00	10.00	0.15	1.38	HZ LP - CINNAMOI
11,066.9	90.00	1.38	6,265.0	1,325.0	4,163.2	1,871.0	0.00	0.00	0.00	-177.61	BHL - CINNAMON

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4940.0usft (Original Well Elev)
Site:	SE SW SEC. 35 T8N R60W 6th P.M.	North Reference:	True
Well:	CINNAMON TEAL 35-13HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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: 550ft FSL & 2160ft FWL of Sec 35										
0.0	0.00	0.00	0.0	4,940.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,840.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,740.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,640.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
400.0	0.00	0.00	400.0	4,540.00	0.0	0.0	0.0	0.00	0.00	0.00
Fox Hills Base										
471.0	1.42	106.37	471.0	4,469.00	-0.2	0.8	0.1	2.00	2.00	0.00
500.0	2.00	106.37	500.0	4,440.02	-0.5	1.7	0.2	2.00	2.00	0.00
600.0	4.00	106.37	599.8	4,340.16	-2.0	6.7	1.0	2.00	2.00	0.00
700.0	6.00	106.37	699.5	4,240.55	-4.4	15.1	2.1	2.00	2.00	0.00
800.0	8.00	106.37	798.7	4,141.30	-7.9	26.7	3.8	2.00	2.00	0.00
900.0	10.00	106.37	897.5	4,042.53	-12.3	41.8	5.9	2.00	2.00	0.00
1,000.0	12.00	106.37	995.6	3,944.38	-17.6	60.1	8.5	2.00	2.00	0.00
1,100.0	14.00	106.37	1,093.1	3,846.94	-24.0	81.6	11.6	2.00	2.00	0.00
1,200.0	16.00	106.37	1,189.6	3,750.36	-31.3	106.5	15.1	2.00	2.00	0.00
1,300.0	18.00	106.37	1,285.3	3,654.73	-39.5	134.5	19.1	2.00	2.00	0.00
1,400.0	20.00	106.37	1,379.8	3,560.18	-48.7	165.8	23.5	2.00	2.00	0.00
1,500.0	22.00	106.37	1,473.2	3,466.83	-58.8	200.1	28.4	2.00	2.00	0.00
Pierre Shale Top										
1,538.8	22.78	106.37	1,509.0	3,431.00	-63.0	214.3	30.4	2.00	2.00	0.00
1,600.0	24.00	106.37	1,565.2	3,374.79	-69.8	237.6	33.7	2.00	2.00	0.00
EOB TO 25.07° INC										
1,653.3	25.07	106.37	1,613.7	3,326.28	-76.1	258.9	36.7	2.00	2.00	0.00
1,700.0	25.07	106.37	1,656.0	3,284.00	-81.6	277.8	39.4	0.00	0.00	0.00
1,800.0	25.07	106.37	1,746.6	3,193.41	-93.6	318.5	45.2	0.00	0.00	0.00
1,900.0	25.07	106.37	1,837.2	3,102.83	-105.5	359.1	51.0	0.00	0.00	0.00
2,000.0	25.07	106.37	1,927.7	3,012.25	-117.5	399.8	56.7	0.00	0.00	0.00
2,100.0	25.07	106.37	2,018.3	2,921.67	-129.4	440.4	62.5	0.00	0.00	0.00
2,200.0	25.07	106.37	2,108.9	2,831.09	-141.3	481.1	68.3	0.00	0.00	0.00
2,300.0	25.07	106.37	2,199.5	2,740.51	-153.3	521.7	74.1	0.00	0.00	0.00
2,400.0	25.07	106.37	2,290.1	2,649.92	-165.2	562.4	79.8	0.00	0.00	0.00
2,500.0	25.07	106.37	2,380.7	2,559.34	-177.2	603.0	85.6	0.00	0.00	0.00
2,600.0	25.07	106.37	2,471.2	2,468.76	-189.1	643.7	91.4	0.00	0.00	0.00
2,700.0	25.07	106.37	2,561.8	2,378.18	-201.1	684.3	97.1	0.00	0.00	0.00
2,800.0	25.07	106.37	2,652.4	2,287.60	-213.0	725.0	102.9	0.00	0.00	0.00
2,900.0	25.07	106.37	2,743.0	2,197.02	-224.9	765.6	108.7	0.00	0.00	0.00
3,000.0	25.07	106.37	2,833.6	2,106.43	-236.9	806.3	114.4	0.00	0.00	0.00
3,100.0	25.07	106.37	2,924.1	2,015.85	-248.8	846.9	120.2	0.00	0.00	0.00
3,200.0	25.07	106.37	3,014.7	1,925.27	-260.8	887.6	126.0	0.00	0.00	0.00
3,300.0	25.07	106.37	3,105.3	1,834.69	-272.7	928.2	131.8	0.00	0.00	0.00
3,400.0	25.07	106.37	3,195.9	1,744.11	-284.6	968.9	137.5	0.00	0.00	0.00
Richard Sandstone										
3,480.7	25.07	106.37	3,269.0	1,671.00	-294.3	1,001.7	142.2	0.00	0.00	0.00
3,500.0	25.07	106.37	3,286.5	1,653.53	-296.6	1,009.5	143.3	0.00	0.00	0.00
Parkman Sandstone										
3,596.6	25.07	106.37	3,374.0	1,566.00	-308.1	1,048.8	148.9	0.00	0.00	0.00
3,600.0	25.07	106.37	3,377.1	1,562.94	-308.5	1,050.2	149.1	0.00	0.00	0.00
3,700.0	25.07	106.37	3,467.6	1,472.36	-320.5	1,090.8	154.8	0.00	0.00	0.00
3,800.0	25.07	106.37	3,558.2	1,381.78	-332.4	1,131.5	160.6	0.00	0.00	0.00
3,900.0	25.07	106.37	3,648.8	1,291.20	-344.4	1,172.1	166.4	0.00	0.00	0.00
4,000.0	25.07	106.37	3,739.4	1,200.62	-356.3	1,212.8	172.1	0.00	0.00	0.00

Planning Report



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Site:	SE SW SEC. 35 T8N R60W 6th P.M.	North Reference:	True
Well:	CINNAMON TEAL 35-13HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
4,100.0	25.07	106.37	3,830.0	1,110.04	-368.2	1,253.4	177.9	0.00	0.00	0.00
4,200.0	25.07	106.37	3,920.5	1,019.45	-380.2	1,294.1	183.7	0.00	0.00	0.00
4,300.0	25.07	106.37	4,011.1	928.87	-392.1	1,334.7	189.5	0.00	0.00	0.00
4,400.0	25.07	106.37	4,101.7	838.29	-404.1	1,375.4	195.2	0.00	0.00	0.00
4,500.0	25.07	106.37	4,192.3	747.71	-416.0	1,416.0	201.0	0.00	0.00	0.00
Sussex Sandstone										
4,507.4	25.07	106.37	4,199.0	741.00	-416.9	1,419.0	201.4	0.00	0.00	0.00
4,600.0	25.07	106.37	4,282.9	657.13	-428.0	1,456.7	206.8	0.00	0.00	0.00
4,700.0	25.07	106.37	4,373.5	566.55	-439.9	1,497.3	212.5	0.00	0.00	0.00
END OF TANGENT										
4,705.4	25.07	106.37	4,378.4	561.62	-440.5	1,499.5	212.8	0.00	0.00	0.00
4,800.0	23.18	106.37	4,464.7	475.32	-451.4	1,536.6	218.1	2.00	-2.00	0.00
4,900.0	21.18	106.37	4,557.3	382.72	-462.1	1,572.8	223.3	2.00	-2.00	0.00
5,000.0	19.18	106.37	4,651.1	288.86	-471.8	1,605.9	227.9	2.00	-2.00	0.00
Shannon Sandstone										
5,006.2	19.05	106.37	4,657.0	283.00	-472.4	1,607.9	228.2	2.00	-2.00	0.00
5,100.0	17.18	106.37	4,746.1	193.85	-480.6	1,635.8	232.2	2.00	-2.00	0.00
5,200.0	15.18	106.37	4,842.2	97.82	-488.4	1,662.6	236.0	2.00	-2.00	0.00
5,300.0	13.18	106.37	4,939.1	0.87	-495.3	1,686.1	239.3	2.00	-2.00	0.00
5,400.0	11.18	106.37	5,036.9	-96.88	-501.3	1,706.3	242.2	2.00	-2.00	0.00
5,500.0	9.18	106.37	5,135.3	-195.30	-506.3	1,723.2	244.6	2.00	-2.00	0.00
5,600.0	7.18	106.37	5,234.3	-294.28	-510.3	1,736.9	246.5	2.00	-2.00	0.00
5,700.0	5.18	106.37	5,333.7	-393.69	-513.3	1,747.2	248.0	2.00	-2.00	0.00
5,800.0	3.18	106.37	5,433.4	-493.42	-515.4	1,754.2	249.0	2.00	-2.00	0.00
5,900.0	1.18	106.37	5,533.3	-593.35	-516.4	1,757.8	249.5	2.00	-2.00	0.00
EOD TO VERTICAL										
5,958.8	0.00	0.00	5,592.1	-652.10	-516.6	1,758.4	249.6	2.00	-2.00	0.00
6,000.0	0.00	0.00	5,633.3	-693.34	-516.6	1,758.4	249.6	0.00	0.00	0.00
KOP (10°/100ft BUR)										
6,058.8	0.00	0.00	5,692.1	-752.10	-516.6	1,758.4	249.6	0.00	0.00	0.00
6,100.0	4.12	1.38	5,733.3	-793.31	-515.1	1,758.4	251.0	10.00	10.00	0.00
6,200.0	14.13	1.38	5,831.9	-891.92	-499.3	1,758.8	265.6	10.00	10.00	0.00
6,300.0	24.13	1.38	5,926.3	-986.28	-466.6	1,759.6	295.7	10.00	10.00	0.00
6,400.0	34.13	1.38	6,013.5	-1,073.52	-418.0	1,760.8	340.5	10.00	10.00	0.00
Sharon Springs										
6,486.2	42.75	1.38	6,081.0	-1,141.00	-364.4	1,762.1	389.9	10.00	10.00	0.00
6,500.0	44.13	1.38	6,091.0	-1,150.99	-355.0	1,762.3	398.6	10.00	10.00	0.00
6,600.0	54.13	1.38	6,156.3	-1,216.35	-279.5	1,764.1	468.2	10.00	10.00	0.00
Niobrara A Chalk										
6,611.5	55.28	1.38	6,163.0	-1,223.00	-270.1	1,764.3	476.9	10.00	10.00	0.00
Niobrara A Chalk Base										
6,660.2	60.15	1.38	6,189.0	-1,249.00	-228.9	1,765.3	514.8	10.00	10.00	0.00
6,700.0	64.13	1.38	6,207.6	-1,267.59	-193.8	1,766.2	547.2	10.00	10.00	0.00
Niobrara B1 Chalk Top										
6,717.5	65.88	1.38	6,215.0	-1,275.00	-177.9	1,766.6	561.9	10.00	10.00	0.00
6,800.0	74.13	1.38	6,243.2	-1,303.17	-100.5	1,768.4	633.3	10.00	10.00	0.00
Niobrara B1 Chalk Base										
6,806.8	74.82	1.38	6,245.0	-1,305.00	-93.9	1,768.6	639.3	10.00	10.00	0.00
6,900.0	84.13	1.38	6,262.0	-1,322.00	-2.4	1,770.8	723.7	10.00	10.00	0.00
HZ LP: 600ft FSL & 1345ft FEL of Sec 35 - Niobrara B2 Chalk Top (Target)										
6,958.7	90.00	1.38	6,265.0	-1,325.00	56.2	1,772.2	777.7	10.00	10.00	0.00
7,000.0	90.00	1.38	6,265.0	-1,325.00	97.5	1,773.2	815.7	0.00	0.00	0.00
7,100.0	90.00	1.38	6,265.0	-1,324.99	197.4	1,775.6	907.9	0.00	0.00	0.00

Planning Report



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Site:	SE SW SEC. 35 T8N R60W 6th P.M.	North Reference:	True
Well:	CINNAMON TEAL 35-13HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

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)
7,200.0	90.00	1.38	6,265.0	-1,324.98	297.4	1,778.0	1,000.1	0.00	0.00	0.00
7,300.0	90.00	1.38	6,265.0	-1,324.98	397.4	1,780.4	1,092.3	0.00	0.00	0.00
7,400.0	90.00	1.38	6,265.0	-1,324.97	497.3	1,782.8	1,184.4	0.00	0.00	0.00
7,500.0	90.00	1.38	6,265.0	-1,324.96	597.3	1,785.2	1,276.6	0.00	0.00	0.00
7,600.0	90.00	1.38	6,265.0	-1,324.96	697.3	1,787.6	1,368.8	0.00	0.00	0.00
7,700.0	90.00	1.38	6,265.0	-1,324.95	797.3	1,790.0	1,460.9	0.00	0.00	0.00
7,800.0	90.00	1.38	6,264.9	-1,324.95	897.2	1,792.4	1,553.1	0.00	0.00	0.00
7,900.0	90.00	1.38	6,264.9	-1,324.94	997.2	1,794.8	1,645.3	0.00	0.00	0.00
8,000.0	90.00	1.38	6,264.9	-1,324.94	1,097.2	1,797.2	1,737.5	0.00	0.00	0.00
8,100.0	90.00	1.38	6,264.9	-1,324.94	1,197.1	1,799.6	1,829.6	0.00	0.00	0.00
8,200.0	90.00	1.38	6,264.9	-1,324.93	1,297.1	1,802.0	1,921.8	0.00	0.00	0.00
8,300.0	90.00	1.38	6,264.9	-1,324.93	1,397.1	1,804.4	2,014.0	0.00	0.00	0.00
8,400.0	90.00	1.38	6,264.9	-1,324.93	1,497.1	1,806.8	2,106.2	0.00	0.00	0.00
8,500.0	90.00	1.38	6,264.9	-1,324.93	1,597.0	1,809.3	2,198.3	0.00	0.00	0.00
8,600.0	90.00	1.38	6,264.9	-1,324.92	1,697.0	1,811.7	2,290.5	0.00	0.00	0.00
8,700.0	90.00	1.38	6,264.9	-1,324.92	1,797.0	1,814.1	2,382.7	0.00	0.00	0.00
8,800.0	90.00	1.38	6,264.9	-1,324.92	1,896.9	1,816.5	2,474.8	0.00	0.00	0.00
8,900.0	90.00	1.38	6,264.9	-1,324.92	1,996.9	1,818.9	2,567.0	0.00	0.00	0.00
9,000.0	90.00	1.38	6,264.9	-1,324.92	2,096.9	1,821.3	2,659.2	0.00	0.00	0.00
9,100.0	90.00	1.38	6,264.9	-1,324.92	2,196.8	1,823.7	2,751.4	0.00	0.00	0.00
9,200.0	90.00	1.38	6,264.9	-1,324.92	2,296.8	1,826.1	2,843.5	0.00	0.00	0.00
9,300.0	90.00	1.38	6,264.9	-1,324.92	2,396.8	1,828.5	2,935.7	0.00	0.00	0.00
9,400.0	90.00	1.38	6,264.9	-1,324.92	2,496.8	1,830.9	3,027.9	0.00	0.00	0.00
9,500.0	90.00	1.38	6,264.9	-1,324.93	2,596.7	1,833.3	3,120.0	0.00	0.00	0.00
9,600.0	90.00	1.38	6,264.9	-1,324.93	2,696.7	1,835.7	3,212.2	0.00	0.00	0.00
9,700.0	90.00	1.38	6,264.9	-1,324.93	2,796.7	1,838.1	3,304.4	0.00	0.00	0.00
9,800.0	90.00	1.38	6,264.9	-1,324.93	2,896.6	1,840.5	3,396.6	0.00	0.00	0.00
9,900.0	90.00	1.38	6,264.9	-1,324.94	2,996.6	1,842.9	3,488.7	0.00	0.00	0.00
10,000.0	90.00	1.38	6,264.9	-1,324.94	3,096.6	1,845.3	3,580.9	0.00	0.00	0.00
10,100.0	90.00	1.38	6,264.9	-1,324.94	3,196.6	1,847.7	3,673.1	0.00	0.00	0.00
10,200.0	90.00	1.38	6,264.9	-1,324.95	3,296.5	1,850.1	3,765.2	0.00	0.00	0.00
10,300.0	90.00	1.38	6,265.0	-1,324.95	3,396.5	1,852.5	3,857.4	0.00	0.00	0.00
10,400.0	90.00	1.38	6,265.0	-1,324.96	3,496.5	1,854.9	3,949.6	0.00	0.00	0.00
10,500.0	90.00	1.38	6,265.0	-1,324.96	3,596.4	1,857.4	4,041.8	0.00	0.00	0.00
10,600.0	90.00	1.38	6,265.0	-1,324.97	3,696.4	1,859.8	4,133.9	0.00	0.00	0.00
10,700.0	90.00	1.38	6,265.0	-1,324.97	3,796.4	1,862.2	4,226.1	0.00	0.00	0.00
10,800.0	90.00	1.38	6,265.0	-1,324.98	3,896.4	1,864.6	4,318.3	0.00	0.00	0.00
10,900.0	90.00	1.38	6,265.0	-1,324.99	3,996.3	1,867.0	4,410.4	0.00	0.00	0.00
11,000.0	90.00	1.38	6,265.0	-1,324.99	4,096.3	1,869.4	4,502.6	0.00	0.00	0.00
BHL: 600ft FNL & 1345ft FEL of Sec 35										
11,066.9	90.00	1.38	6,265.0	-1,325.00	4,163.2	1,871.0	4,564.3	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CINNAMON TEAL 35-13HN
Company:	MALLARD EXPLORATION	TVD Reference:	KB-EST @ 4940.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4940.0usft (Original Well Elev)
Site:	SE SW SEC. 35 T8N R60W 6th P.M.	North Reference:	True
Well:	CINNAMON TEAL 35-13HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #1		

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
471.0	471.0	Fox Hills Base				
1,538.8	1,509.0	Pierre Shale Top				
3,480.7	3,269.0	Richard Sandstone				
3,596.6	3,374.0	Parkman Sandstone				
4,507.4	4,199.0	Sussex Sandstone				
5,006.2	4,657.0	Shannon Sandstone				
6,486.2	6,081.0	Sharon Springs				
6,611.5	6,163.0	Niobrara A Chalk				
6,660.2	6,189.0	Niobrara A Chalk Base				
6,717.5	6,215.0	Niobrara B1 Chalk Top				
6,806.8	6,245.0	Niobrara B1 Chalk Base				
6,958.7	6,265.0	Niobrara B2 Chalk Top (Target)				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 550ft FSL & 2160ft FWL of Sec 35
400.0	400.0	0.0	0.0	START NUDGE (2°/100ft BUR)
1,653.3	1,613.7	-76.1	258.9	EOB TO 25.07° INC
4,705.4	4,378.4	-440.5	1,499.5	END OF TANGENT
5,958.8	5,592.1	-516.6	1,758.4	EOD TO VERTICAL
6,058.8	5,692.1	-516.6	1,758.4	KOP (10°/100ft BUR)
6,958.7	6,265.0	56.2	1,772.2	HZ LP: 600ft FSL & 1345ft FEL of Sec 35
11,066.9	6,265.0	4,163.2	1,871.0	BHL: 600ft FNL & 1345ft FEL of Sec 35