



# **BISON OIL & GAS II, LLC**

**WELD COUNTY, COLORADO (NAD 83)**

**NW SW SEC. 16 T8N R59W 6th P.M.**

**BIG MOUNTAIN VIPER FED 8-59 16-17-18-5**

**ORIGINAL WELLBORE**

**03 March, 2020**

**Plan: PROPOSAL #2**



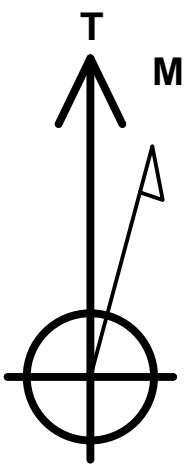
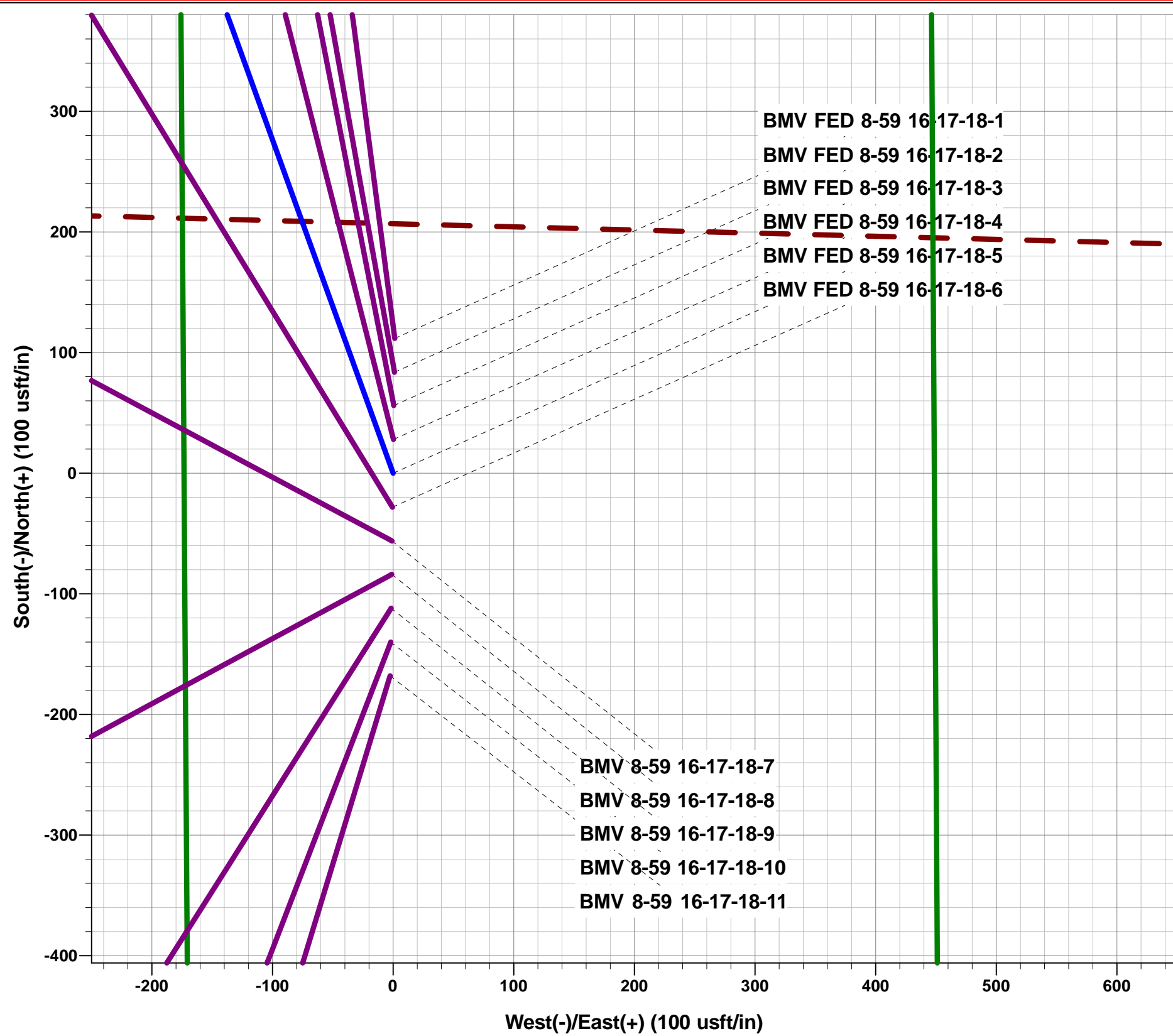
Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NW SW SEC. 16 T8N R59W 6th P.M.  
Well: BIG MOUNTAIN VIPER FED 8-59 16-17-18-5  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Dep	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 2439ft FSL & 635ft FWL of Sec 16
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1176.84	13.54	340.12	1170.56	74.84	-27.06	35.77	79.58	EOB TO 13.54° INC
4891.76	13.54	340.12	4782.28	892.58	-322.73	426.62	949.13	END OF TANGENT
5568.60	0.00	0.00	5452.84	967.42	-349.79	462.39	1028.72	EOD TO VERTICAL
5668.60	0.00	0.00	5552.84	967.42	-349.79	462.39	1028.72	KOP (10°/100ft BUR)
6252.05	58.34	270.39	6040.56	969.28	-622.05	732.94	1301.03	ENTER COC 28082
6568.60	90.00	270.39	6125.80	971.32	-922.73	1031.73	1601.67	BPI: 2014ft FNL & 300ft FEL of Sec 17
11566.03	90.00	270.39	6125.81	1005.16	-5920.05	5997.58	6599.10	EXIT COC 28082
14124.00	90.00	270.38	6125.80	1022.32	-8477.96	8539.37	9157.07	EPI: 2014ft FNL & 2557ft FEL of Sec 18
14181.99	90.00	270.38	6125.80	1022.70	-8535.95	8596.99	9215.06	BHL: 2014ft FNL & 2615ft FEL of Sec 18

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - BMV FED 8-59 16-17-18-5	5552.84	967.42	-349.79	40.664154	-103.990082
BPI - BMV FED 8-59 16-17-18-5	6125.80	971.32	-922.73	40.664165	-103.992147
EPI - BMV FED 8-59 16-17-18-5	6125.80	1022.32	-8477.96	40.664301	-104.019380
BHL - BMV FED 8-59 16-17-18-5	6125.80	1022.70	-8535.95	40.664302	-104.019589



Azimuths to True North  
Magnetic North: 7.59°

Magnetic Field  
Strength: 52303.4nT  
Dip Angle: 67.03°  
Date: 2020-03-03  
Model: IGRF2020

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
410.80	410.80	PIERRE SHALE (BFH)
3340.80	3409.09	PARKMAN
3845.80	3928.52	SUSSEX
5095.80	5210.63	SHANNON
5870.80	6005.67	SHARON SPRINGS SHALE
5990.80	6167.12	NIOBRARA FORMATION
5995.80	6174.94	NIOBRARA A CHALK
6095.80	6382.37	NIOBRARA B CHALK
6125.80	6568.60	NIOBRARA B LP

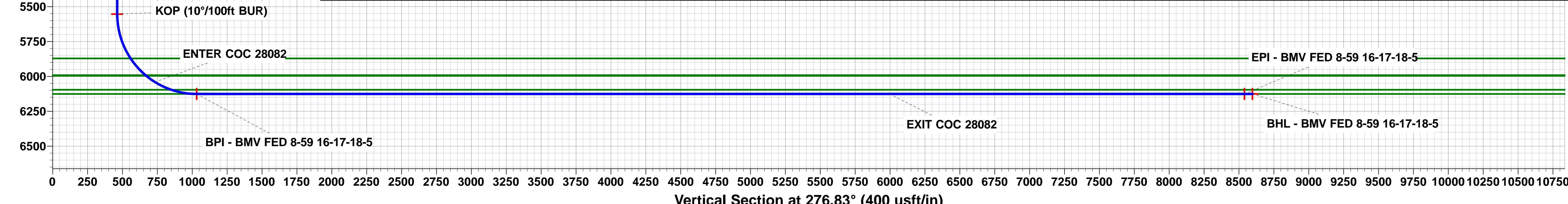
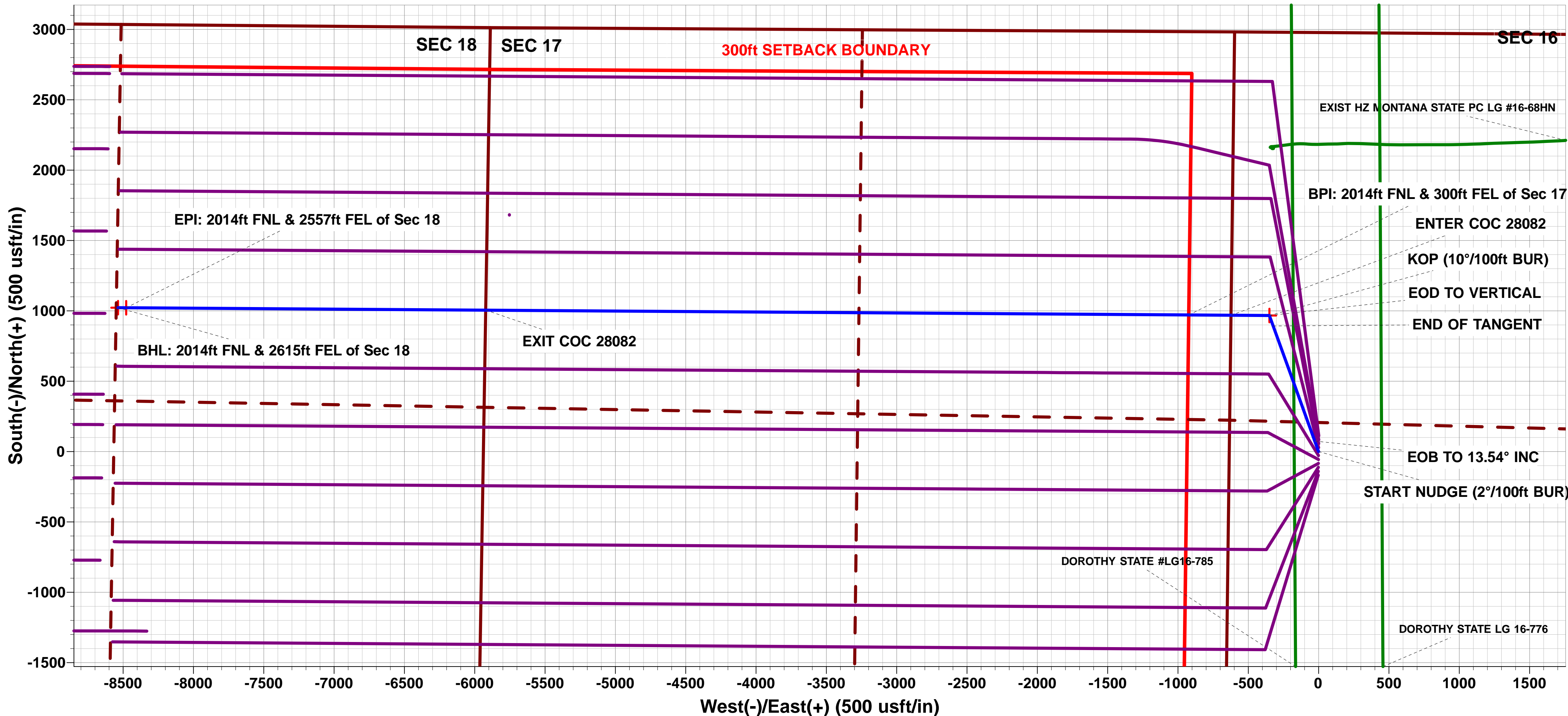
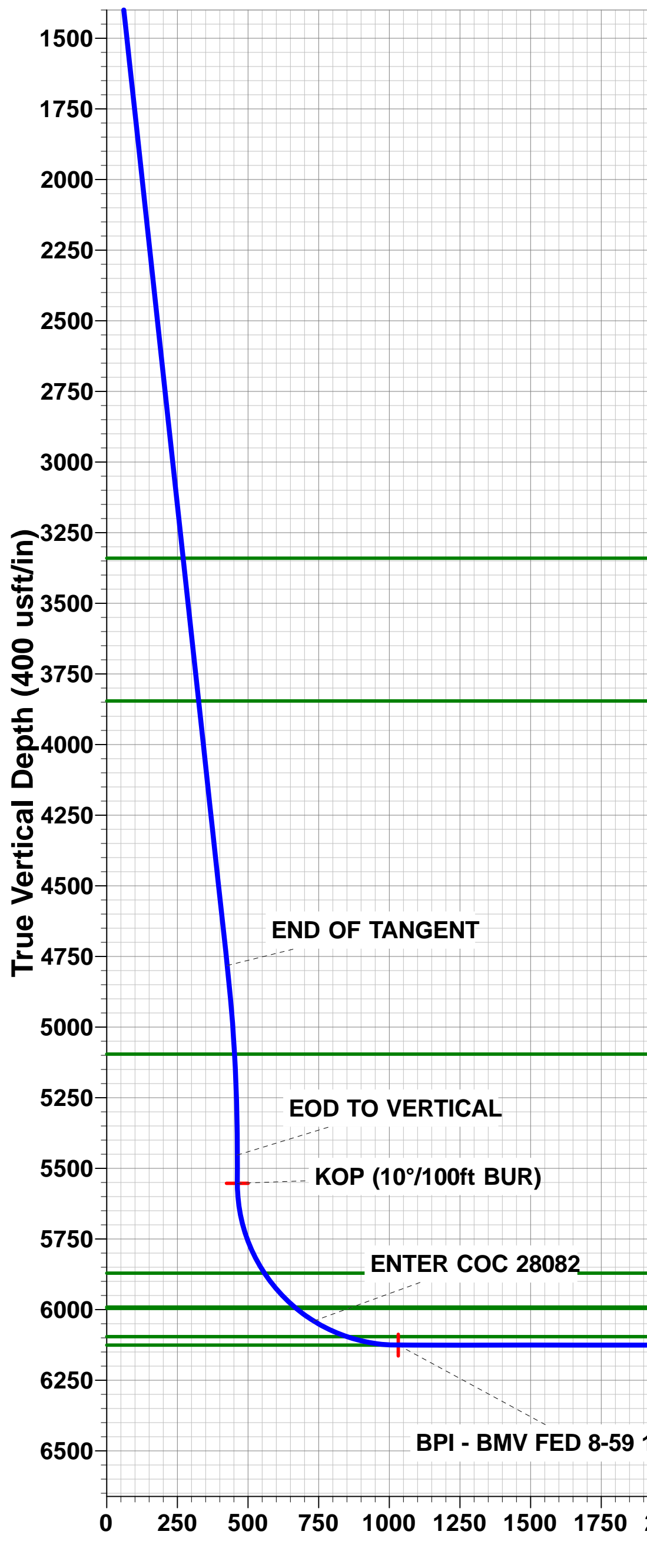
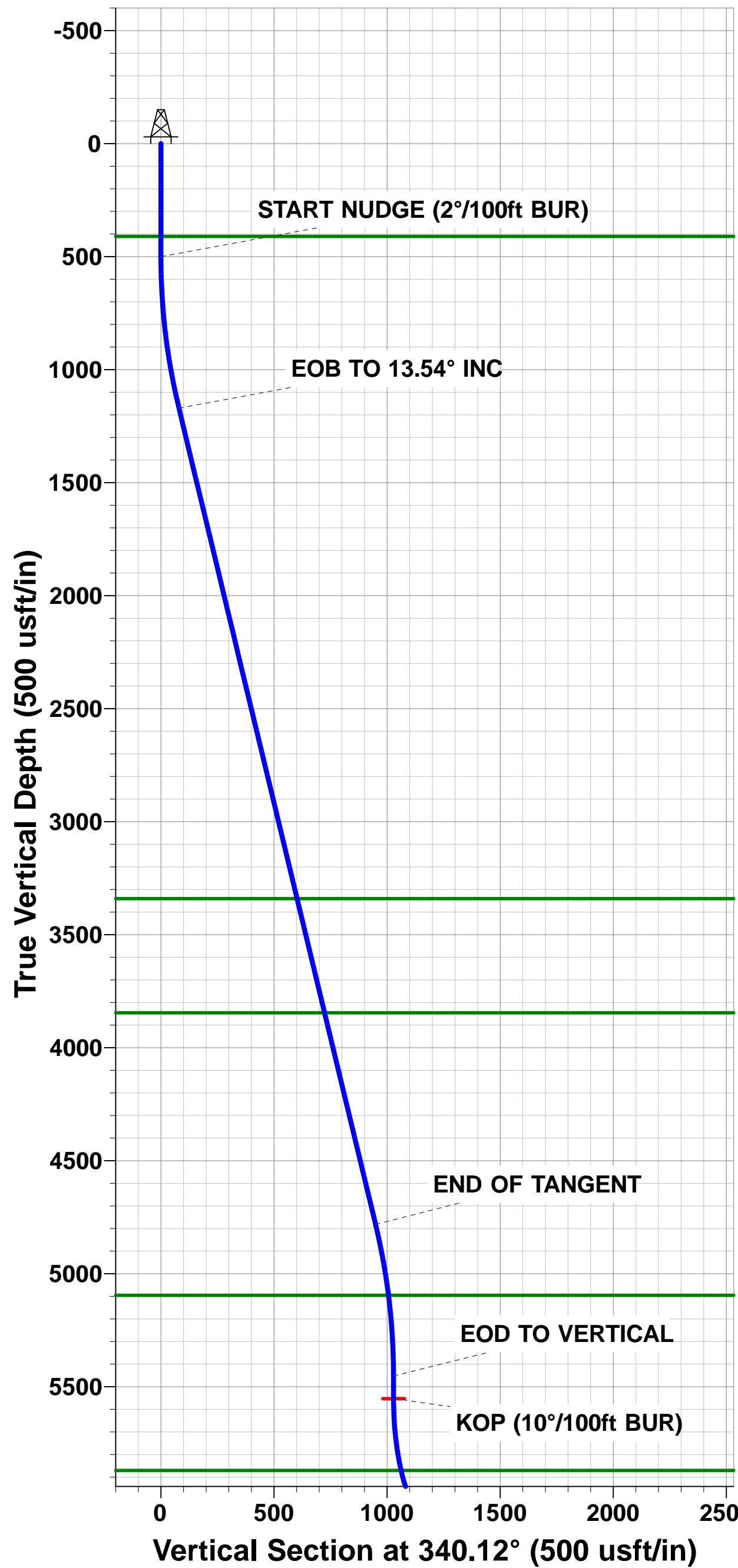
PROPOSED LOCAL COORDINATES:

SHL: 2439ft FSL & 635ft FWL of Sec 16

BEGIN PROD INT: 2014ft FNL & 300ft FEL of Sec 17

END PROD INTERVAL: 2014ft FNL & 2557ft FEL of Sec 18

BHL: 2014ft FNL & 2615ft FEL of Sec 18



# Planning Report

<b>Database:</b>	EDM 5000.15.1	<b>Local Co-ordinate Reference:</b>	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

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

<b>Site</b>	NW SW SEC. 16 T8N R59W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,487,370.83 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,419,160.21 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.661425
		<b>Longitude:</b>	-103.989093
		<b>Grid Convergence:</b>	0.98 °

Well	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5					
Well Position	+N/-S	26.95 usft	Northing:	1,487,399.06 usft	Latitude:	40.661499
	+E/-W	75.46 usft	Easting:	3,419,235.20 usft	Longitude:	-103.988821
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,875.80 usft

<b>Wellbore</b>	ORIGINAL WELLBORE				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	2020-03-03	7.59	67.03	52,303.43936098

<b>Design</b>	PROPOSAL #2				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00	
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	-0.40	0.00	0.00	276.83	

<b>Plan Sections</b>											
MD (usft)	Inc (°)	Azi (°)	Vertical Depth	SS (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	-4,900.80	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	-4,400.80	0.00	0.00	0.00	0.00	0.00	0.00	
1,176.84	13.54	340.12	1,170.56	-3,730.24	74.84	-27.06	2.00	2.00	0.00	340.12	
4,891.76	13.54	340.12	4,782.28	-118.52	892.58	-322.73	0.00	0.00	0.00	0.00	
5,568.60	0.00	0.00	5,452.84	552.04	967.42	-349.79	2.00	-2.00	0.00	180.00	
5,668.60	0.00	0.00	5,552.84	652.04	967.42	-349.79	0.00	0.00	0.00	0.00	KOP - BMV FED 8-
6,568.60	90.00	270.39	6,125.80	1,225.00	971.32	-922.73	10.00	10.00	-9.96	270.39	BPI - BMV FED 8-5
14,124.00	90.00	270.38	6,125.80	1,225.00	1,022.32	-8,477.96	0.00	0.00	0.00	-85.30	EPI - BMV FED 8-5
14,181.99	90.00	270.38	6,125.80	1,225.00	1,022.70	-8,535.95	0.01	0.00	-0.01	-94.86	BHL - BMV FED 8-5

# Planning Report

<b>Database:</b>	EDM 5000.15.1	<b>Local Co-ordinate Reference:</b>	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
<b>SHL: 2439ft FSL &amp; 635ft FWL of Sec 16</b>										
0.00	0.00	0.00	0.00	4,900.80	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,800.80	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,700.80	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,600.80	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	4,500.80	0.00	0.00	0.00	0.00	0.00	0.00
<b>PIERRE SHALE (BFH)</b>										
410.80	0.00	0.00	410.80	4,490.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2°/100ft BUR)</b>										
500.00	0.00	0.00	500.00	4,400.80	0.00	0.00	0.00	0.00	0.00	0.00
600.00	2.00	340.12	599.98	4,300.82	1.64	-0.59	0.78	2.00	2.00	0.00
700.00	4.00	340.12	699.84	4,200.96	6.56	-2.37	3.14	2.00	2.00	0.00
800.00	6.00	340.12	799.45	4,101.35	14.76	-5.34	7.05	2.00	2.00	0.00
900.00	8.00	340.12	898.70	4,002.10	26.22	-9.48	12.53	2.00	2.00	0.00
1,000.00	10.00	340.12	997.47	3,903.33	40.93	-14.80	19.56	2.00	2.00	0.00
1,100.00	12.00	340.12	1,095.62	3,805.18	58.87	-21.29	28.14	2.00	2.00	0.00
<b>EOB TO 13.54° INC</b>										
1,176.84	13.54	340.12	1,170.56	3,730.24	74.84	-27.06	35.77	2.00	2.00	0.00
1,200.00	13.54	340.12	1,193.08	3,707.72	79.94	-28.90	38.21	0.00	0.00	0.00
1,300.00	13.54	340.12	1,290.30	3,610.50	101.95	-36.86	48.73	0.00	0.00	0.00
1,400.00	13.54	340.12	1,387.52	3,513.28	123.97	-44.82	59.25	0.00	0.00	0.00
1,500.00	13.54	340.12	1,484.74	3,416.06	145.98	-52.78	69.77	0.00	0.00	0.00
1,600.00	13.54	340.12	1,581.97	3,318.83	167.99	-60.74	80.29	0.00	0.00	0.00
1,700.00	13.54	340.12	1,679.19	3,221.61	190.00	-68.70	90.81	0.00	0.00	0.00
1,800.00	13.54	340.12	1,776.41	3,124.39	212.01	-76.66	101.33	0.00	0.00	0.00
1,900.00	13.54	340.12	1,873.63	3,027.17	234.03	-84.62	111.86	0.00	0.00	0.00
2,000.00	13.54	340.12	1,970.85	2,929.95	256.04	-92.58	122.38	0.00	0.00	0.00
2,100.00	13.54	340.12	2,068.08	2,832.72	278.05	-100.53	132.90	0.00	0.00	0.00
2,200.00	13.54	340.12	2,165.30	2,735.50	300.06	-108.49	143.42	0.00	0.00	0.00
2,300.00	13.54	340.12	2,262.52	2,638.28	322.08	-116.45	153.94	0.00	0.00	0.00
2,400.00	13.54	340.12	2,359.74	2,541.06	344.09	-124.41	164.46	0.00	0.00	0.00
2,500.00	13.54	340.12	2,456.96	2,443.84	366.10	-132.37	174.98	0.00	0.00	0.00
2,600.00	13.54	340.12	2,554.19	2,346.61	388.11	-140.33	185.50	0.00	0.00	0.00
2,700.00	13.54	340.12	2,651.41	2,249.39	410.12	-148.29	196.02	0.00	0.00	0.00
2,800.00	13.54	340.12	2,748.63	2,152.17	432.14	-156.25	206.54	0.00	0.00	0.00
2,900.00	13.54	340.12	2,845.85	2,054.95	454.15	-164.21	217.06	0.00	0.00	0.00
3,000.00	13.54	340.12	2,943.07	1,957.73	476.16	-172.16	227.59	0.00	0.00	0.00
3,100.00	13.54	340.12	3,040.30	1,860.50	498.17	-180.12	238.11	0.00	0.00	0.00
3,200.00	13.54	340.12	3,137.52	1,763.28	520.19	-188.08	248.63	0.00	0.00	0.00
3,300.00	13.54	340.12	3,234.74	1,666.06	542.20	-196.04	259.15	0.00	0.00	0.00
3,400.00	13.54	340.12	3,331.96	1,568.84	564.21	-204.00	269.67	0.00	0.00	0.00
<b>PARKMAN</b>										
3,409.09	13.54	340.12	3,340.80	1,560.00	566.21	-204.72	270.63	0.00	0.00	0.00
3,500.00	13.54	340.12	3,429.18	1,471.62	586.22	-211.96	280.19	0.00	0.00	0.00
3,600.00	13.54	340.12	3,526.41	1,374.39	608.23	-219.92	290.71	0.00	0.00	0.00
3,700.00	13.54	340.12	3,623.63	1,277.17	630.25	-227.88	301.23	0.00	0.00	0.00
3,800.00	13.54	340.12	3,720.85	1,179.95	652.26	-235.84	311.75	0.00	0.00	0.00
3,900.00	13.54	340.12	3,818.07	1,082.73	674.27	-243.79	322.27	0.00	0.00	0.00
<b>SUSSEX</b>										
3,928.52	13.54	340.12	3,845.80	1,055.00	680.55	-246.06	325.28	0.00	0.00	0.00
4,000.00	13.54	340.12	3,915.29	985.51	696.28	-251.75	332.80	0.00	0.00	0.00
4,100.00	13.54	340.12	4,012.52	888.28	718.30	-259.71	343.32	0.00	0.00	0.00



# Planning Report

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<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
4,200.00	13.54	340.12	4,109.74	791.06	740.31	-267.67	353.84	0.00	0.00	0.00
4,300.00	13.54	340.12	4,206.96	693.84	762.32	-275.63	364.36	0.00	0.00	0.00
4,400.00	13.54	340.12	4,304.18	596.62	784.33	-283.59	374.88	0.00	0.00	0.00
4,500.00	13.54	340.12	4,401.40	499.40	806.34	-291.55	385.40	0.00	0.00	0.00
4,600.00	13.54	340.12	4,498.63	402.17	828.36	-299.51	395.92	0.00	0.00	0.00
4,700.00	13.54	340.12	4,595.85	304.95	850.37	-307.47	406.44	0.00	0.00	0.00
4,800.00	13.54	340.12	4,693.07	207.73	872.38	-315.42	416.96	0.00	0.00	0.00
END OF TANGENT										
<b>4,891.76</b>	<b>13.54</b>	<b>340.12</b>	<b>4,782.28</b>	<b>118.52</b>	<b>892.58</b>	<b>-322.73</b>	<b>426.62</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
4,900.00	13.37	340.12	4,790.29	110.51	894.38	-323.38	427.48	2.00	-2.00	0.00
5,000.00	11.37	340.12	4,887.97	12.83	914.53	-330.66	437.11	2.00	-2.00	0.00
5,100.00	9.37	340.12	4,986.33	-85.53	931.46	-336.79	445.20	2.00	-2.00	0.00
5,200.00	7.37	340.12	5,085.26	-184.46	945.15	-341.74	451.75	2.00	-2.00	0.00
SHANNON										
<b>5,210.63</b>	<b>7.16</b>	<b>340.12</b>	<b>5,095.80</b>	<b>-195.00</b>	<b>946.42</b>	<b>-342.19</b>	<b>452.35</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,300.00	5.37	340.12	5,184.63	-283.83	955.59	-345.51	456.73	2.00	-2.00	0.00
5,400.00	3.37	340.12	5,284.34	-383.54	962.76	-348.10	460.16	2.00	-2.00	0.00
5,500.00	1.37	340.12	5,384.25	-483.45	966.65	-349.51	462.02	2.00	-2.00	0.00
EOD TO VERTICAL										
<b>5,568.60</b>	<b>0.00</b>	<b>0.00</b>	<b>5,452.84</b>	<b>-552.04</b>	<b>967.42</b>	<b>-349.79</b>	<b>462.39</b>	<b>2.00</b>	<b>-2.00</b>	<b>0.00</b>
5,600.00	0.00	0.00	5,484.24	-583.44	967.42	-349.79	462.39	0.00	0.00	0.00
KOP (10°/100ft BUR)										
<b>5,668.60</b>	<b>0.00</b>	<b>0.00</b>	<b>5,552.84</b>	<b>-652.04</b>	<b>967.42</b>	<b>-349.79</b>	<b>462.39</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,700.00	3.14	270.39	5,584.23	-683.43	967.43	-350.65	463.24	10.00	10.00	0.00
5,800.00	13.14	270.39	5,683.09	-782.29	967.52	-364.79	477.30	10.00	10.00	0.00
5,900.00	23.14	270.39	5,778.00	-877.20	967.74	-395.88	508.19	10.00	10.00	0.00
6,000.00	33.14	270.39	5,866.07	-965.27	968.06	-442.99	555.00	10.00	10.00	0.00
SHARON SPRINGS SHALE										
<b>6,005.67</b>	<b>33.71</b>	<b>270.39</b>	<b>5,870.80</b>	<b>-970.00</b>	<b>968.08</b>	<b>-446.11</b>	<b>558.10</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,100.00	43.14	270.39	5,944.62	-1,043.82	968.48	-504.66	616.29	10.00	10.00	0.00
NIOBRARA FORMATION										
<b>6,167.12</b>	<b>49.85</b>	<b>270.39</b>	<b>5,990.80</b>	<b>-1,090.00</b>	<b>968.81</b>	<b>-553.32</b>	<b>664.64</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
NIOBRARA A CHALK										
<b>6,174.94</b>	<b>50.63</b>	<b>270.39</b>	<b>5,995.80</b>	<b>-1,095.00</b>	<b>968.85</b>	<b>-559.33</b>	<b>670.61</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,200.00	53.14	270.39	6,011.27	-1,110.47	968.98	-579.05	690.20	10.00	10.00	0.00
ENTER COC 28082										
<b>6,252.05</b>	<b>58.34</b>	<b>270.39</b>	<b>6,040.56</b>	<b>-1,139.76</b>	<b>969.28</b>	<b>-622.05</b>	<b>732.94</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,300.00	63.14	270.39	6,063.98	-1,163.18	969.56	-663.87	774.49	10.00	10.00	0.00
NIOBRARA B CHALK										
<b>6,382.37</b>	<b>71.38</b>	<b>270.39</b>	<b>6,095.80</b>	<b>-1,195.00</b>	<b>970.08</b>	<b>-739.77</b>	<b>849.92</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,400.00	73.14	270.39	6,101.17	-1,200.37	970.19	-756.56	866.60	10.00	10.00	0.00
6,500.00	83.14	270.39	6,121.70	-1,220.90	970.86	-854.30	963.72	10.00	10.00	0.00
BPI: 2014ft FNL & 300ft FEL of Sec 17 - NIOBRARA B LP										
<b>6,568.60</b>	<b>90.00</b>	<b>270.39</b>	<b>6,125.80</b>	<b>-1,225.00</b>	<b>971.32</b>	<b>-922.73</b>	<b>1,031.73</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,600.00	90.00	270.39	6,125.80	-1,225.00	971.54	-954.13	1,062.93	0.00	0.00	0.00
6,700.00	90.00	270.39	6,125.80	-1,225.00	972.22	-1,054.13	1,162.30	0.00	0.00	0.00
6,800.00	90.00	270.39	6,125.80	-1,225.00	972.90	-1,154.13	1,261.67	0.00	0.00	0.00
6,900.00	90.00	270.39	6,125.80	-1,225.00	973.58	-1,254.12	1,361.04	0.00	0.00	0.00
7,000.00	90.00	270.39	6,125.80	-1,225.00	974.26	-1,354.12	1,460.40	0.00	0.00	0.00
7,100.00	90.00	270.39	6,125.80	-1,225.00	974.94	-1,454.12	1,559.77	0.00	0.00	0.00
7,200.00	90.00	270.39	6,125.80	-1,225.00	975.62	-1,554.12	1,659.14	0.00	0.00	0.00
7,300.00	90.00	270.39	6,125.80	-1,225.00	976.30	-1,654.12	1,758.51	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM 5000.15.1	<b>Local Co-ordinate Reference:</b>	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
7,400.00	90.00	270.39	6,125.80	-1,225.00	976.98	-1,754.11	1,857.88	0.00	0.00	0.00
7,500.00	90.00	270.39	6,125.80	-1,225.00	977.66	-1,854.11	1,957.25	0.00	0.00	0.00
7,600.00	90.00	270.39	6,125.80	-1,225.00	978.34	-1,954.11	2,056.62	0.00	0.00	0.00
7,700.00	90.00	270.39	6,125.80	-1,225.00	979.02	-2,054.11	2,155.98	0.00	0.00	0.00
7,800.00	90.00	270.39	6,125.81	-1,225.01	979.70	-2,154.10	2,255.35	0.00	0.00	0.00
7,900.00	90.00	270.39	6,125.81	-1,225.01	980.38	-2,254.10	2,354.72	0.00	0.00	0.00
8,000.00	90.00	270.39	6,125.81	-1,225.01	981.06	-2,354.10	2,454.09	0.00	0.00	0.00
8,100.00	90.00	270.39	6,125.81	-1,225.01	981.73	-2,454.10	2,553.46	0.00	0.00	0.00
8,200.00	90.00	270.39	6,125.81	-1,225.01	982.41	-2,554.09	2,652.83	0.00	0.00	0.00
8,300.00	90.00	270.39	6,125.81	-1,225.01	983.09	-2,654.09	2,752.19	0.00	0.00	0.00
8,400.00	90.00	270.39	6,125.81	-1,225.01	983.77	-2,754.09	2,851.56	0.00	0.00	0.00
8,500.00	90.00	270.39	6,125.81	-1,225.01	984.45	-2,854.09	2,950.93	0.00	0.00	0.00
8,600.00	90.00	270.39	6,125.81	-1,225.01	985.12	-2,954.09	3,050.30	0.00	0.00	0.00
8,700.00	90.00	270.39	6,125.81	-1,225.01	985.80	-3,054.08	3,149.67	0.00	0.00	0.00
8,800.00	90.00	270.39	6,125.81	-1,225.01	986.48	-3,154.08	3,249.04	0.00	0.00	0.00
8,900.00	90.00	270.39	6,125.81	-1,225.01	987.16	-3,254.08	3,348.40	0.00	0.00	0.00
9,000.00	90.00	270.39	6,125.81	-1,225.01	987.83	-3,354.08	3,447.77	0.00	0.00	0.00
9,100.00	90.00	270.39	6,125.81	-1,225.01	988.51	-3,454.07	3,547.14	0.00	0.00	0.00
9,200.00	90.00	270.39	6,125.81	-1,225.01	989.19	-3,554.07	3,646.51	0.00	0.00	0.00
9,300.00	90.00	270.39	6,125.81	-1,225.01	989.86	-3,654.07	3,745.88	0.00	0.00	0.00
9,400.00	90.00	270.39	6,125.81	-1,225.01	990.54	-3,754.07	3,845.24	0.00	0.00	0.00
9,500.00	90.00	270.39	6,125.81	-1,225.01	991.22	-3,854.06	3,944.61	0.00	0.00	0.00
9,600.00	90.00	270.39	6,125.81	-1,225.01	991.89	-3,954.06	4,043.98	0.00	0.00	0.00
9,700.00	90.00	270.39	6,125.81	-1,225.01	992.57	-4,054.06	4,143.35	0.00	0.00	0.00
9,800.00	90.00	270.39	6,125.81	-1,225.01	993.25	-4,154.06	4,242.72	0.00	0.00	0.00
9,900.00	90.00	270.39	6,125.81	-1,225.01	993.92	-4,254.06	4,342.08	0.00	0.00	0.00
10,000.00	90.00	270.39	6,125.81	-1,225.01	994.60	-4,354.05	4,441.45	0.00	0.00	0.00
10,100.00	90.00	270.39	6,125.81	-1,225.01	995.27	-4,454.05	4,540.82	0.00	0.00	0.00
10,200.00	90.00	270.39	6,125.81	-1,225.01	995.95	-4,554.05	4,640.19	0.00	0.00	0.00
10,300.00	90.00	270.39	6,125.81	-1,225.01	996.62	-4,654.05	4,739.56	0.00	0.00	0.00
10,400.00	90.00	270.39	6,125.81	-1,225.01	997.30	-4,754.04	4,838.92	0.00	0.00	0.00
10,500.00	90.00	270.39	6,125.81	-1,225.01	997.97	-4,854.04	4,938.29	0.00	0.00	0.00
10,600.00	90.00	270.39	6,125.81	-1,225.01	998.65	-4,954.04	5,037.66	0.00	0.00	0.00
10,700.00	90.00	270.39	6,125.81	-1,225.01	999.32	-5,054.04	5,137.03	0.00	0.00	0.00
10,800.00	90.00	270.39	6,125.81	-1,225.01	1,000.00	-5,154.04	5,236.40	0.00	0.00	0.00
10,900.00	90.00	270.39	6,125.81	-1,225.01	1,000.67	-5,254.03	5,335.76	0.00	0.00	0.00
11,000.00	90.00	270.39	6,125.81	-1,225.01	1,001.34	-5,354.03	5,435.13	0.00	0.00	0.00
11,100.00	90.00	270.39	6,125.81	-1,225.01	1,002.02	-5,454.03	5,534.50	0.00	0.00	0.00
11,200.00	90.00	270.39	6,125.81	-1,225.01	1,002.69	-5,554.03	5,633.87	0.00	0.00	0.00
11,300.00	90.00	270.39	6,125.81	-1,225.01	1,003.36	-5,654.02	5,733.24	0.00	0.00	0.00
11,400.00	90.00	270.39	6,125.81	-1,225.01	1,004.04	-5,754.02	5,832.60	0.00	0.00	0.00
11,500.00	90.00	270.39	6,125.81	-1,225.01	1,004.71	-5,854.02	5,931.97	0.00	0.00	0.00
<b>EXIT COC 28082</b>										
<b>11,566.03</b>	<b>90.00</b>	<b>270.39</b>	<b>6,125.81</b>	<b>-1,225.01</b>	<b>1,005.16</b>	<b>-5,920.05</b>	<b>5,997.58</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
11,600.00	90.00	270.39	6,125.81	-1,225.01	1,005.38	-5,954.02	6,031.34	0.00	0.00	0.00
11,700.00	90.00	270.39	6,125.81	-1,225.01	1,006.06	-6,054.01	6,130.71	0.00	0.00	0.00
11,800.00	90.00	270.39	6,125.81	-1,225.01	1,006.73	-6,154.01	6,230.07	0.00	0.00	0.00
11,900.00	90.00	270.39	6,125.81	-1,225.01	1,007.40	-6,254.01	6,329.44	0.00	0.00	0.00
12,000.00	90.00	270.39	6,125.81	-1,225.01	1,008.07	-6,354.01	6,428.81	0.00	0.00	0.00
12,100.00	90.00	270.39	6,125.81	-1,225.01	1,008.75	-6,454.01	6,528.18	0.00	0.00	0.00
12,200.00	90.00	270.38	6,125.81	-1,225.01	1,009.42	-6,554.00	6,627.54	0.00	0.00	0.00
12,300.00	90.00	270.38	6,125.81	-1,225.01	1,010.09	-6,654.00	6,726.91	0.00	0.00	0.00
12,400.00	90.00	270.38	6,125.81	-1,225.01	1,010.76	-6,754.00	6,826.28	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDM 5000.15.1	<b>Local Co-ordinate Reference:</b>	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	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)
12,500.00	90.00	270.38	6,125.81	-1,225.01	1,011.43	-6,854.00	6,925.65	0.00	0.00	0.00
12,600.00	90.00	270.38	6,125.81	-1,225.01	1,012.10	-6,953.99	7,025.01	0.00	0.00	0.00
12,700.00	90.00	270.38	6,125.81	-1,225.01	1,012.78	-7,053.99	7,124.38	0.00	0.00	0.00
12,800.00	90.00	270.38	6,125.81	-1,225.01	1,013.45	-7,153.99	7,223.75	0.00	0.00	0.00
12,900.00	90.00	270.38	6,125.81	-1,225.01	1,014.12	-7,253.99	7,323.12	0.00	0.00	0.00
13,000.00	90.00	270.38	6,125.80	-1,225.00	1,014.79	-7,353.99	7,422.48	0.00	0.00	0.00
13,100.00	90.00	270.38	6,125.80	-1,225.00	1,015.46	-7,453.98	7,521.85	0.00	0.00	0.00
13,200.00	90.00	270.38	6,125.80	-1,225.00	1,016.13	-7,553.98	7,621.22	0.00	0.00	0.00
13,300.00	90.00	270.38	6,125.80	-1,225.00	1,016.80	-7,653.98	7,720.59	0.00	0.00	0.00
13,400.00	90.00	270.38	6,125.80	-1,225.00	1,017.47	-7,753.98	7,819.95	0.00	0.00	0.00
13,500.00	90.00	270.38	6,125.80	-1,225.00	1,018.14	-7,853.97	7,919.32	0.00	0.00	0.00
13,600.00	90.00	270.38	6,125.80	-1,225.00	1,018.81	-7,953.97	8,018.69	0.00	0.00	0.00
13,700.00	90.00	270.38	6,125.80	-1,225.00	1,019.48	-8,053.97	8,118.06	0.00	0.00	0.00
13,800.00	90.00	270.38	6,125.80	-1,225.00	1,020.15	-8,153.97	8,217.42	0.00	0.00	0.00
13,900.00	90.00	270.38	6,125.80	-1,225.00	1,020.82	-8,253.97	8,316.79	0.00	0.00	0.00
14,000.00	90.00	270.38	6,125.80	-1,225.00	1,021.49	-8,353.96	8,416.16	0.00	0.00	0.00
14,100.00	90.00	270.38	6,125.80	-1,225.00	1,022.16	-8,453.96	8,515.53	0.00	0.00	0.00
<b>EPI: 2014ft FNL &amp; 2557ft FEL of Sec 18</b>										
<b>14,124.00</b>	<b>90.00</b>	<b>270.38</b>	<b>6,125.80</b>	<b>-1,225.00</b>	<b>1,022.32</b>	<b>-8,477.96</b>	<b>8,539.37</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>BHL: 2014ft FNL &amp; 2615ft FEL of Sec 18</b>										
<b>14,181.99</b>	<b>90.00</b>	<b>270.38</b>	<b>6,125.80</b>	<b>-1,225.00</b>	<b>1,022.70</b>	<b>-8,535.95</b>	<b>8,596.99</b>	<b>0.01</b>	<b>0.00</b>	<b>-0.01</b>

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
410.80	410.80	PIERRE SHALE (BFH)				
3,409.09	3,340.80	PARKMAN				
3,928.52	3,845.80	SUSSEX				
5,210.63	5,095.80	SHANNON				
6,005.67	5,870.80	SHARON SPRINGS SHALE				
6,167.12	5,990.80	NIOBRARA FORMATION				
6,174.94	5,995.80	NIOBRARA A CHALK				
6,382.37	6,095.80	NIOBRARA B CHALK				
6,568.60	6,125.80	NIOBRARA B LP				

## Planning Report

<b>Database:</b>	EDM 5000.15.1	<b>Local Co-ordinate Reference:</b>	Well BIG MOUNTAIN VIPER FED 8-59 16-17-18-5
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB 25' @ 4900.80usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB 25' @ 4900.80usft
<b>Site:</b>	NW SW SEC. 16 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	BIG MOUNTAIN VIPER FED 8-59 16-17-18-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	ORIGINAL WELLBORE		
<b>Design:</b>	PROPOSAL #2		

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	SHL: 2439ft FSL & 635ft FWL of Sec 16
500.00	500.00	0.00	0.00	START NUDGE (2°/100ft BUR)
1,176.84	1,170.56	74.84	-27.06	EOB TO 13.54° INC
4,891.76	4,782.28	892.58	-322.73	END OF TANGENT
5,568.60	5,452.84	967.42	-349.79	EOD TO VERTICAL
5,668.60	5,552.84	967.42	-349.79	KOP (10°/100ft BUR)
6,252.05	6,040.56	969.28	-622.05	ENTER COC 28082
6,568.60	6,125.80	971.32	-922.73	BPI: 2014ft FNL & 300ft FEL of Sec 17
11,566.03	6,125.81	1,005.16	-5,920.05	EXIT COC 28082
14,124.00	6,125.80	1,022.32	-8,477.96	EPI: 2014ft FNL & 2557ft FEL of Sec 18
14,181.99	6,125.80	1,022.70	-8,535.95	BHL: 2014ft FNL & 2615ft FEL of Sec 18