

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

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

**NE SE SEC. 19 T8N R59W 6th P.M.**

**CASTOR FED 8-59 19-24-4**

**ORIGINAL WELLBORE**

**18 April, 2019**

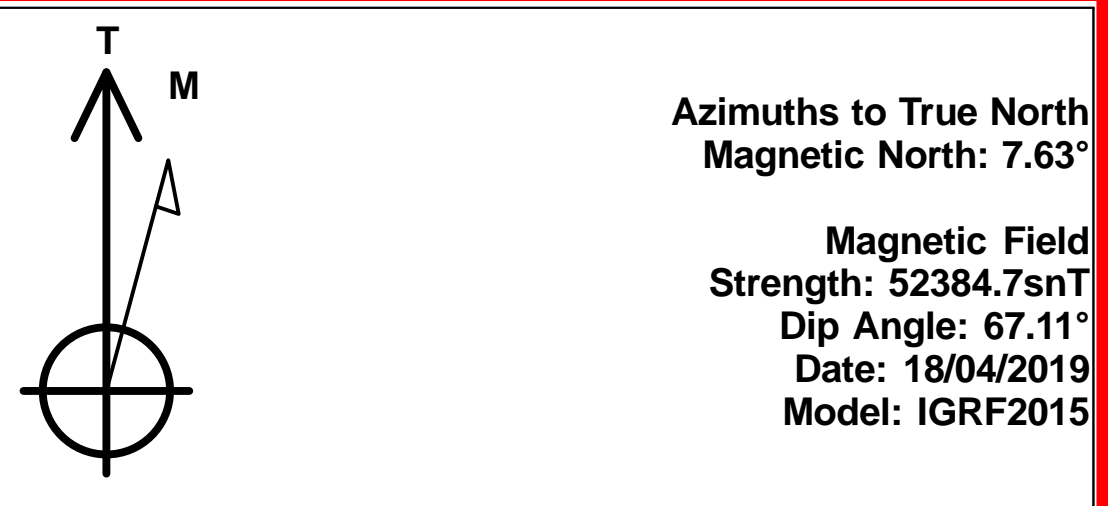
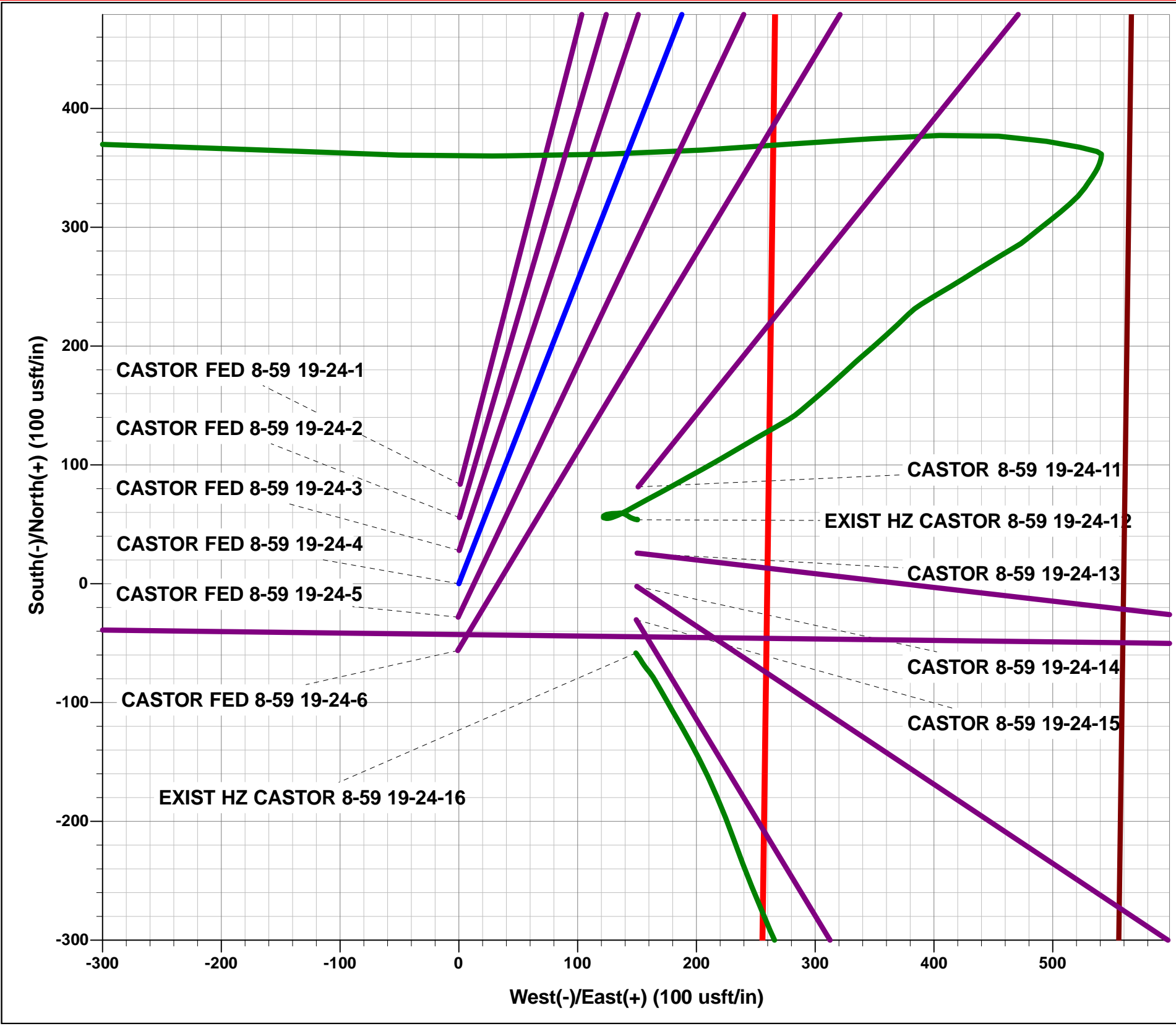
**Plan: PROPOSAL #2**



Project: WELD COUNTY, COLORADO (NAD 83)  
Site: NE SE SEC. 19 T8N R59W 6th P.M.  
Well: CASTOR FED 8-59 19-24-4  
Wellbore: ORIGINAL WELLBORE  
Design: PROPOSAL #2

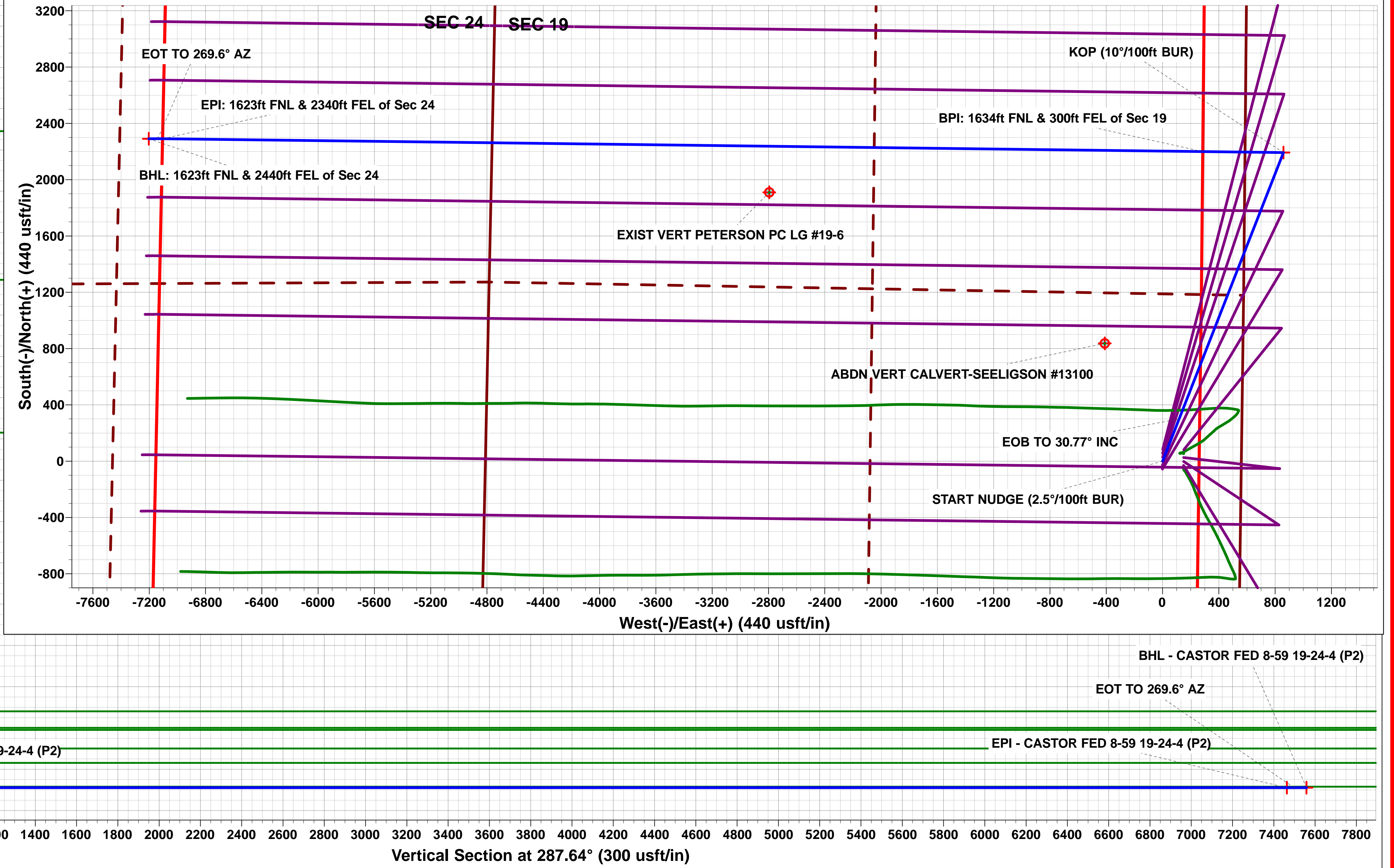
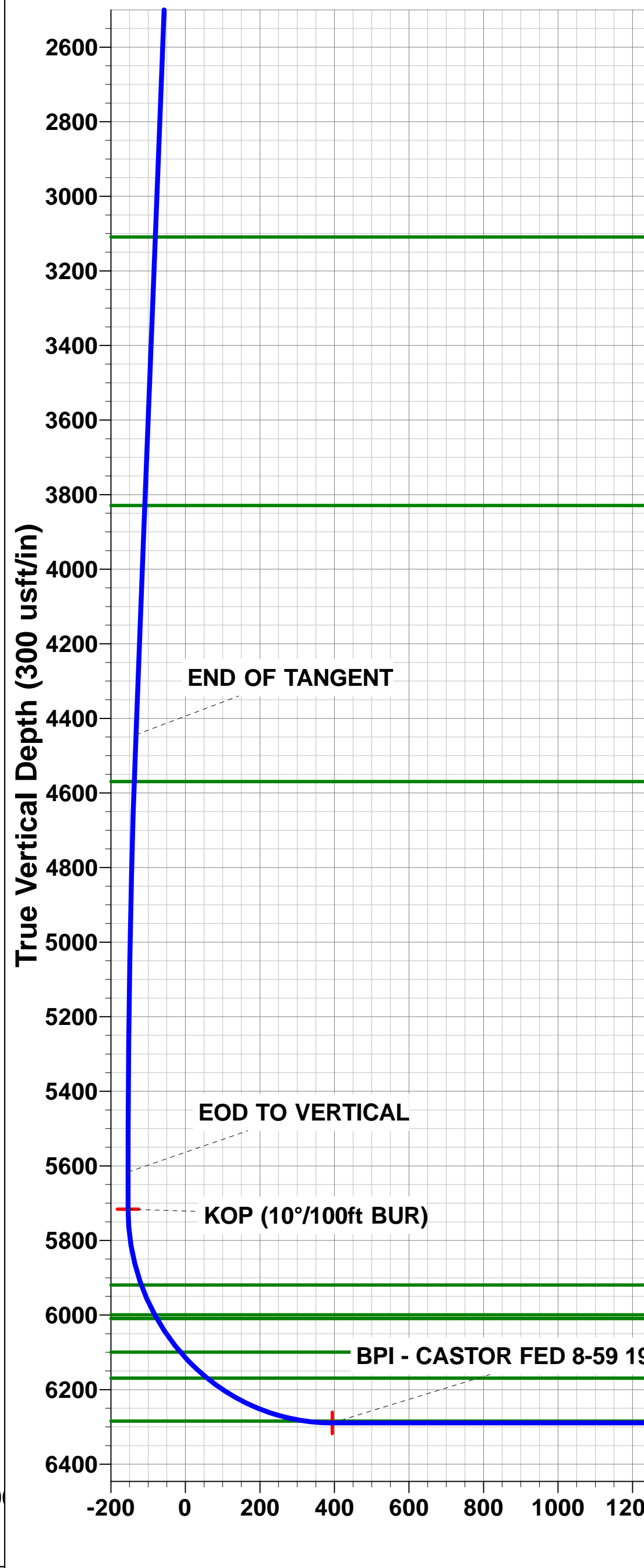
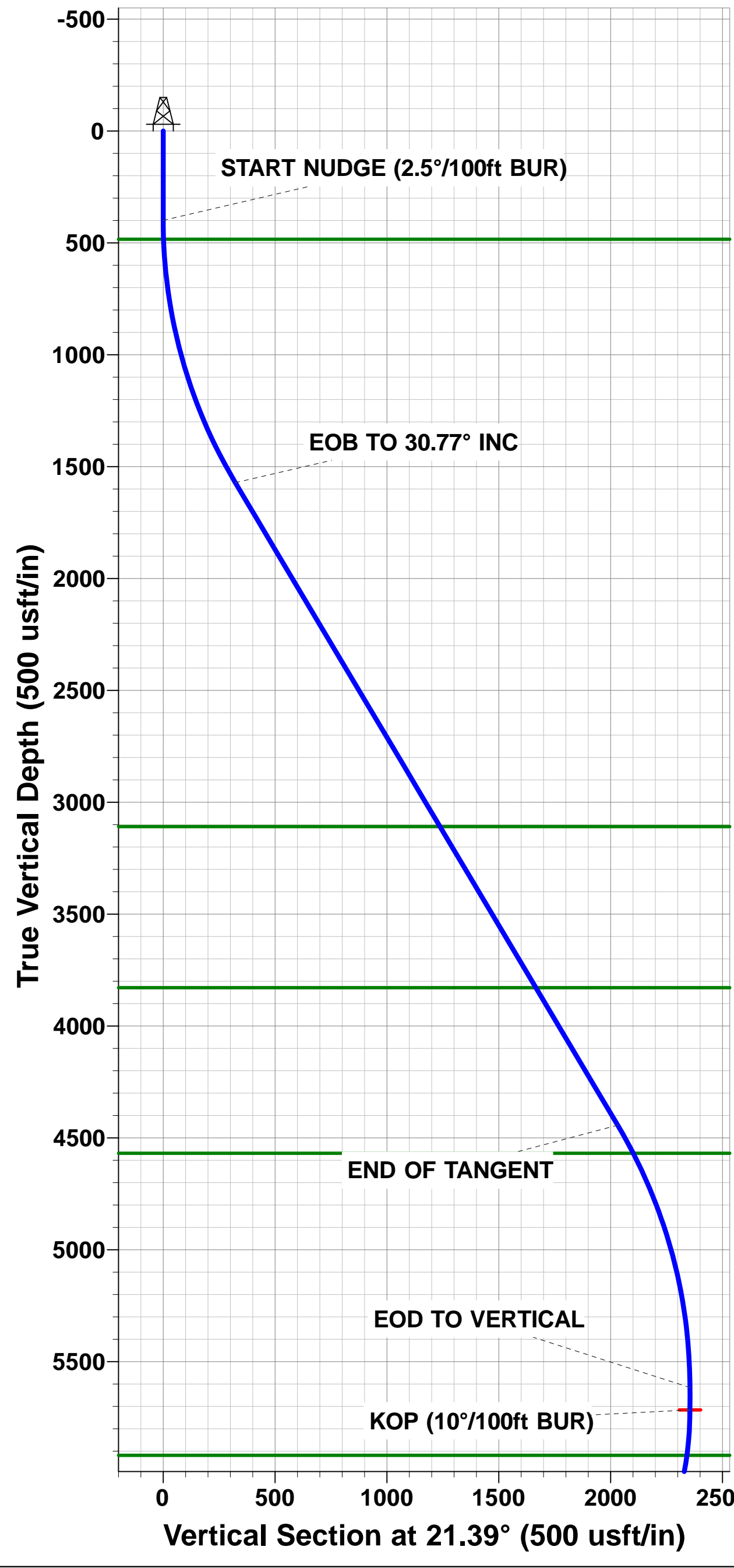
ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	SHL: 1476ft FSL & 560ft FEL of Sec 19		
400.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	START NUDGE (2.5°/100ft BUR)		
1572.33	1630.62	30.77	21.39	300.32	117.63	-21.07	322.53	EOB TO 30.77° INC		
4443.91	4972.51	30.77	21.39	1892.03	741.09	-132.76	2031.99	END OF TANGENT		
5616.24	6203.13	0.00	0.00	2192.35	858.72	-153.84	2354.53	EOD TO VERTICAL		
5716.24	6303.13	0.00	0.00	2192.35	858.72	-153.84	2354.53	KOP (10°/100ft BUR)		
6289.20	7203.13	90.00	270.71	2199.45	285.81	394.28	2927.48	BPI: 1634ft FNL & 300ft FEL of Sec 19		
6289.20	14592.29	90.00	270.71	2291.19	-7102.78	7463.12	10316.64	EPI: 1623ft FNL & 2340ft FEL of Sec 24		
6289.20	14629.31	90.00	269.60	2291.30	-7139.80	7498.43	10353.66	EOT TO 269.6° AZ		
6289.20	14692.19	90.00	269.60	2290.86	-7202.68	7558.22	10416.54	BHL: 1623ft FNL & 2440ft FEL of Sec 24		

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CASTOR FED 8-59 19-24-4 (P2)	5716.24	2192.35	858.72	40.650585	-104.009435
BPI - CASTOR FED 8-59 19-24-4 (P2)	6289.20	2199.45	285.81	40.650605	-104.011500
EPI - CASTOR FED 8-59 19-24-4 (P2)	6289.20	2291.19	-7102.79	40.650854	-104.038127
BHL - CASTOR FED 8-59 19-24-4 (P2)	6289.20	2290.86	-7202.68	40.650853	-104.038487



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
484.20	484.22	PIERRE SH (BASE FOX HILLS)
3109.20	3419.20	PARKMAN
3829.20	4257.12	SUSSEX
4569.20	5115.75	SHANNON
5919.20	6510.59	SHARON SPRINGS SHALE
5999.20	6599.07	NIOBRARA FORMATION
6009.20	6610.64	NIOBRARA A CHALK
6099.20	6722.56	NIOBRARA B CHALK
6169.20	6825.51	NIOBRARA C CHALK
6284.20	7127.38	CODELL

PROPOSED LOCAL COORDINATES:  
SHL: 1476ft FSL & 560ft FEL of Sec 19  
BEGIN PROD INT: 1634ft FNL & 300ft FEL of Sec 19  
END PROD INTERVAL: 1623ft FNL & 2340ft FEL of Sec 24  
BHL: 1623ft FNL & 2440ft FEL of Sec 24



# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CASTOR FED 8-59 19-24-4
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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>	NE SE SEC. 19 T8N R59W 6th P.M.		
<b>Site Position:</b>		<b>Northing:</b>	1,481,260.32 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,412,761.19 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	1.10000ft
		<b>Latitude:</b>	40.644952
		<b>Longitude:</b>	-104.012524
		<b>Grid Convergence:</b>	0.96 °

<b>Well</b>	CASTOR FED 8-59 19-24-4		
<b>Well Position</b>	<b>+N/-S</b>	-139.91 usft	<b>Northing:</b>
	<b>+E/-W</b>	-1.67 usft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<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>
	IGRF2015	18/04/2019	7.63	67.11	52,385

<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>
	6,289.20	0.00	0.00	287.64

<b>Plan Sections</b>											
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	-4,879.20	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	-4,479.20	0.00	0.00	0.00	0.00	0.00	0.00	
1,630.62	30.77	21.39	1,572.33	-3,306.87	300.32	117.63	2.50	2.50	0.00	21.39	
4,972.51	30.77	21.39	4,443.91	-435.29	1,892.03	741.09	0.00	0.00	0.00	0.00	
6,203.13	0.00	0.00	5,616.24	737.04	2,192.35	858.72	2.50	-2.50	0.00	180.00	
6,303.13	0.00	0.00	5,716.24	837.04	2,192.35	858.72	0.00	0.00	0.00	0.00	KOP - CASTOR FE
7,203.13	90.00	270.71	6,289.20	1,410.00	2,199.45	285.81	10.00	10.00	-9.92	270.71	BPI - CASTOR FE
14,592.29	90.00	270.71	6,289.20	1,410.00	2,291.19	-7,102.79	0.00	0.00	0.00	57.89	EPI - CASTOR FE
14,629.31	90.00	269.60	6,289.20	1,410.00	2,291.30	-7,139.80	3.00	0.00	-3.00	-90.04	
14,692.19	90.00	269.60	6,289.20	1,410.00	2,290.86	-7,202.68	0.00	0.00	0.00	0.00	BHL - CASTOR FE

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CASTOR FED 8-59 19-24-4
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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: 1476ft FSL &amp; 560ft FEL of Sec 19</b>										
0.00	0.00	0.00	0.00	4,879.20	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	4,779.20	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	4,679.20	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	4,579.20	0.00	0.00	0.00	0.00	0.00	0.00
<b>START NUDGE (2.5°/100ft BUR)</b>										
400.00	0.00	0.00	400.00	4,479.20	0.00	0.00	0.00	0.00	0.00	0.00
<b>PIERRE SHALE (BASE FOX HILLS)</b>										
484.22	2.11	21.39	484.20	4,395.00	1.44	0.56	-0.10	2.50	2.50	0.00
500.00	2.50	21.39	499.97	4,379.23	2.03	0.80	-0.14	2.50	2.50	0.00
600.00	5.00	21.39	599.75	4,279.45	8.12	3.18	-0.57	2.50	2.50	0.00
700.00	7.50	21.39	699.14	4,180.06	18.26	7.15	-1.28	2.50	2.50	0.00
800.00	10.00	21.39	797.97	4,081.23	32.42	12.70	-2.27	2.50	2.50	0.00
900.00	12.50	21.39	896.04	3,983.16	50.58	19.81	-3.55	2.50	2.50	0.00
1,000.00	15.00	21.39	993.17	3,886.03	72.71	28.48	-5.10	2.50	2.50	0.00
1,100.00	17.50	21.39	1,089.17	3,790.03	98.77	38.69	-6.93	2.50	2.50	0.00
1,200.00	20.00	21.39	1,183.85	3,695.35	128.69	50.41	-9.03	2.50	2.50	0.00
1,300.00	22.50	21.39	1,277.05	3,602.15	162.44	63.63	-11.40	2.50	2.50	0.00
1,400.00	25.00	21.39	1,368.57	3,510.63	199.94	78.31	-14.03	2.50	2.50	0.00
1,500.00	27.50	21.39	1,458.25	3,420.95	241.12	94.44	-16.92	2.50	2.50	0.00
1,600.00	30.00	21.39	1,545.92	3,333.28	285.90	111.98	-20.06	2.50	2.50	0.00
<b>EOB TO 30.77° INC</b>										
1,630.62	30.77	21.39	1,572.33	3,306.87	300.32	117.63	-21.07	2.50	2.50	0.00
1,700.00	30.77	21.39	1,631.95	3,247.25	333.36	130.57	-23.39	0.00	0.00	0.00
1,800.00	30.77	21.39	1,717.87	3,161.33	380.99	149.23	-26.73	0.00	0.00	0.00
1,900.00	30.77	21.39	1,803.80	3,075.40	428.62	167.89	-30.08	0.00	0.00	0.00
2,000.00	30.77	21.39	1,889.73	2,989.47	476.25	186.54	-33.42	0.00	0.00	0.00
2,100.00	30.77	21.39	1,975.65	2,903.55	523.88	205.20	-36.76	0.00	0.00	0.00
2,200.00	30.77	21.39	2,061.58	2,817.62	571.51	223.85	-40.10	0.00	0.00	0.00
2,300.00	30.77	21.39	2,147.51	2,731.69	619.14	242.51	-43.44	0.00	0.00	0.00
2,400.00	30.77	21.39	2,233.43	2,645.77	666.77	261.17	-46.79	0.00	0.00	0.00
2,500.00	30.77	21.39	2,319.36	2,559.84	714.40	279.82	-50.13	0.00	0.00	0.00
2,600.00	30.77	21.39	2,405.29	2,473.91	762.03	298.48	-53.47	0.00	0.00	0.00
2,700.00	30.77	21.39	2,491.21	2,387.99	809.65	317.13	-56.81	0.00	0.00	0.00
2,800.00	30.77	21.39	2,577.14	2,302.06	857.28	335.79	-60.16	0.00	0.00	0.00
2,900.00	30.77	21.39	2,663.07	2,216.13	904.91	354.44	-63.50	0.00	0.00	0.00
3,000.00	30.77	21.39	2,749.00	2,130.20	952.54	373.10	-66.84	0.00	0.00	0.00
3,100.00	30.77	21.39	2,834.92	2,044.28	1,000.17	391.76	-70.18	0.00	0.00	0.00
3,200.00	30.77	21.39	2,920.85	1,958.35	1,047.80	410.41	-73.52	0.00	0.00	0.00
3,300.00	30.77	21.39	3,006.78	1,872.42	1,095.43	429.07	-76.87	0.00	0.00	0.00
3,400.00	30.77	21.39	3,092.70	1,786.50	1,143.06	447.72	-80.21	0.00	0.00	0.00
<b>PARKMAN</b>										
3,419.20	30.77	21.39	3,109.20	1,770.00	1,152.20	451.31	-80.85	0.00	0.00	0.00
3,500.00	30.77	21.39	3,178.63	1,700.57	1,190.69	466.38	-83.55	0.00	0.00	0.00
3,600.00	30.77	21.39	3,264.56	1,614.64	1,238.32	485.04	-86.89	0.00	0.00	0.00
3,700.00	30.77	21.39	3,350.48	1,528.72	1,285.95	503.69	-90.23	0.00	0.00	0.00
3,800.00	30.77	21.39	3,436.41	1,442.79	1,333.58	522.35	-93.58	0.00	0.00	0.00
3,900.00	30.77	21.39	3,522.34	1,356.86	1,381.20	541.00	-96.92	0.00	0.00	0.00
4,000.00	30.77	21.39	3,608.26	1,270.94	1,428.83	559.66	-100.26	0.00	0.00	0.00
4,100.00	30.77	21.39	3,694.19	1,185.01	1,476.46	578.31	-103.60	0.00	0.00	0.00
4,200.00	30.77	21.39	3,780.12	1,099.08	1,524.09	596.97	-106.94	0.00	0.00	0.00
<b>SUSSEX</b>										
4,257.12	30.77	21.39	3,829.20	1,050.00	1,551.30	607.63	-108.85	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 @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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)
4,300.00	30.77	21.39	3,866.04	1,013.16	1,571.72	615.63	-110.29	0.00	0.00	0.00
4,400.00	30.77	21.39	3,951.97	927.23	1,619.35	634.28	-113.63	0.00	0.00	0.00
4,500.00	30.77	21.39	4,037.90	841.30	1,666.98	652.94	-116.97	0.00	0.00	0.00
4,600.00	30.77	21.39	4,123.82	755.38	1,714.61	671.59	-120.31	0.00	0.00	0.00
4,700.00	30.77	21.39	4,209.75	669.45	1,762.24	690.25	-123.66	0.00	0.00	0.00
4,800.00	30.77	21.39	4,295.68	583.52	1,809.87	708.91	-127.00	0.00	0.00	0.00
4,900.00	30.77	21.39	4,381.61	497.59	1,857.50	727.56	-130.34	0.00	0.00	0.00
<b>END OF TANGENT</b>										
<b>4,972.51</b>	<b>30.77</b>	<b>21.39</b>	<b>4,443.91</b>	<b>435.29</b>	<b>1,892.03</b>	<b>741.09</b>	<b>-132.76</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
5,000.00	30.08	21.39	4,467.62	411.58	1,904.99	746.17	-133.67	2.50	-2.50	0.00
5,100.00	27.58	21.39	4,555.22	323.98	1,949.89	763.75	-136.82	2.50	-2.50	0.00
<b>SHANNON</b>										
<b>5,115.75</b>	<b>27.18</b>	<b>21.39</b>	<b>4,569.20</b>	<b>310.00</b>	<b>1,956.63</b>	<b>766.39</b>	<b>-137.30</b>	<b>2.50</b>	<b>-2.50</b>	<b>0.00</b>
5,200.00	25.08	21.39	4,644.84	234.36	1,991.18	779.92	-139.72	2.50	-2.50	0.00
5,300.00	22.58	21.39	4,736.30	142.90	2,028.79	794.66	-142.36	2.50	-2.50	0.00
5,400.00	20.08	21.39	4,829.45	49.75	2,062.66	807.92	-144.74	2.50	-2.50	0.00
5,500.00	17.58	21.39	4,924.09	-44.89	2,092.71	819.69	-146.84	2.50	-2.50	0.00
5,600.00	15.08	21.39	5,020.05	-140.85	2,118.88	829.94	-148.68	2.50	-2.50	0.00
5,700.00	12.58	21.39	5,117.14	-237.94	2,141.13	838.66	-150.24	2.50	-2.50	0.00
5,800.00	10.08	21.39	5,215.19	-335.99	2,159.42	845.82	-151.53	2.50	-2.50	0.00
5,900.00	7.58	21.39	5,313.99	-434.79	2,173.71	851.42	-152.53	2.50	-2.50	0.00
6,000.00	5.08	21.39	5,413.38	-534.18	2,183.97	855.44	-153.25	2.50	-2.50	0.00
6,100.00	2.58	21.39	5,513.15	-633.95	2,190.19	857.87	-153.68	2.50	-2.50	0.00
6,200.00	0.08	21.39	5,613.11	-733.91	2,192.35	858.72	-153.84	2.50	-2.50	0.00
<b>EOD TO VERTICAL</b>										
<b>6,203.13</b>	<b>0.00</b>	<b>0.00</b>	<b>5,616.24</b>	<b>-737.04</b>	<b>2,192.35</b>	<b>858.72</b>	<b>-153.84</b>	<b>2.50</b>	<b>-2.50</b>	<b>0.00</b>
6,300.00	0.00	0.00	5,713.11	-833.91	2,192.35	858.72	-153.84	0.00	0.00	0.00
<b>KOP (10°/100ft BUR)</b>										
<b>6,303.13</b>	<b>0.00</b>	<b>0.00</b>	<b>5,716.24</b>	<b>-837.04</b>	<b>2,192.35</b>	<b>858.72</b>	<b>-153.84</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
6,400.00	9.69	270.71	5,812.65	-933.45	2,192.45	850.55	-146.02	10.00	10.00	0.00
6,500.00	19.69	270.71	5,909.26	-1,030.06	2,192.77	825.23	-121.80	10.00	10.00	0.00
<b>SHARON SPRINGS SHALE</b>										
<b>6,510.59</b>	<b>20.75</b>	<b>270.71</b>	<b>5,919.20</b>	<b>-1,040.00</b>	<b>2,192.81</b>	<b>821.57</b>	<b>-118.29</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
<b>NIOBRARA FORMATION</b>										
<b>6,599.07</b>	<b>29.59</b>	<b>270.71</b>	<b>5,999.20</b>	<b>-1,120.00</b>	<b>2,193.28</b>	<b>783.98</b>	<b>-82.33</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,600.00	29.69	270.71	6,000.01	-1,120.81	2,193.28	783.52	-81.89	10.00	10.00	0.00
<b>NIOBRARA A CHALK</b>										
<b>6,610.64</b>	<b>30.75</b>	<b>270.71</b>	<b>6,009.20</b>	<b>-1,130.00</b>	<b>2,193.35</b>	<b>778.17</b>	<b>-76.77</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,700.00	39.69	270.71	6,082.13	-1,202.93	2,193.99	726.69	-27.52	10.00	10.00	0.00
<b>NIOBRARA B CHALK</b>										
<b>6,722.56</b>	<b>41.94</b>	<b>270.71</b>	<b>6,099.20</b>	<b>-1,220.00</b>	<b>2,194.17</b>	<b>711.95</b>	<b>-13.41</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,800.00	49.69	270.71	6,153.13	-1,273.93	2,194.86	656.46	39.67	10.00	10.00	0.00
<b>NIOBRARA C CHALK</b>										
<b>6,825.51</b>	<b>52.24</b>	<b>270.71</b>	<b>6,169.20</b>	<b>-1,290.00</b>	<b>2,195.10</b>	<b>636.65</b>	<b>58.62</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
6,900.00	59.69	270.71	6,210.86	-1,331.66	2,195.87	574.97	117.63	10.00	10.00	0.00
7,000.00	69.69	270.71	6,253.57	-1,374.37	2,196.99	484.69	204.00	10.00	10.00	0.00
7,100.00	79.69	270.71	6,279.94	-1,400.74	2,198.18	388.37	296.15	10.00	10.00	0.00
<b>CODELL</b>										
<b>7,127.38</b>	<b>82.43</b>	<b>270.71</b>	<b>6,284.20</b>	<b>-1,405.00</b>	<b>2,198.52</b>	<b>361.33</b>	<b>322.03</b>	<b>10.00</b>	<b>10.00</b>	<b>0.00</b>
7,200.00	89.69	270.71	6,289.19	-1,409.99	2,199.41	288.94	391.29	10.00	10.00	0.00
<b>BPI: 1634ft FNL &amp; 300ft FEL of Sec 19</b>										
<b>7,203.13</b>	<b>90.00</b>	<b>270.71</b>	<b>6,289.20</b>	<b>-1,410.00</b>	<b>2,199.45</b>	<b>285.81</b>	<b>394.28</b>	<b>9.99</b>	<b>9.99</b>	<b>0.00</b>
7,300.00	90.00	270.71	6,289.20	-1,410.00	2,200.65	188.94	486.95	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CASTOR FED 8-59 19-24-4
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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	270.71	6,289.20	-1,410.00	2,201.89	88.95	582.62	0.00	0.00	0.00
7,500.00	90.00	270.71	6,289.20	-1,410.00	2,203.13	-11.04	678.28	0.00	0.00	0.00
7,600.00	90.00	270.71	6,289.20	-1,410.00	2,204.37	-111.03	773.94	0.00	0.00	0.00
7,700.00	90.00	270.71	6,289.21	-1,410.01	2,205.61	-211.03	869.61	0.00	0.00	0.00
7,800.00	90.00	270.71	6,289.21	-1,410.01	2,206.85	-311.02	965.27	0.00	0.00	0.00
7,900.00	90.00	270.71	6,289.21	-1,410.01	2,208.09	-411.01	1,060.94	0.00	0.00	0.00
8,000.00	90.00	270.71	6,289.21	-1,410.01	2,209.33	-511.00	1,156.60	0.00	0.00	0.00
8,100.00	90.00	270.71	6,289.21	-1,410.01	2,210.57	-610.99	1,252.27	0.00	0.00	0.00
8,200.00	90.00	270.71	6,289.21	-1,410.01	2,211.81	-710.99	1,347.93	0.00	0.00	0.00
8,300.00	90.00	270.71	6,289.21	-1,410.01	2,213.05	-810.98	1,443.60	0.00	0.00	0.00
8,400.00	90.00	270.71	6,289.21	-1,410.01	2,214.29	-910.97	1,539.26	0.00	0.00	0.00
8,500.00	90.00	270.71	6,289.21	-1,410.01	2,215.53	-1,010.96	1,634.93	0.00	0.00	0.00
8,600.00	90.00	270.71	6,289.21	-1,410.01	2,216.77	-1,110.96	1,730.59	0.00	0.00	0.00
8,700.00	90.00	270.71	6,289.21	-1,410.01	2,218.01	-1,210.95	1,826.26	0.00	0.00	0.00
8,800.00	90.00	270.71	6,289.21	-1,410.01	2,219.26	-1,310.94	1,921.92	0.00	0.00	0.00
8,900.00	90.00	270.71	6,289.22	-1,410.02	2,220.50	-1,410.93	2,017.58	0.00	0.00	0.00
9,000.00	90.00	270.71	6,289.22	-1,410.02	2,221.74	-1,510.93	2,113.25	0.00	0.00	0.00
9,100.00	90.00	270.71	6,289.22	-1,410.02	2,222.98	-1,610.92	2,208.91	0.00	0.00	0.00
9,200.00	90.00	270.71	6,289.22	-1,410.02	2,224.22	-1,710.91	2,304.58	0.00	0.00	0.00
9,300.00	90.00	270.71	6,289.22	-1,410.02	2,225.46	-1,810.90	2,400.24	0.00	0.00	0.00
9,400.00	90.00	270.71	6,289.22	-1,410.02	2,226.70	-1,910.89	2,495.91	0.00	0.00	0.00
9,500.00	90.00	270.71	6,289.22	-1,410.02	2,227.94	-2,010.89	2,591.57	0.00	0.00	0.00
9,600.00	90.00	270.71	6,289.22	-1,410.02	2,229.18	-2,110.88	2,687.24	0.00	0.00	0.00
9,700.00	90.00	270.71	6,289.22	-1,410.02	2,230.42	-2,210.87	2,782.90	0.00	0.00	0.00
9,800.00	90.00	270.71	6,289.22	-1,410.02	2,231.66	-2,310.86	2,878.57	0.00	0.00	0.00
9,900.00	90.00	270.71	6,289.22	-1,410.02	2,232.90	-2,410.86	2,974.23	0.00	0.00	0.00
10,000.00	90.00	270.71	6,289.22	-1,410.02	2,234.14	-2,510.85	3,069.90	0.00	0.00	0.00
10,100.00	90.00	270.71	6,289.22	-1,410.02	2,235.39	-2,610.84	3,165.56	0.00	0.00	0.00
10,200.00	90.00	270.71	6,289.22	-1,410.02	2,236.63	-2,710.83	3,261.23	0.00	0.00	0.00
10,300.00	90.00	270.71	6,289.22	-1,410.02	2,237.87	-2,810.83	3,356.89	0.00	0.00	0.00
10,400.00	90.00	270.71	6,289.22	-1,410.02	2,239.11	-2,910.82	3,452.56	0.00	0.00	0.00
10,500.00	90.00	270.71	6,289.22	-1,410.02	2,240.35	-3,010.81	3,548.22	0.00	0.00	0.00
10,600.00	90.00	270.71	6,289.22	-1,410.02	2,241.59	-3,110.80	3,643.89	0.00	0.00	0.00
10,700.00	90.00	270.71	6,289.22	-1,410.02	2,242.83	-3,210.79	3,739.55	0.00	0.00	0.00
10,800.00	90.00	270.71	6,289.22	-1,410.02	2,244.08	-3,310.79	3,835.22	0.00	0.00	0.00
10,900.00	90.00	270.71	6,289.22	-1,410.02	2,245.32	-3,410.78	3,930.88	0.00	0.00	0.00
11,000.00	90.00	270.71	6,289.22	-1,410.02	2,246.56	-3,510.77	4,026.55	0.00	0.00	0.00
11,100.00	90.00	270.71	6,289.22	-1,410.02	2,247.80	-3,610.76	4,122.21	0.00	0.00	0.00
11,200.00	90.00	270.71	6,289.22	-1,410.02	2,249.04	-3,710.76	4,217.88	0.00	0.00	0.00
11,300.00	90.00	270.71	6,289.22	-1,410.02	2,250.28	-3,810.75	4,313.54	0.00	0.00	0.00
11,400.00	90.00	270.71	6,289.22	-1,410.02	2,251.53	-3,910.74	4,409.21	0.00	0.00	0.00
11,500.00	90.00	270.71	6,289.22	-1,410.02	2,252.77	-4,010.73	4,504.87	0.00	0.00	0.00
11,600.00	90.00	270.71	6,289.22	-1,410.02	2,254.01	-4,110.73	4,600.54	0.00	0.00	0.00
11,700.00	90.00	270.71	6,289.22	-1,410.02	2,255.25	-4,210.72	4,696.20	0.00	0.00	0.00
11,800.00	90.00	270.71	6,289.22	-1,410.02	2,256.49	-4,310.71	4,791.87	0.00	0.00	0.00
11,900.00	90.00	270.71	6,289.22	-1,410.02	2,257.74	-4,410.70	4,887.53	0.00	0.00	0.00
12,000.00	90.00	270.71	6,289.22	-1,410.02	2,258.98	-4,510.69	4,983.20	0.00	0.00	0.00
12,100.00	90.00	270.71	6,289.22	-1,410.02	2,260.22	-4,610.69	5,078.86	0.00	0.00	0.00
12,200.00	90.00	270.71	6,289.22	-1,410.02	2,261.46	-4,710.68	5,174.53	0.00	0.00	0.00
12,300.00	90.00	270.71	6,289.22	-1,410.02	2,262.70	-4,810.67	5,270.19	0.00	0.00	0.00
12,400.00	90.00	270.71	6,289.22	-1,410.02	2,263.95	-4,910.66	5,365.86	0.00	0.00	0.00
12,500.00	90.00	270.71	6,289.22	-1,410.02	2,265.19	-5,010.66	5,461.52	0.00	0.00	0.00
12,600.00	90.00	270.71	6,289.22	-1,410.02	2,266.43	-5,110.65	5,557.19	0.00	0.00	0.00
12,700.00	90.00	270.71	6,289.22	-1,410.02	2,267.67	-5,210.64	5,652.85	0.00	0.00	0.00

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CASTOR FED 8-59 19-24-4
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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)
12,800.00	90.00	270.71	6,289.22	-1,410.02	2,268.92	-5,310.63	5,748.52	0.00	0.00	0.00
12,900.00	90.00	270.71	6,289.22	-1,410.02	2,270.16	-5,410.62	5,844.18	0.00	0.00	0.00
13,000.00	90.00	270.71	6,289.21	-1,410.01	2,271.40	-5,510.62	5,939.85	0.00	0.00	0.00
13,100.00	90.00	270.71	6,289.21	-1,410.01	2,272.64	-5,610.61	6,035.52	0.00	0.00	0.00
13,200.00	90.00	270.71	6,289.21	-1,410.01	2,273.89	-5,710.60	6,131.18	0.00	0.00	0.00
13,300.00	90.00	270.71	6,289.21	-1,410.01	2,275.13	-5,810.59	6,226.85	0.00	0.00	0.00
13,400.00	90.00	270.71	6,289.21	-1,410.01	2,276.37	-5,910.59	6,322.51	0.00	0.00	0.00
13,500.00	90.00	270.71	6,289.21	-1,410.01	2,277.61	-6,010.58	6,418.18	0.00	0.00	0.00
13,600.00	90.00	270.71	6,289.21	-1,410.01	2,278.86	-6,110.57	6,513.84	0.00	0.00	0.00
13,700.00	90.00	270.71	6,289.21	-1,410.01	2,280.10	-6,210.56	6,609.51	0.00	0.00	0.00
13,800.00	90.00	270.71	6,289.21	-1,410.01	2,281.34	-6,310.56	6,705.17	0.00	0.00	0.00
13,900.00	90.00	270.71	6,289.21	-1,410.01	2,282.59	-6,410.55	6,800.84	0.00	0.00	0.00
14,000.00	90.00	270.71	6,289.21	-1,410.01	2,283.83	-6,510.54	6,896.50	0.00	0.00	0.00
14,100.00	90.00	270.71	6,289.21	-1,410.01	2,285.07	-6,610.53	6,992.17	0.00	0.00	0.00
14,200.00	90.00	270.71	6,289.20	-1,410.00	2,286.32	-6,710.52	7,087.83	0.00	0.00	0.00
14,300.00	90.00	270.71	6,289.20	-1,410.00	2,287.56	-6,810.52	7,183.50	0.00	0.00	0.00
14,400.00	90.00	270.71	6,289.20	-1,410.00	2,288.80	-6,910.51	7,279.17	0.00	0.00	0.00
14,500.00	90.00	270.71	6,289.20	-1,410.00	2,290.05	-7,010.50	7,374.83	0.00	0.00	0.00
<b>EPI: 1623ft FNL &amp; 2340ft FEL of Sec 24</b>										
14,592.29	90.00	270.71	6,289.20	-1,410.00	2,291.19	-7,102.78	7,463.12	0.00	0.00	0.00
14,600.00	90.00	270.48	6,289.20	-1,410.00	2,291.27	-7,110.49	7,470.49	3.00	0.00	-3.00
<b>EOT TO 269.6° AZ</b>										
14,629.31	90.00	269.60	6,289.20	-1,410.00	2,291.30	-7,139.80	7,498.43	3.00	0.00	-3.00
<b>BHL: 1623ft FNL &amp; 2440ft FEL of Sec 24</b>										
14,692.19	90.00	269.60	6,289.20	-1,410.00	2,290.86	-7,202.68	7,558.22	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
484.22	484.20	PIERRE SHALE (BASE FOX HILLS				
3,419.20	3,109.20	PARKMAN				
4,257.12	3,829.20	SUSSEX				
5,115.75	4,569.20	SHANNON				
6,510.59	5,919.20	SHARON SPRINGS SHALE				
6,599.07	5,999.20	NIOBRARA FORMATION				
6,610.64	6,009.20	NIOBRARA A CHALK				
6,722.56	6,099.20	NIOBRARA B CHALK				
6,825.51	6,169.20	NIOBRARA C CHALK				
7,127.38	6,284.20	CODELL				

# Planning Report



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well CASTOR FED 8-59 19-24-4
<b>Company:</b>	BISON OIL & GAS II, LLC	<b>TVD Reference:</b>	KB @ 4879.20usft
<b>Project:</b>	WELD COUNTY, COLORADO (NAD 83)	<b>MD Reference:</b>	KB @ 4879.20usft
<b>Site:</b>	NE SE SEC. 19 T8N R59W 6th P.M.	<b>North Reference:</b>	True
<b>Well:</b>	CASTOR FED 8-59 19-24-4	<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: 1476ft FSL & 560ft FEL of Sec 19
400.00	400.00	0.00	0.00	START NUDGE (2.5°/100ft BUR)
1,630.62	1,572.33	300.32	117.63	EOB TO 30.77° INC
4,972.51	4,443.91	1,892.03	741.09	END OF TANGENT
6,203.13	5,616.24	2,192.35	858.72	EOD TO VERTICAL
6,303.13	5,716.24	2,192.35	858.72	KOP (10°/100ft BUR)
7,203.13	6,289.20	2,199.45	285.81	BPI: 1634ft FNL & 300ft FEL of Sec 19
14,592.29	6,289.20	2,291.19	-7,102.78	EPI: 1623ft FNL & 2340ft FEL of Sec 24
14,629.31	6,289.20	2,291.30	-7,139.80	EOT TO 269.6° AZ
14,692.19	6,289.20	2,290.86	-7,202.68	BHL: 1623ft FNL & 2440ft FEL of Sec 24