

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

CASTOR FED 8-59 19-24-6

ORIGINAL WELLBORE

12 July, 2017

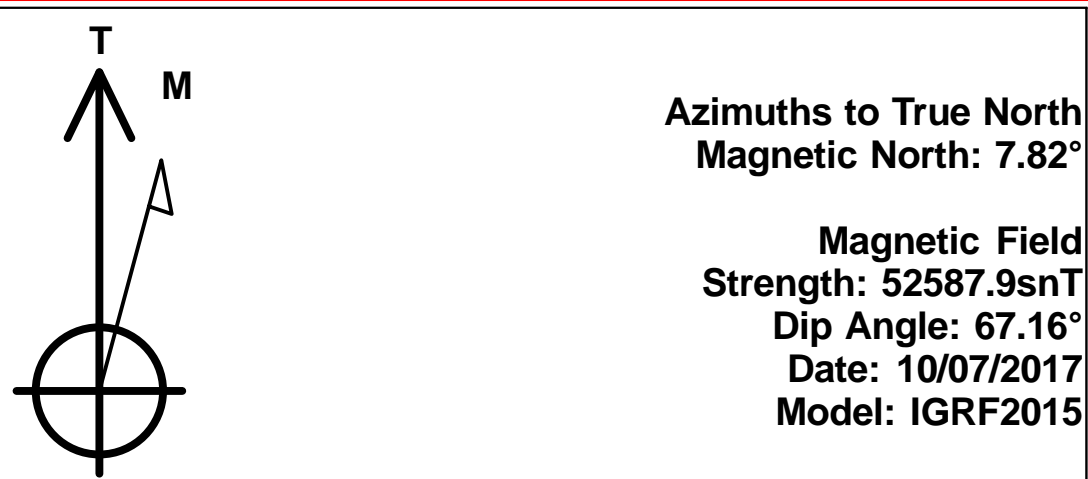
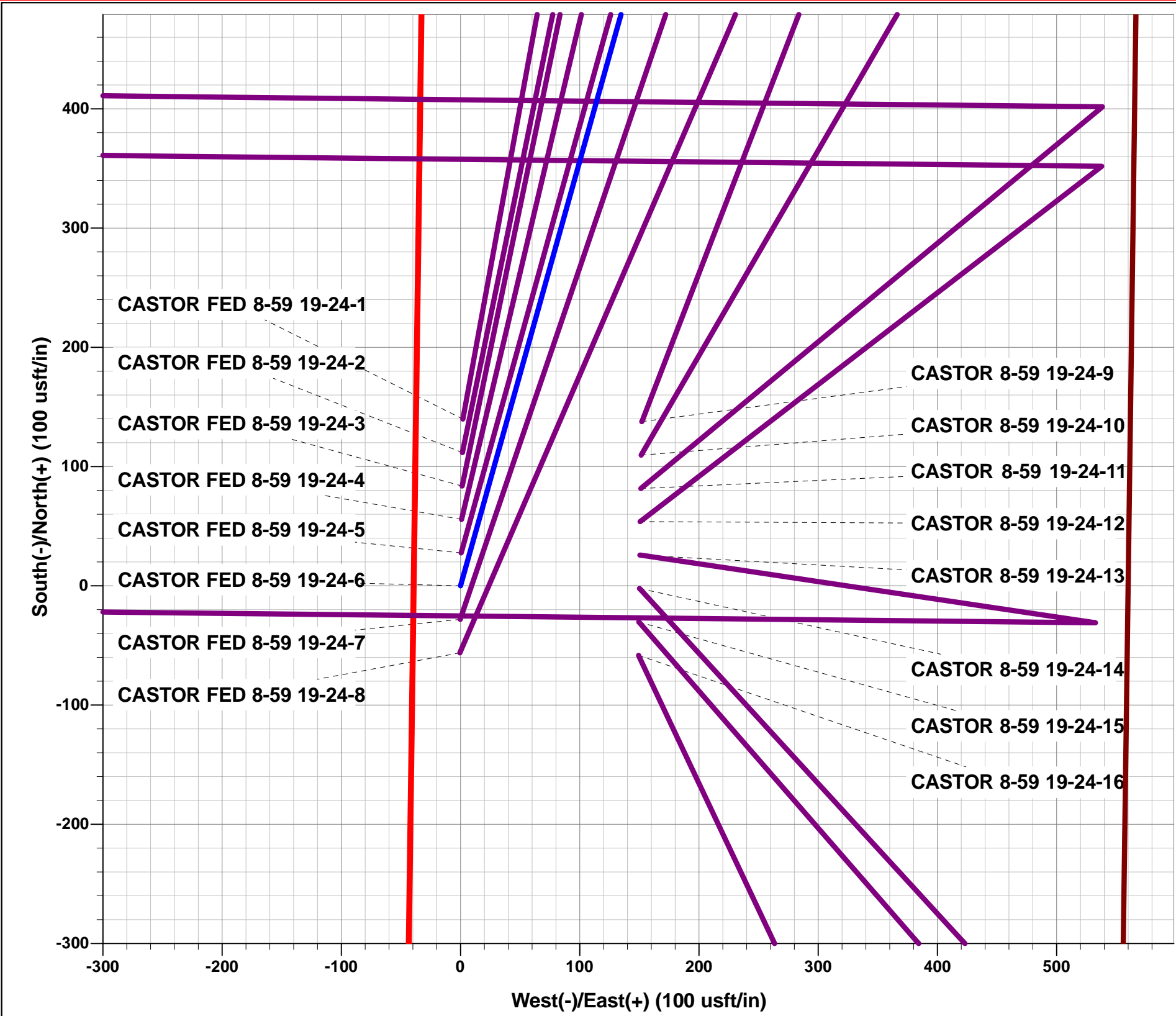
Plan: PROPOSAL #2



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

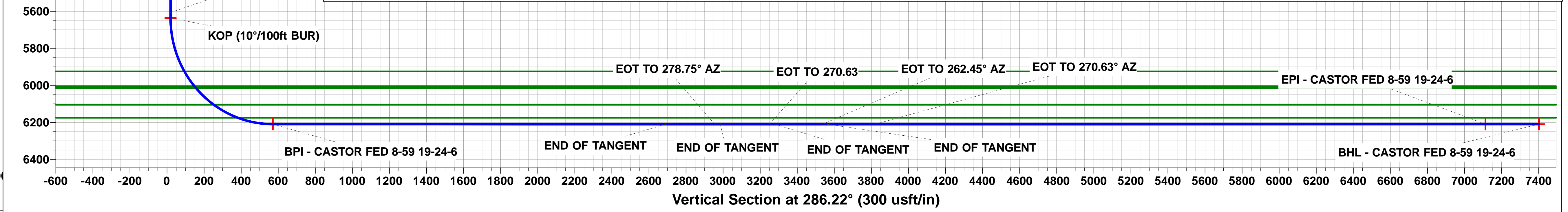
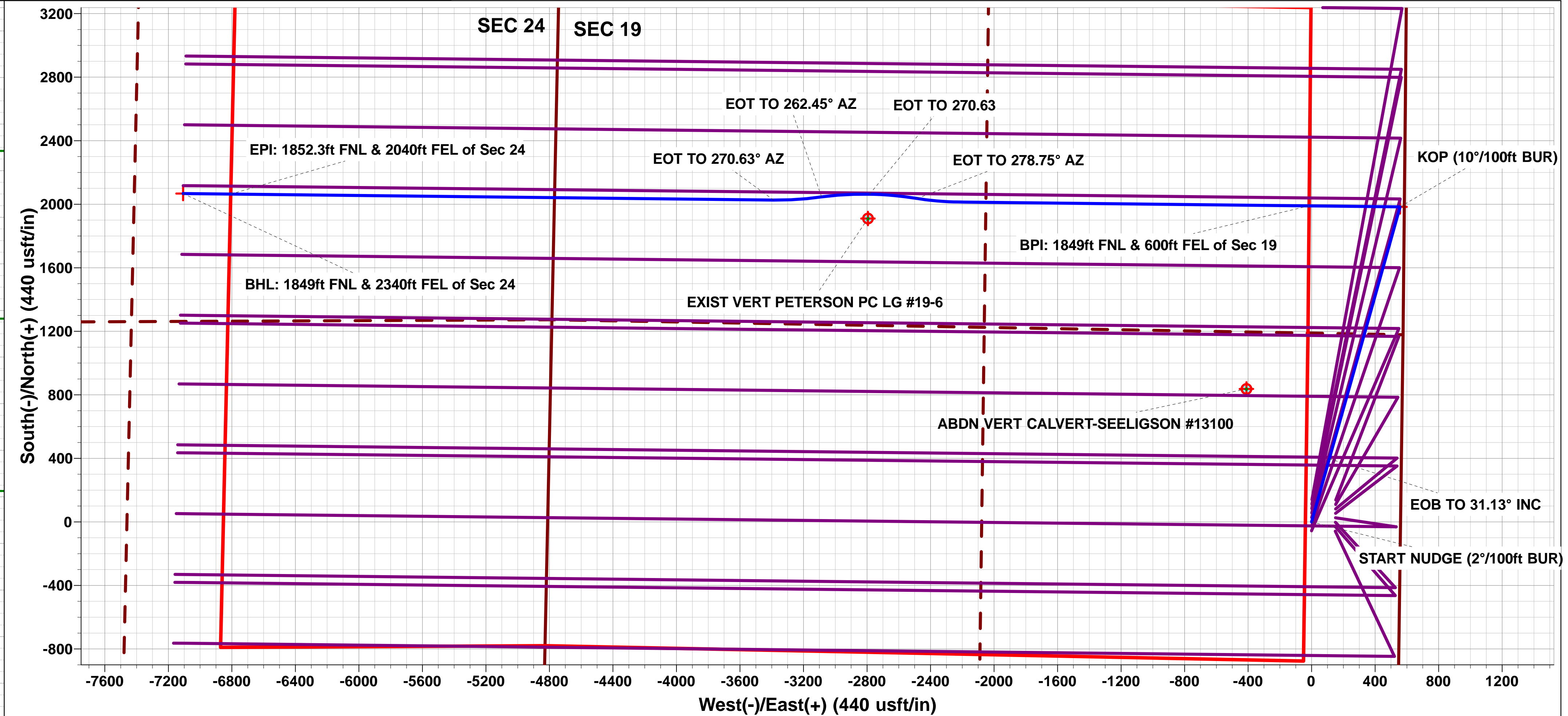
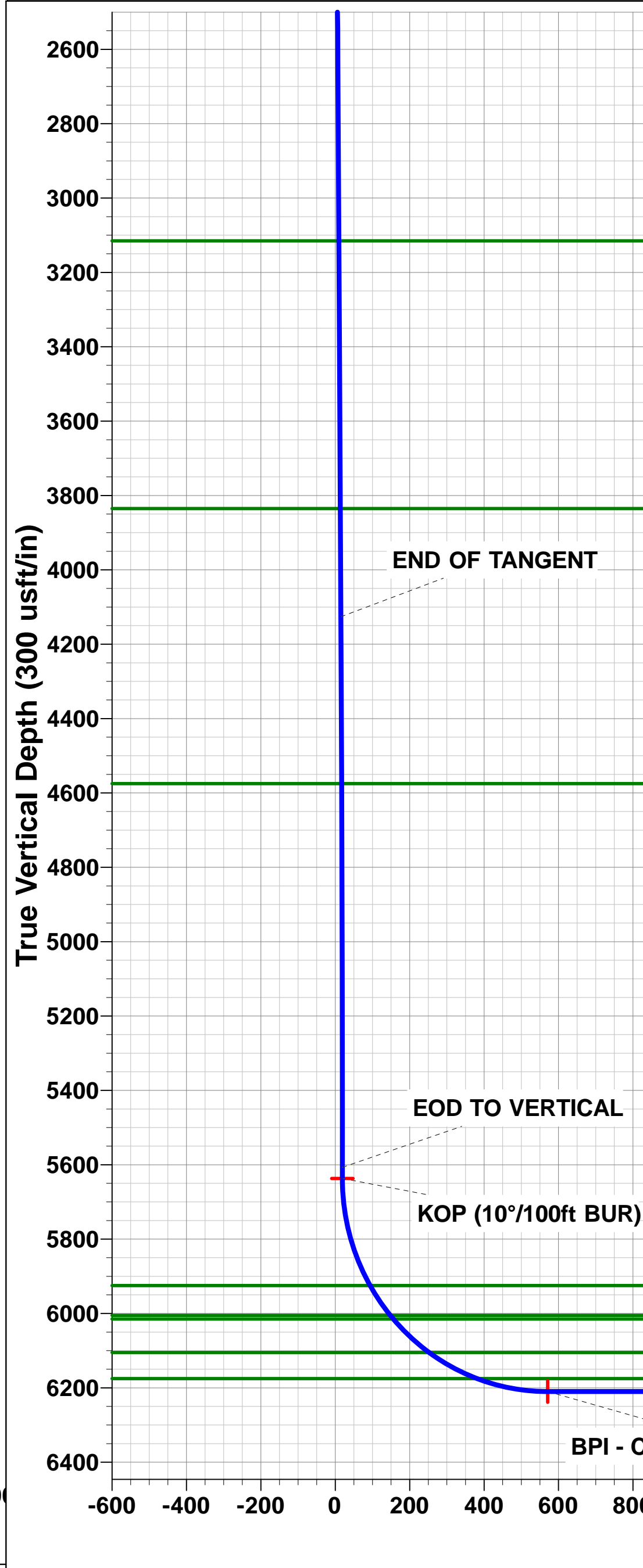
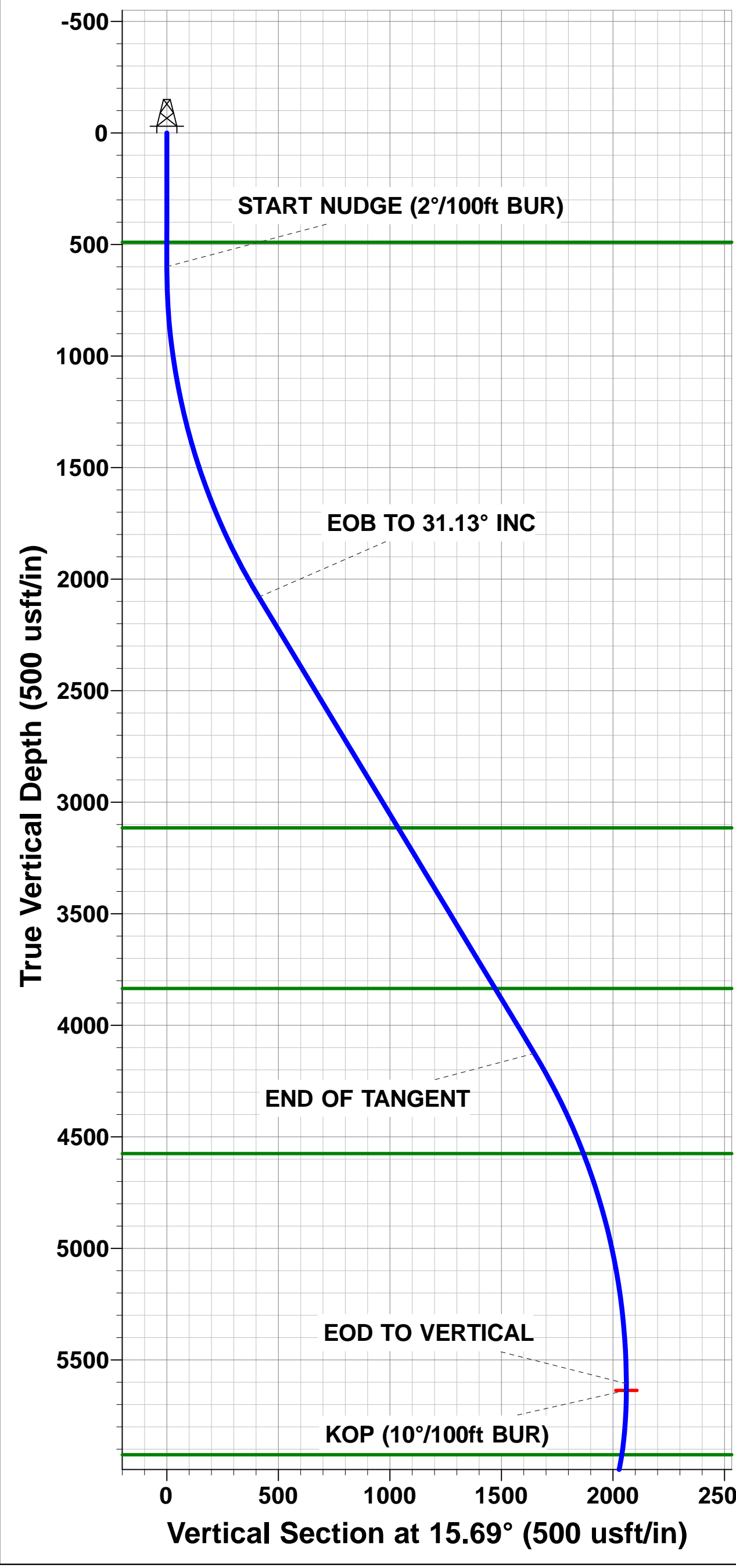
ANNOTATIONS										
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Dep	Annotation		
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 1476ft FSL & 560ft FEL of Sec 19		
600.0	600.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2"/100ft BUR)		
2081.0	2156.4	31.13	15.69	397.1	111.6	3.8	412.5	EOB TO 31.13° INC		
4126.0	4545.5	31.13	15.69	1586.2	445.5	15.2	1647.5	END OF TANGENT		
5607.0	6101.9	0.00	0.00	1983.3	557.1	19.0	2060.1	EOD TO VERTICAL		
5637.0	6131.9	0.00	0.00	1983.3	557.1	19.0	2060.1	KOP (10"/100ft BUR)		
6210.0	7031.9	90.00	270.63	1989.6	-15.8	570.8	2633.0	BPI: 1849ft FNL & 600ft FEL of Sec 19		
6210.2	9231.9	90.00	270.63	2013.8	-2215.7	2689.9	4833.0	END OF TANGENT		
6210.2	9502.6	90.00	278.75	2035.9	-2485.2	2954.9	5103.7	EOT TO 278.75° AZ		
6210.2	9532.6	90.00	278.75	2040.5	-2514.9	2984.7	5133.7	END OF TANGENT		
6210.2	9803.3	90.00	270.63	2062.6	-2784.5	3249.7	5404.4	EOT TO 270.63		
6210.2	9833.3	90.00	270.63	2062.9	-2814.5	3278.6	5434.4	END OF TANGENT		
6210.3	10105.9	90.00	262.45	2046.5	-3086.3	3535.0	5707.0	EOT TO 262.45° AZ		
6210.3	10135.9	90.00	262.45	2042.5	-3116.1	3562.5	5737.0	END OF TANGENT		
6210.3	10408.7	90.00	270.63	2026.1	-3388.1	3819.2	6009.8	EOT TO 270.63° AZ		
6210.0	13828.1	90.00	270.63	2063.8	-6807.3	7112.8	9429.2	EPI: 1852.3ft FNL & 2040ft FEL of Sec 24		
6210.0	14128.1	90.00	270.63	2067.1	-7107.3	7401.8	9729.2	BHL: 1849ft FNL & 2340ft FEL of Sec 24		

WELLBORE TARGET DETAILS (LAT/LONG)					
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
KOP - CASTOR FED 8-59 19-24-6	5637.0	1983.3	557.1	40.650012	-104.010523
BPI - CASTOR FED 8-59 19-24-6	6210.0	1989.6	-15.8	40.650029	-104.012588
BHL - CASTOR FED 8-59 19-24-6	6210.0	2067.1	-7107.3	40.650239	-104.038144
EPI - CASTOR FED 8-59 19-24-6	6210.0	2063.8	-6807.3	40.650230	-104.037063



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
490.0	490.0	PIERRE SH (BASE FOX HILLS)
3115.0	3364.4	PARKMAN
3835.0	4205.5	SUSSEX
4575.0	5046.2	SHANNON
5925.0	6433.7	SHARON SPRINGS SHALE
6005.0	6531.5	NIOBRARA FORMATION
6015.0	6544.7	NIOBRARA A CHALK
6105.0	6679.6	NIOBRARA B CHALK
6175.0	6830.7	NIOBRARA C CHALK

PROPOSED LOCAL COORDINATES:
SHL: 1476ft FSL & 560ft FEL of Sec 19
BEGIN PROD INT: 1849ft FNL & 600ft FEL of Sec 19
END PROD INTERVAL: 1852.3ft FNL & 2040ft FEL of Sec 24
BHL: 1849ft FNL & 2340ft FEL of Sec 24



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

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	NE SE SEC. 19 T8N R59W 6th P.M.		
Site Position:		Northing:	1,481,260.32 usft
From:	Lat/Long	Easting:	3,412,761.19 usft
Position Uncertainty:	0.0 usft	Slot Radius:	1.10000ft
		Latitude:	40.644952
		Longitude:	-104.012524
		Grid Convergence:	0.96 °

Well	CASTOR FED 8-59 19-24-6		
Well Position	+N/-S	-139.9 usft	Northing:
	+E/-W	-1.9 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	10/07/2017	7.82	67.16	52,588

Design	PROPOSAL #2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	286.22

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	-4,885.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	-4,285.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,156.4	31.13	15.69	2,081.0	-2,804.0	397.1	111.6	2.00	2.00	0.00	15.69	
4,545.5	31.13	15.69	4,126.0	-759.0	1,586.2	445.5	0.00	0.00	0.00	0.00	
6,101.9	0.00	0.00	5,607.0	722.0	1,983.3	557.1	2.00	-2.00	0.00	180.00	
6,131.9	0.00	0.00	5,637.0	752.0	1,983.3	557.1	0.00	0.00	0.00	0.00	KOP - CASTOR FE
7,031.9	90.00	270.63	6,210.0	1,325.0	1,989.6	-15.8	10.00	10.00	-9.93	270.63	BPI - CASTOR FE
9,231.9	90.00	270.63	6,210.2	1,325.2	2,013.8	-2,215.7	0.00	0.00	0.00	0.00	
9,502.6	90.00	278.75	6,210.2	1,325.2	2,035.9	-2,485.2	3.00	0.00	3.00	90.00	
9,532.6	90.00	278.75	6,210.2	1,325.2	2,040.5	-2,514.9	0.00	0.00	0.00	0.00	
9,803.3	90.00	270.63	6,210.2	1,325.2	2,062.6	-2,784.4	3.00	0.00	-3.00	270.00	
9,833.3	90.00	270.63	6,210.2	1,325.2	2,062.9	-2,814.4	0.00	0.00	0.00	0.00	
10,105.9	90.00	262.45	6,210.3	1,325.3	2,046.5	-3,086.3	3.00	0.00	-3.00	270.00	
10,135.9	90.00	262.45	6,210.3	1,325.3	2,042.5	-3,116.1	0.00	0.00	0.00	0.00	
10,408.7	90.00	270.63	6,210.3	1,325.3	2,026.1	-3,388.1	3.00	0.00	3.00	89.94	
14,128.1	90.00	270.63	6,210.0	1,325.0	2,067.1	-7,107.3	0.00	0.00	0.00	0.00	BHL - CASTOR FE

Planning Report



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Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
SHL: 1476ft FSL & 560ft FEL of Sec 19										
0.0	0.00	0.00	0.0	4,885.00	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	4,785.00	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	4,685.00	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	4,585.00	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	4,485.00	0.0	0.0	0.0	0.00	0.00	0.00
PIERRE SHALE (BASE FOX HILLS)										
490.0	0.00	0.00	490.0	4,395.00	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	4,385.00	0.0	0.0	0.0	0.00	0.00	0.00
START NUDGE (2°/100ft BUR)										
600.0	0.00	0.00	600.0	4,285.00	0.0	0.0	0.0	0.00	0.00	0.00
700.0	2.00	15.69	700.0	4,185.02	1.7	0.5	0.0	2.00	2.00	0.00
800.0	4.00	15.69	799.8	4,085.16	6.7	1.9	0.1	2.00	2.00	0.00
900.0	6.00	15.69	899.5	3,985.55	15.1	4.2	0.1	2.00	2.00	0.00
1,000.0	8.00	15.69	998.7	3,886.30	26.8	7.5	0.3	2.00	2.00	0.00
1,100.0	10.00	15.69	1,097.5	3,787.53	41.9	11.8	0.4	2.00	2.00	0.00
1,200.0	12.00	15.69	1,195.6	3,689.38	60.3	16.9	0.6	2.00	2.00	0.00
1,300.0	14.00	15.69	1,293.1	3,591.94	81.9	23.0	0.8	2.00	2.00	0.00
1,400.0	16.00	15.69	1,389.6	3,495.36	106.8	30.0	1.0	2.00	2.00	0.00
1,500.0	18.00	15.69	1,485.3	3,399.73	135.0	37.9	1.3	2.00	2.00	0.00
1,600.0	20.00	15.69	1,579.8	3,305.18	166.3	46.7	1.6	2.00	2.00	0.00
1,700.0	22.00	15.69	1,673.2	3,211.83	200.8	56.4	1.9	2.00	2.00	0.00
1,800.0	24.00	15.69	1,765.2	3,119.79	238.4	67.0	2.3	2.00	2.00	0.00
1,900.0	26.00	15.69	1,855.8	3,029.16	279.1	78.4	2.7	2.00	2.00	0.00
2,000.0	28.00	15.69	1,944.9	2,940.06	322.8	90.7	3.1	2.00	2.00	0.00
2,100.0	30.00	15.69	2,032.4	2,852.61	369.5	103.8	3.5	2.00	2.00	0.00
EOB TO 31.13° INC										
2,156.4	31.13	15.69	2,081.0	2,804.00	397.1	111.6	3.8	2.00	2.00	0.00
2,200.0	31.13	15.69	2,118.3	2,766.72	418.8	117.6	4.0	0.00	0.00	0.00
2,300.0	31.13	15.69	2,203.9	2,681.12	468.6	131.6	4.5	0.00	0.00	0.00
2,400.0	31.13	15.69	2,289.5	2,595.52	518.4	145.6	5.0	0.00	0.00	0.00
2,500.0	31.13	15.69	2,375.1	2,509.92	568.1	159.6	5.4	0.00	0.00	0.00
2,600.0	31.13	15.69	2,460.7	2,424.32	617.9	173.6	5.9	0.00	0.00	0.00
2,700.0	31.13	15.69	2,546.3	2,338.72	667.7	187.5	6.4	0.00	0.00	0.00
2,800.0	31.13	15.69	2,631.9	2,253.12	717.4	201.5	6.9	0.00	0.00	0.00
2,900.0	31.13	15.69	2,717.5	2,167.52	767.2	215.5	7.3	0.00	0.00	0.00
3,000.0	31.13	15.69	2,803.1	2,081.92	817.0	229.5	7.8	0.00	0.00	0.00
3,100.0	31.13	15.69	2,888.7	1,996.31	866.8	243.5	8.3	0.00	0.00	0.00
3,200.0	31.13	15.69	2,974.3	1,910.71	916.5	257.4	8.8	0.00	0.00	0.00
3,300.0	31.13	15.69	3,059.9	1,825.11	966.3	271.4	9.2	0.00	0.00	0.00
PARKMAN										
3,364.4	31.13	15.69	3,115.0	1,770.00	998.3	280.4	9.5	0.00	0.00	0.00
3,400.0	31.13	15.69	3,145.5	1,739.51	1,016.1	285.4	9.7	0.00	0.00	0.00
3,500.0	31.13	15.69	3,231.1	1,653.91	1,065.8	299.4	10.2	0.00	0.00	0.00
3,600.0	31.13	15.69	3,316.7	1,568.31	1,115.6	313.4	10.7	0.00	0.00	0.00
3,700.0	31.13	15.69	3,402.3	1,482.71	1,165.4	327.3	11.1	0.00	0.00	0.00
3,800.0	31.13	15.69	3,487.9	1,397.11	1,215.1	341.3	11.6	0.00	0.00	0.00
3,900.0	31.13	15.69	3,573.5	1,311.51	1,264.9	355.3	12.1	0.00	0.00	0.00
4,000.0	31.13	15.69	3,659.1	1,225.91	1,314.7	369.3	12.6	0.00	0.00	0.00
4,100.0	31.13	15.69	3,744.7	1,140.31	1,364.5	383.3	13.0	0.00	0.00	0.00
4,200.0	31.13	15.69	3,830.3	1,054.71	1,414.2	397.2	13.5	0.00	0.00	0.00
SUSSEX										
4,205.5	31.13	15.69	3,835.0	1,050.00	1,417.0	398.0	13.5	0.00	0.00	0.00

Planning Report



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Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
4,300.0	31.13	15.69	3,915.9	969.11	1,464.0	411.2	14.0	0.00	0.00	0.00
4,400.0	31.13	15.69	4,001.5	883.51	1,513.8	425.2	14.5	0.00	0.00	0.00
4,500.0	31.13	15.69	4,087.1	797.91	1,563.5	439.2	14.9	0.00	0.00	0.00
END OF TANGENT										
4,545.5	31.13	15.69	4,126.0	759.00	1,586.2	445.5	15.2	0.00	0.00	0.00
4,600.0	30.04	15.69	4,173.0	712.04	1,612.9	453.0	15.4	2.00	-2.00	0.00
4,700.0	28.04	15.69	4,260.4	624.61	1,659.6	466.2	15.9	2.00	-2.00	0.00
4,800.0	26.04	15.69	4,349.5	535.55	1,703.4	478.5	16.3	2.00	-2.00	0.00
4,900.0	24.04	15.69	4,440.0	444.95	1,744.1	489.9	16.7	2.00	-2.00	0.00
5,000.0	22.04	15.69	4,532.1	352.93	1,781.8	500.5	17.0	2.00	-2.00	0.00
SHANNON										
5,046.2	21.11	15.69	4,575.0	310.00	1,798.1	505.1	17.2	2.00	-2.00	0.00
5,100.0	20.04	15.69	4,625.4	259.60	1,816.3	510.2	17.4	2.00	-2.00	0.00
5,200.0	18.04	15.69	4,719.9	165.08	1,847.7	519.0	17.7	2.00	-2.00	0.00
5,300.0	16.04	15.69	4,815.5	69.47	1,876.0	526.9	17.9	2.00	-2.00	0.00
5,400.0	14.04	15.69	4,912.1	-27.10	1,900.9	534.0	18.2	2.00	-2.00	0.00
5,500.0	12.04	15.69	5,009.5	-124.52	1,922.6	540.1	18.4	2.00	-2.00	0.00
5,600.0	10.04	15.69	5,107.7	-222.66	1,941.1	545.2	18.5	2.00	-2.00	0.00
5,700.0	8.04	15.69	5,206.4	-321.42	1,956.2	549.5	18.7	2.00	-2.00	0.00
5,800.0	6.04	15.69	5,305.7	-420.66	1,968.0	552.8	18.8	2.00	-2.00	0.00
5,900.0	4.04	15.69	5,405.3	-520.27	1,976.5	555.2	18.9	2.00	-2.00	0.00
6,000.0	2.04	15.69	5,505.1	-620.12	1,981.6	556.6	18.9	2.00	-2.00	0.00
6,100.0	0.04	15.69	5,605.1	-720.10	1,983.3	557.1	19.0	2.00	-2.00	0.00
EOD TO VERTICAL										
6,101.9	0.00	0.00	5,607.0	-722.00	1,983.3	557.1	19.0	2.00	-2.00	0.00
KOP (10°/100ft BUR)										
6,131.9	0.00	0.00	5,637.0	-752.00	1,983.3	557.1	19.0	0.00	0.00	0.00
6,200.0	6.81	270.63	5,704.9	-819.94	1,983.3	553.1	22.8	10.00	10.00	0.00
6,300.0	16.81	270.63	5,802.7	-917.70	1,983.6	532.6	42.5	10.00	10.00	0.00
6,400.0	26.81	270.63	5,895.4	-1,010.42	1,984.0	495.5	78.3	10.00	10.00	0.00
SHARON SPRINGS SHALE										
6,433.7	30.17	270.63	5,925.0	-1,040.00	1,984.2	479.5	93.7	10.00	10.00	0.00
6,500.0	36.81	270.63	5,980.3	-1,095.30	1,984.6	442.9	129.0	10.00	10.00	0.00
NIOBRARA FORMATION										
6,531.5	39.96	270.63	6,005.0	-1,120.00	1,984.8	423.3	147.8	10.00	10.00	0.00
NIOBRARA A CHALK										
6,544.7	41.28	270.63	6,015.0	-1,130.00	1,984.9	414.7	156.1	10.00	10.00	0.00
6,600.0	46.81	270.63	6,054.7	-1,169.74	1,985.3	376.3	193.1	10.00	10.00	0.00
NIOBRARA B CHALK										
6,679.6	54.76	270.63	6,105.0	-1,220.00	1,986.0	314.7	252.4	10.00	10.00	0.00
6,700.0	56.81	270.63	6,116.5	-1,231.50	1,986.2	297.8	268.7	10.00	10.00	0.00
6,800.0	66.81	270.63	6,163.7	-1,278.68	1,987.1	209.8	353.5	10.00	10.00	0.00
NIOBRARA C CHALK										
6,830.7	69.87	270.63	6,175.0	-1,290.00	1,987.4	181.3	380.9	10.00	10.00	0.00
6,900.0	76.80	270.63	6,194.9	-1,309.87	1,988.2	114.9	444.9	10.00	10.00	0.00
7,000.0	86.80	270.63	6,209.1	-1,324.11	1,989.2	16.1	540.1	10.00	10.00	0.00
BPI: 1849ft FNL & 600ft FEL of Sec 19										
7,031.9	90.00	270.63	6,210.0	-1,325.00	1,989.6	-15.8	570.8	10.00	10.00	0.00
7,100.0	90.00	270.63	6,210.0	-1,325.01	1,990.3	-83.9	636.4	0.00	0.00	0.00
7,200.0	90.00	270.63	6,210.0	-1,325.01	1,991.4	-183.9	732.7	0.00	0.00	0.00
7,300.0	90.00	270.63	6,210.0	-1,325.02	1,992.5	-283.9	829.1	0.00	0.00	0.00
7,400.0	90.00	270.63	6,210.0	-1,325.03	1,993.6	-383.9	925.4	0.00	0.00	0.00
7,500.0	90.00	270.63	6,210.0	-1,325.04	1,994.7	-483.9	1,021.7	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
7,600.0	90.00	270.63	6,210.0	-1,325.05	1,995.8	-583.9	1,118.0	0.00	0.00	0.00
7,700.0	90.00	270.63	6,210.1	-1,325.06	1,996.9	-683.9	1,214.3	0.00	0.00	0.00
7,800.0	90.00	270.63	6,210.1	-1,325.07	1,998.0	-783.9	1,310.7	0.00	0.00	0.00
7,900.0	90.00	270.63	6,210.1	-1,325.07	1,999.1	-883.8	1,407.0	0.00	0.00	0.00
8,000.0	90.00	270.63	6,210.1	-1,325.08	2,000.2	-983.8	1,503.3	0.00	0.00	0.00
8,100.0	90.00	270.63	6,210.1	-1,325.09	2,001.3	-1,083.8	1,599.6	0.00	0.00	0.00
8,200.0	90.00	270.63	6,210.1	-1,325.10	2,002.4	-1,183.8	1,696.0	0.00	0.00	0.00
8,300.0	90.00	270.63	6,210.1	-1,325.11	2,003.5	-1,283.8	1,792.3	0.00	0.00	0.00
8,400.0	90.00	270.63	6,210.1	-1,325.12	2,004.6	-1,383.8	1,888.6	0.00	0.00	0.00
8,500.0	90.00	270.63	6,210.1	-1,325.12	2,005.7	-1,483.8	1,984.9	0.00	0.00	0.00
8,600.0	90.00	270.63	6,210.1	-1,325.13	2,006.8	-1,583.8	2,081.2	0.00	0.00	0.00
8,700.0	90.00	270.63	6,210.1	-1,325.14	2,007.9	-1,683.8	2,177.6	0.00	0.00	0.00
8,800.0	90.00	270.63	6,210.1	-1,325.15	2,009.0	-1,783.8	2,273.9	0.00	0.00	0.00
8,900.0	90.00	270.63	6,210.2	-1,325.16	2,010.1	-1,883.8	2,370.2	0.00	0.00	0.00
9,000.0	90.00	270.63	6,210.2	-1,325.17	2,011.2	-1,983.8	2,466.5	0.00	0.00	0.00
9,100.0	90.00	270.63	6,210.2	-1,325.18	2,012.3	-2,083.8	2,562.9	0.00	0.00	0.00
9,200.0	90.00	270.63	6,210.2	-1,325.18	2,013.4	-2,183.8	2,659.2	0.00	0.00	0.00
END OF TANGENT										
9,231.9	90.00	270.63	6,210.2	-1,325.19	2,013.8	-2,215.7	2,689.9	0.00	0.00	0.00
9,300.0	90.00	272.67	6,210.2	-1,325.19	2,015.7	-2,283.7	2,755.8	3.00	0.00	3.00
9,400.0	90.00	275.67	6,210.2	-1,325.20	2,023.0	-2,383.5	2,853.6	3.00	0.00	3.00
9,500.0	90.00	278.67	6,210.2	-1,325.21	2,035.5	-2,482.7	2,952.3	3.00	0.00	3.00
EOT TO 278.75° AZ										
9,502.6	90.00	278.75	6,210.2	-1,325.21	2,035.9	-2,485.2	2,954.9	2.99	0.00	2.99
END OF TANGENT										
9,532.6	90.00	278.75	6,210.2	-1,325.21	2,040.5	-2,514.9	2,984.7	0.00	0.00	0.00
9,600.0	90.00	276.73	6,210.2	-1,325.22	2,049.5	-2,581.7	3,051.3	3.00	0.00	-3.00
9,700.0	90.00	273.73	6,210.2	-1,325.23	2,058.6	-2,681.2	3,149.5	3.00	0.00	-3.00
9,800.0	90.00	270.73	6,210.2	-1,325.23	2,062.5	-2,781.2	3,246.5	3.00	0.00	-3.00
EOT TO 270.63										
9,803.3	90.00	270.63	6,210.2	-1,325.23	2,062.6	-2,784.5	3,249.7	2.96	0.00	-2.96
END OF TANGENT										
9,833.3	90.00	270.63	6,210.2	-1,325.24	2,062.9	-2,814.5	3,278.6	0.00	0.00	0.00
9,900.0	90.00	268.63	6,210.2	-1,325.24	2,062.5	-2,881.1	3,342.5	3.00	0.00	-3.00
10,000.0	90.00	265.63	6,210.3	-1,325.25	2,057.5	-2,981.0	3,437.0	3.00	0.00	-3.00
10,100.0	90.00	262.63	6,210.3	-1,325.26	2,047.2	-3,080.5	3,529.6	3.00	0.00	-3.00
EOT TO 262.45° AZ										
10,105.9	90.00	262.45	6,210.3	-1,325.26	2,046.5	-3,086.3	3,535.0	3.00	0.00	-3.00
END OF TANGENT										
10,135.9	90.00	262.45	6,210.3	-1,325.26	2,042.5	-3,116.1	3,562.5	0.00	0.00	0.00
10,200.0	90.00	264.37	6,210.3	-1,325.27	2,035.2	-3,179.7	3,621.6	3.00	0.00	3.00
10,300.0	90.00	267.37	6,210.3	-1,325.27	2,028.0	-3,279.5	3,715.3	3.00	0.00	3.00
10,400.0	90.00	270.37	6,210.3	-1,325.26	2,026.0	-3,379.4	3,810.8	3.00	0.00	3.00
EOT TO 270.63° AZ										
10,408.7	90.00	270.63	6,210.3	-1,325.26	2,026.1	-3,388.1	3,819.2	2.99	0.00	2.99
10,500.0	90.00	270.63	6,210.3	-1,325.26	2,027.1	-3,479.4	3,907.1	0.00	0.00	0.00
10,600.0	90.00	270.63	6,210.2	-1,325.25	2,028.2	-3,579.4	4,003.4	0.00	0.00	0.00
10,700.0	90.00	270.63	6,210.2	-1,325.24	2,029.3	-3,679.4	4,099.7	0.00	0.00	0.00
10,800.0	90.00	270.63	6,210.2	-1,325.24	2,030.4	-3,779.4	4,196.1	0.00	0.00	0.00
10,900.0	90.00	270.63	6,210.2	-1,325.23	2,031.5	-3,879.4	4,292.4	0.00	0.00	0.00
11,000.0	90.00	270.63	6,210.2	-1,325.22	2,032.6	-3,979.4	4,388.7	0.00	0.00	0.00
11,100.0	90.00	270.63	6,210.2	-1,325.21	2,033.7	-4,079.4	4,485.0	0.00	0.00	0.00
11,200.0	90.00	270.63	6,210.2	-1,325.21	2,034.8	-4,179.4	4,581.4	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	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)
11,300.0	90.00	270.63	6,210.2	-1,325.20	2,035.9	-4,279.4	4,677.7	0.00	0.00	0.00
11,400.0	90.00	270.63	6,210.2	-1,325.19	2,037.0	-4,379.4	4,774.0	0.00	0.00	0.00
11,500.0	90.00	270.63	6,210.2	-1,325.19	2,038.1	-4,479.4	4,870.3	0.00	0.00	0.00
11,600.0	90.00	270.63	6,210.2	-1,325.18	2,039.2	-4,579.4	4,966.7	0.00	0.00	0.00
11,700.0	90.00	270.63	6,210.2	-1,325.17	2,040.3	-4,679.4	5,063.0	0.00	0.00	0.00
11,800.0	90.00	270.63	6,210.2	-1,325.16	2,041.4	-4,779.3	5,159.3	0.00	0.00	0.00
11,900.0	90.00	270.63	6,210.2	-1,325.16	2,042.5	-4,879.3	5,255.6	0.00	0.00	0.00
12,000.0	90.00	270.63	6,210.2	-1,325.15	2,043.6	-4,979.3	5,352.0	0.00	0.00	0.00
12,100.0	90.00	270.63	6,210.1	-1,325.14	2,044.7	-5,079.3	5,448.3	0.00	0.00	0.00
12,200.0	90.00	270.63	6,210.1	-1,325.14	2,045.9	-5,179.3	5,544.6	0.00	0.00	0.00
12,300.0	90.00	270.63	6,210.1	-1,325.13	2,047.0	-5,279.3	5,640.9	0.00	0.00	0.00
12,400.0	90.00	270.63	6,210.1	-1,325.12	2,048.1	-5,379.3	5,737.2	0.00	0.00	0.00
12,500.0	90.00	270.63	6,210.1	-1,325.12	2,049.2	-5,479.3	5,833.6	0.00	0.00	0.00
12,600.0	90.00	270.63	6,210.1	-1,325.11	2,050.3	-5,579.3	5,929.9	0.00	0.00	0.00
12,700.0	90.00	270.63	6,210.1	-1,325.10	2,051.4	-5,679.3	6,026.2	0.00	0.00	0.00
12,800.0	90.00	270.63	6,210.1	-1,325.09	2,052.5	-5,779.3	6,122.5	0.00	0.00	0.00
12,900.0	90.00	270.63	6,210.1	-1,325.09	2,053.6	-5,879.3	6,218.9	0.00	0.00	0.00
13,000.0	90.00	270.63	6,210.1	-1,325.08	2,054.7	-5,979.3	6,315.2	0.00	0.00	0.00
13,100.0	90.00	270.63	6,210.1	-1,325.07	2,055.8	-6,079.3	6,411.5	0.00	0.00	0.00
13,200.0	90.00	270.63	6,210.1	-1,325.07	2,056.9	-6,179.3	6,507.8	0.00	0.00	0.00
13,300.0	90.00	270.63	6,210.1	-1,325.06	2,058.0	-6,279.3	6,604.2	0.00	0.00	0.00
13,400.0	90.00	270.63	6,210.1	-1,325.05	2,059.1	-6,379.3	6,700.5	0.00	0.00	0.00
13,500.0	90.00	270.63	6,210.0	-1,325.04	2,060.2	-6,479.2	6,796.8	0.00	0.00	0.00
13,600.0	90.00	270.63	6,210.0	-1,325.04	2,061.3	-6,579.2	6,893.1	0.00	0.00	0.00
13,700.0	90.00	270.63	6,210.0	-1,325.03	2,062.4	-6,679.2	6,989.5	0.00	0.00	0.00
13,800.0	90.00	270.63	6,210.0	-1,325.02	2,063.5	-6,779.2	7,085.8	0.00	0.00	0.00
EPI: 1852.3ft FNL & 2040ft FEL of Sec 24										
13,828.1	90.00	270.63	6,210.0	-1,325.02	2,063.8	-6,807.3	7,112.8	0.00	0.00	0.00
13,900.0	90.00	270.63	6,210.0	-1,325.02	2,064.6	-6,879.2	7,182.1	0.00	0.00	0.00
14,000.0	90.00	270.63	6,210.0	-1,325.01	2,065.7	-6,979.2	7,278.4	0.00	0.00	0.00
14,100.0	90.00	270.63	6,210.0	-1,325.00	2,066.8	-7,079.2	7,374.7	0.00	0.00	0.00
BHL: 1849ft FNL & 2340ft FEL of Sec 24										
14,128.1	90.00	270.63	6,210.0	-1,325.00	2,067.1	-7,107.3	7,401.8	0.00	0.00	0.00

Formations						
MD (usft)	TVD (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
490.0	490.0	PIERRE SHALE (BASE FOX HILLS				
3,364.4	3,115.0	PARKMAN				
4,205.5	3,835.0	SUSSEX				
5,046.2	4,575.0	SHANNON				
6,433.7	5,925.0	SHARON SPRINGS SHALE				
6,531.5	6,005.0	NIOBRARA FORMATION				
6,544.7	6,015.0	NIOBRARA A CHALK				
6,679.6	6,105.0	NIOBRARA B CHALK				
6,830.7	6,175.0	NIOBRARA C CHALK				

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR FED 8-59 19-24-6
Company:	BISON OIL & GAS II, LLC	TVD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Project:	WELD COUNTY, COLORADO (NAD 83)	MD Reference:	KB-EST @ 4885.0usft (Original Well Elev)
Site:	NE SE SEC. 19 T8N R59W 6th P.M.	North Reference:	True
Well:	CASTOR FED 8-59 19-24-6	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL #2		

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 1476ft FSL & 560ft FEL of Sec 19
600.0	600.0	0.0	0.0	START NUDGE (2°/100ft BUR)
2,156.4	2,081.0	397.1	111.6	EOB TO 31.13° INC
4,545.5	4,126.0	1,586.2	445.5	END OF TANGENT
6,101.9	5,607.0	1,983.3	557.1	EOD TO VERTICAL
6,131.9	5,637.0	1,983.3	557.1	KOP (10°/100ft BUR)
7,031.9	6,210.0	1,989.6	-15.8	BPI: 1849ft FNL & 600ft FEL of Sec 19
9,231.9	6,210.2	2,013.8	-2,215.7	END OF TANGENT
9,502.6	6,210.2	2,035.9	-2,485.2	EOT TO 278.75° AZ
9,532.6	6,210.2	2,040.5	-2,514.9	END OF TANGENT
9,803.3	6,210.2	2,062.6	-2,784.5	EOT TO 270.63
9,833.3	6,210.2	2,062.9	-2,814.5	END OF TANGENT
10,105.9	6,210.3	2,046.5	-3,086.3	EOT TO 262.45° AZ
10,135.9	6,210.3	2,042.5	-3,116.1	END OF TANGENT
10,408.7	6,210.3	2,026.1	-3,388.1	EOT TO 270.63° AZ
13,828.1	6,210.0	2,063.8	-6,807.3	EPI: 1852.3ft FNL & 2040ft FEL of Sec 24
14,128.1	6,210.0	2,067.1	-7,107.3	BHL: 1849ft FNL & 2340ft FEL of Sec 24