

BISON OIL & GAS II, LLC

WELD COUNTY, COLORADO (NAD 83)

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

CASTOR 8-59 19-24-12

ORIGINAL WELLBORE

10 July, 2017

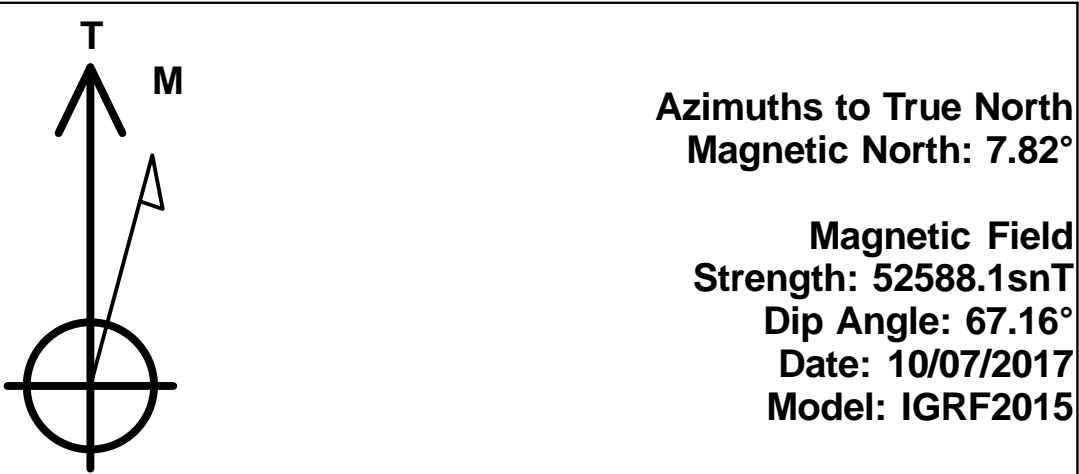
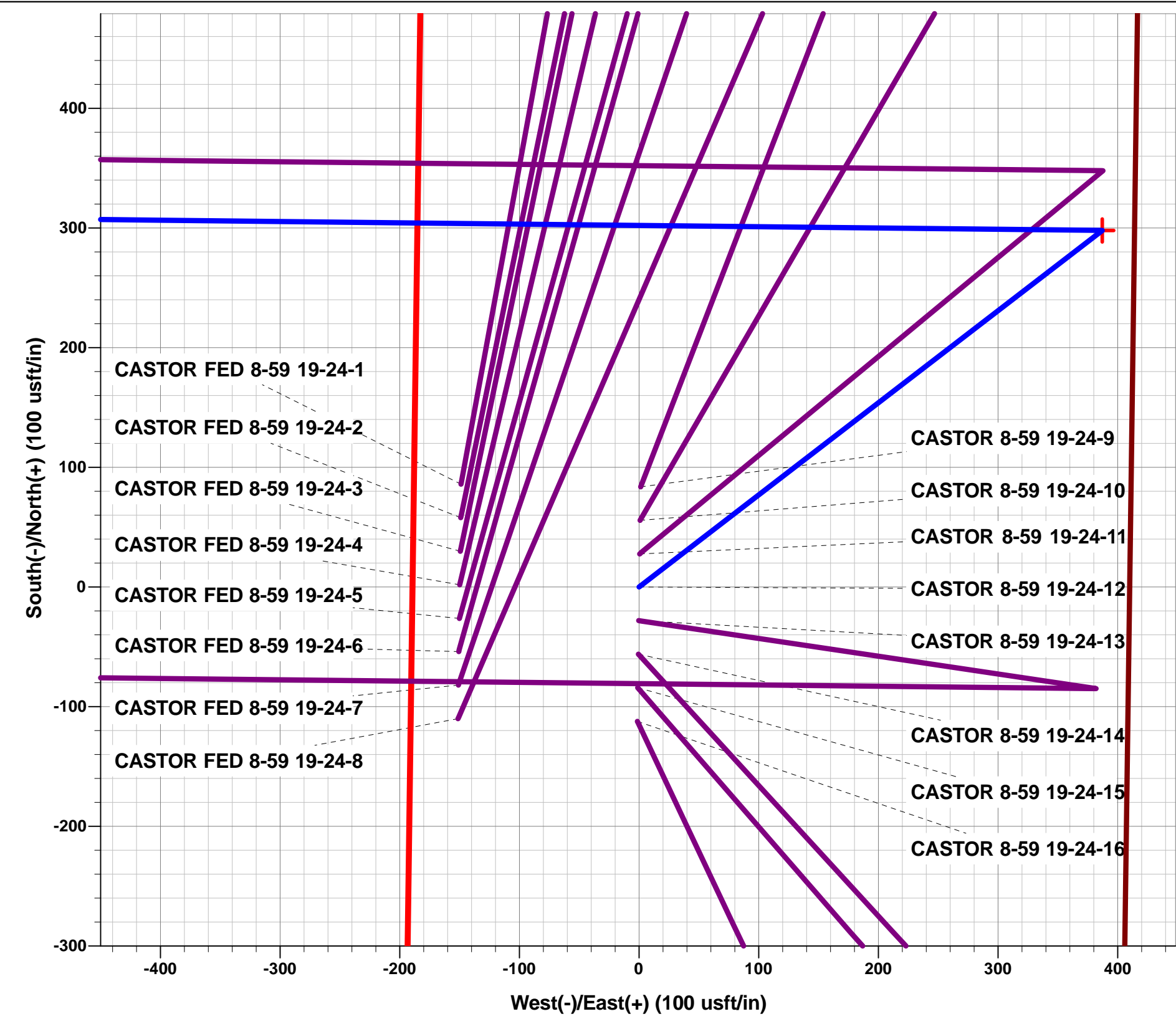
Plan: PROPOSAL #1



Project: WELD COUNTY, COLORADO (NAD 83)
Site: NE SE SEC. 19 T8N R59W 6th P.M.
Well: CASTOR 8-59 19-24-12
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL #1

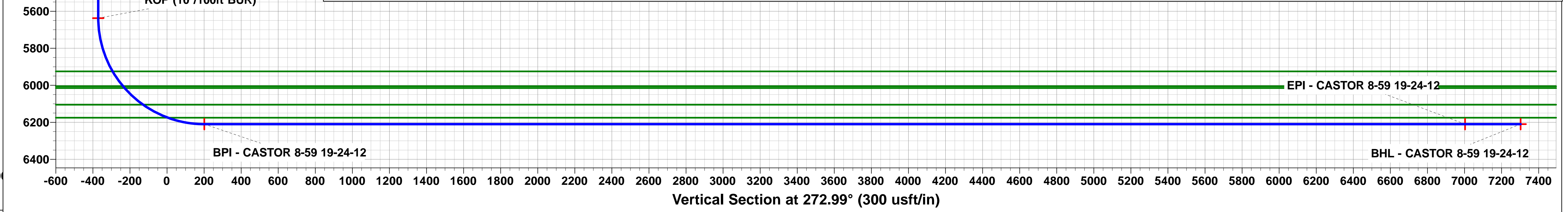
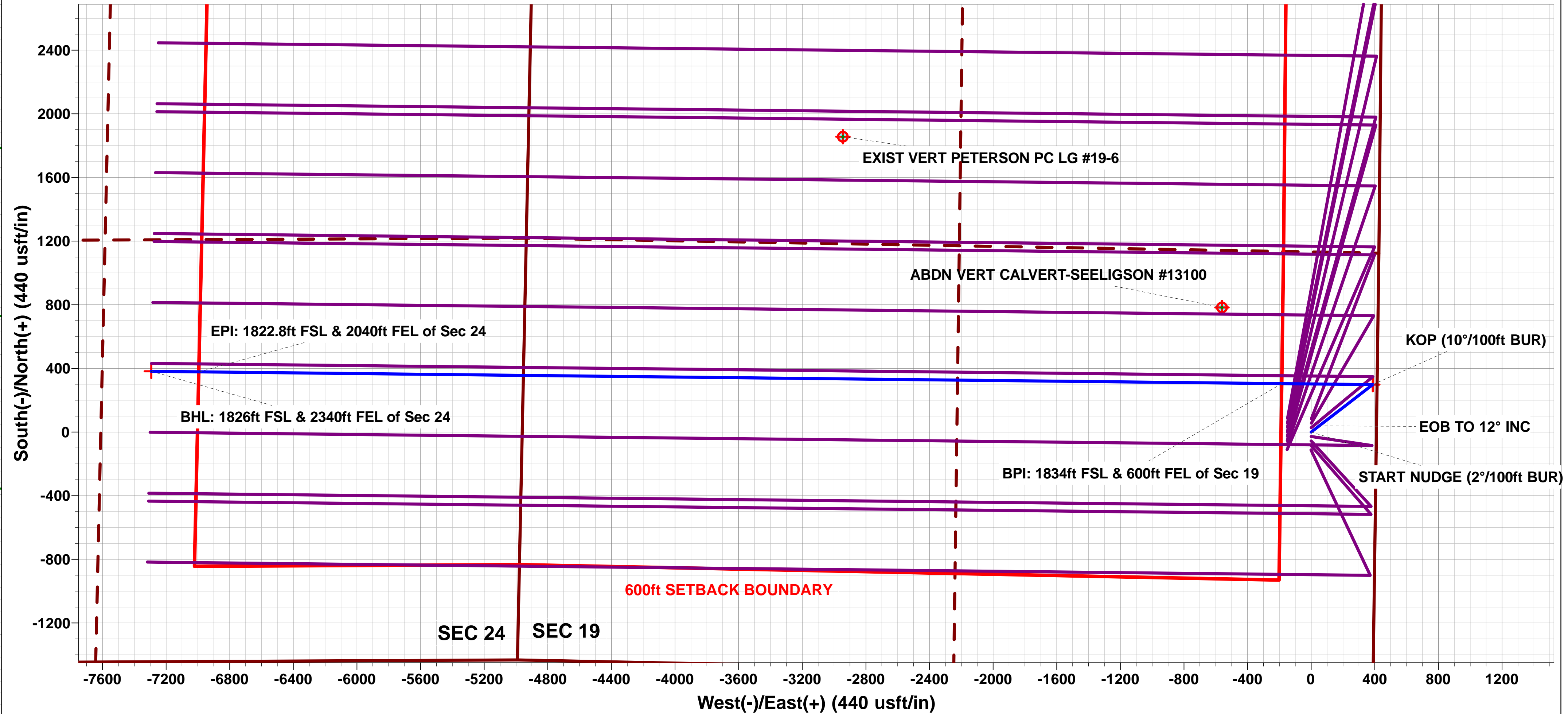
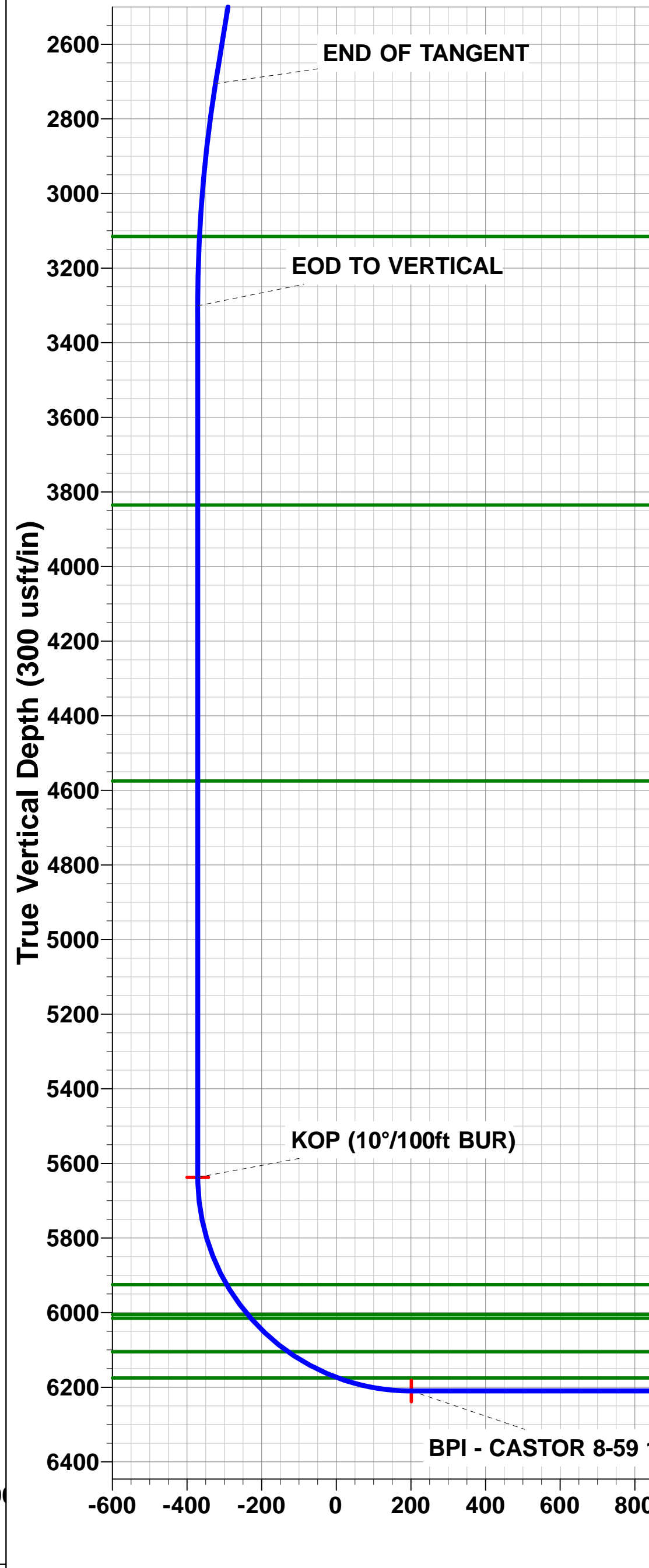
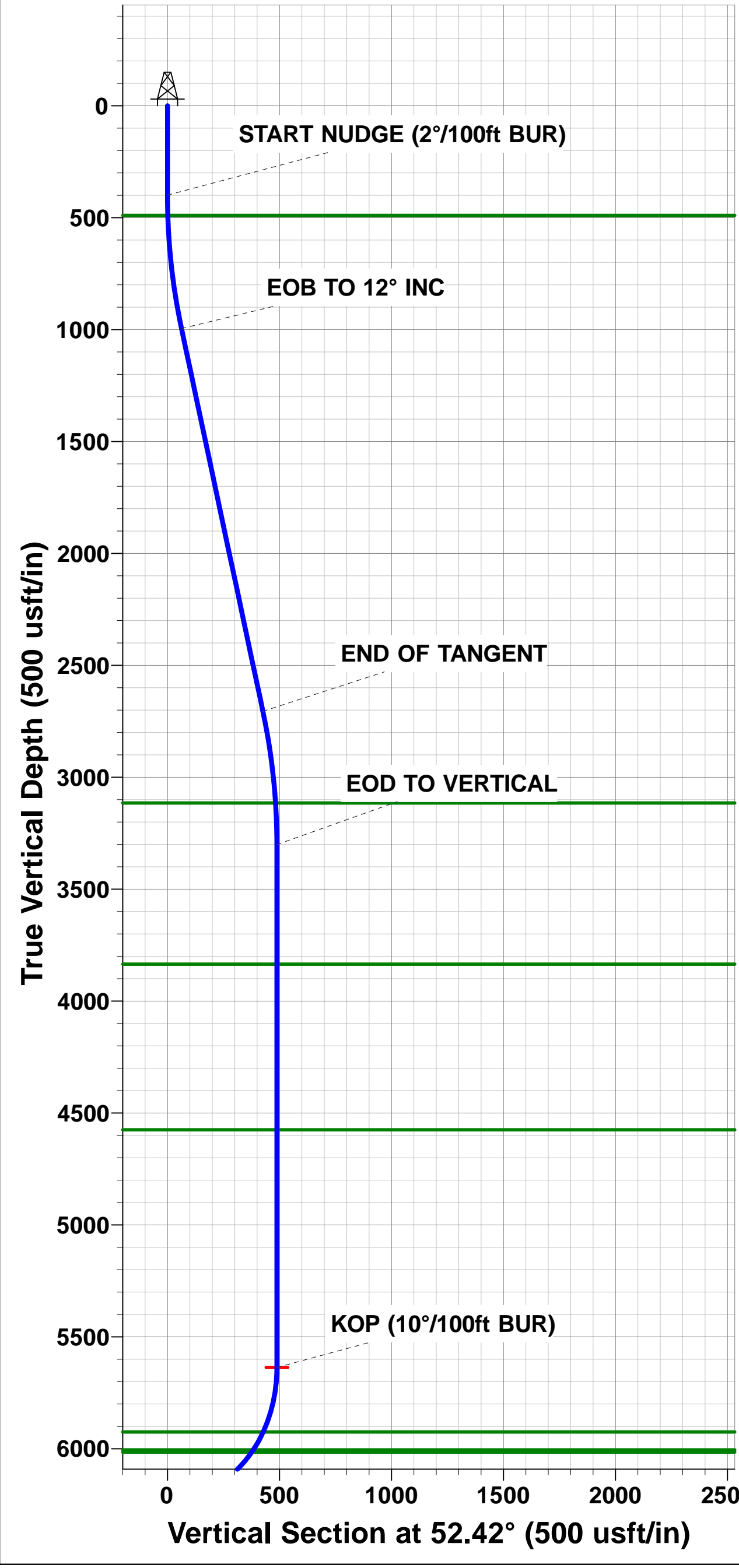
ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Dep	Annotation	
0.0	0.0	0.00	0.00	0.0	0.0	0.0	0.0	SHL: 1533ft FSL & 410ft FEL of Sec 19	
400.0	400.0	0.00	0.00	0.0	0.0	0.0	0.0	START NUDGE (2°/100ft BUR)	
995.5	999.9	12.00	52.42	38.2	49.6	-47.5	62.6	EOB TO 12° INC	
2705.6	2748.1	12.00	52.42	259.8	337.6	-323.6	426.0	END OF TANGENT	
3301.1	3348.0	0.00	0.00	298.0	387.2	-371.1	488.6	EOD TO VERTICAL	
5637.1	5684.0	0.00	0.00	298.0	387.2	-371.1	488.6	KOP (10°/100ft BUR)	
6210.0	6583.9	90.00	270.62	304.2	-185.7	201.3	1061.5	BPI: 1834ft FSL & 600ft FEL of Sec 19	
6210.0	13391.3	90.00	270.62	378.2	-6992.6	7002.8	7868.8	EPI: 1822.8ft FSL & 2040ft FEL of Sec 24	
6210.0	13691.3	90.00	270.62	381.4	-7292.6	7302.6	8168.8	BHL: 1826ft FSL & 2340ft FEL of Sec 24	

WELLBORE TARGET DETAILS (LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
KOP - CASTOR 8-59 19-24-12	5637.1	298.0	387.2	40.645534	-104.010593	
BPI - CASTOR 8-59 19-24-12	6210.0	304.2	-185.7	40.645551	-104.012657	
BHL - CASTOR 8-59 19-24-12	6210.0	381.4	-7292.6	40.645760	-104.038267	
EPI - CASTOR 8-59 19-24-12	6210.0	378.2	-6992.6	40.645751	-104.037186	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
490.0	490.0	PIERRE SH (BASE FOX HILLS)
3115.0	3161.8	PARKMAN
3835.0	3881.9	SUSSEX
4575.0	4621.9	SHANNON
5925.0	5985.7	SHARON SPRINGS SHALE
6005.0	6083.5	NIOBRARA FORMATION
6015.0	6096.7	NIOBRARA A CHALK
6105.0	6231.6	NIOBRARA B CHALK
6175.0	6382.7	NIOBRARA C CHALK

PROPOSED LOCAL COORDINATES:
SHL: 1533ft FSL & 410ft FEL of Sec 19
BEGIN PROD INT: 1834ft FSL & 600ft FEL of Sec 19
END PROD INTERVAL: 1822.8ft FSL & 2040ft FEL of Sec 24
BHL: 1826ft FSL & 2340ft FEL of Sec 24



Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 8-59 19-24-12
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 8-59 19-24-12	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	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 8-59 19-24-12		
Well Position	+N/-S	-86.0 usft	Northing:
	+E/-W	148.7 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 #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	6,210.0	0.0	0.0	272.99

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	
400.0	0.00	0.00	400.0	-4,485.0	0.0	0.0	0.00	0.00	0.00	0.00	
999.9	12.00	52.42	995.5	-3,889.5	38.2	49.6	2.00	2.00	0.00	52.42	
2,748.1	12.00	52.42	2,705.6	-2,179.4	259.8	337.6	0.00	0.00	0.00	0.00	
3,348.0	0.00	0.00	3,301.1	-1,583.9	298.0	387.2	2.00	-2.00	0.00	180.00	
5,684.0	0.00	0.00	5,637.1	752.1	298.0	387.2	0.00	0.00	0.00	0.00	KOP - CASTOR 8-59
6,583.9	90.00	270.62	6,210.0	1,325.0	304.2	-185.7	10.00	10.00	-9.93	270.62	BPI - CASTOR 8-59
13,691.3	90.00	270.62	6,210.0	1,325.0	381.4	-7,292.6	0.00	0.00	0.00	11.94	BHL - CASTOR 8-59

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 8-59 19-24-12	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: 1533ft FSL & 410ft 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
START NUDGE (2°/100ft BUR)										
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	1.80	52.42	490.0	4,395.00	0.9	1.1	-1.1	2.00	2.00	0.00
500.0	2.00	52.42	500.0	4,385.02	1.1	1.4	-1.3	2.00	2.00	0.00
600.0	4.00	52.42	599.8	4,285.16	4.3	5.5	-5.3	2.00	2.00	0.00
700.0	6.00	52.42	699.5	4,185.55	9.6	12.4	-11.9	2.00	2.00	0.00
800.0	8.00	52.42	798.7	4,086.30	17.0	22.1	-21.2	2.00	2.00	0.00
900.0	10.00	52.42	897.5	3,987.53	26.5	34.5	-33.1	2.00	2.00	0.00
EOB TO 12° INC										
999.9	12.00	52.42	995.5	3,889.45	38.2	49.6	-47.5	2.00	2.00	0.00
1,000.0	12.00	52.42	995.6	3,889.38	38.2	49.6	-47.5	0.00	0.00	0.00
1,100.0	12.00	52.42	1,093.4	3,791.56	50.9	66.1	-63.3	0.00	0.00	0.00
1,200.0	12.00	52.42	1,191.3	3,693.75	63.5	82.6	-79.1	0.00	0.00	0.00
1,300.0	12.00	52.42	1,289.1	3,595.93	76.2	99.0	-94.9	0.00	0.00	0.00
1,400.0	12.00	52.42	1,386.9	3,498.12	88.9	115.5	-110.7	0.00	0.00	0.00
1,500.0	12.00	52.42	1,484.7	3,400.30	101.6	132.0	-126.5	0.00	0.00	0.00
1,600.0	12.00	52.42	1,582.5	3,302.48	114.3	148.5	-142.3	0.00	0.00	0.00
1,700.0	12.00	52.42	1,680.3	3,204.67	126.9	164.9	-158.1	0.00	0.00	0.00
1,800.0	12.00	52.42	1,778.1	3,106.85	139.6	181.4	-173.9	0.00	0.00	0.00
1,900.0	12.00	52.42	1,876.0	3,009.04	152.3	197.9	-189.7	0.00	0.00	0.00
2,000.0	12.00	52.42	1,973.8	2,911.22	165.0	214.4	-205.4	0.00	0.00	0.00
2,100.0	12.00	52.42	2,071.6	2,813.41	177.7	230.8	-221.2	0.00	0.00	0.00
2,200.0	12.00	52.42	2,169.4	2,715.59	190.3	247.3	-237.0	0.00	0.00	0.00
2,300.0	12.00	52.42	2,267.2	2,617.78	203.0	263.8	-252.8	0.00	0.00	0.00
2,400.0	12.00	52.42	2,365.0	2,519.96	215.7	280.3	-268.6	0.00	0.00	0.00
2,500.0	12.00	52.42	2,462.9	2,422.15	228.4	296.7	-284.4	0.00	0.00	0.00
2,600.0	12.00	52.42	2,560.7	2,324.33	241.0	313.2	-300.2	0.00	0.00	0.00
2,700.0	12.00	52.42	2,658.5	2,226.52	253.7	329.7	-316.0	0.00	0.00	0.00
END OF TANGENT										
2,748.1	12.00	52.42	2,705.6	2,179.45	259.8	337.6	-323.6	0.00	0.00	0.00
2,800.0	10.96	52.42	2,756.4	2,128.61	266.1	345.8	-331.4	2.00	-2.00	0.00
2,900.0	8.96	52.42	2,854.9	2,030.12	276.7	359.5	-344.5	2.00	-2.00	0.00
3,000.0	6.96	52.42	2,953.9	1,931.09	285.1	370.5	-355.1	2.00	-2.00	0.00
3,100.0	4.96	52.42	3,053.4	1,831.63	291.5	378.7	-363.0	2.00	-2.00	0.00
PARKMAN										
3,161.8	3.72	52.42	3,115.0	1,770.00	294.3	382.4	-366.5	2.00	-2.00	0.00
3,200.0	2.96	52.42	3,153.1	1,731.88	295.7	384.2	-368.2	2.00	-2.00	0.00
3,300.0	0.96	52.42	3,253.1	1,631.94	297.8	386.9	-370.8	2.00	-2.00	0.00
EOD TO VERTICAL										
3,348.0	0.00	0.00	3,301.1	1,583.90	298.0	387.2	-371.1	2.00	-2.00	0.00
3,400.0	0.00	0.00	3,353.1	1,531.94	298.0	387.2	-371.1	0.00	0.00	0.00
3,500.0	0.00	0.00	3,453.1	1,431.94	298.0	387.2	-371.1	0.00	0.00	0.00
3,600.0	0.00	0.00	3,553.1	1,331.94	298.0	387.2	-371.1	0.00	0.00	0.00
3,700.0	0.00	0.00	3,653.1	1,231.94	298.0	387.2	-371.1	0.00	0.00	0.00
3,800.0	0.00	0.00	3,753.1	1,131.94	298.0	387.2	-371.1	0.00	0.00	0.00
SUSSEX										
3,881.9	0.00	0.00	3,835.0	1,050.00	298.0	387.2	-371.1	0.00	0.00	0.00

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Well:	CASTOR 8-59 19-24-12	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)
3,900.0	0.00	0.00	3,853.1	1,031.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,000.0	0.00	0.00	3,953.1	931.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,100.0	0.00	0.00	4,053.1	831.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,200.0	0.00	0.00	4,153.1	731.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,300.0	0.00	0.00	4,253.1	631.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,400.0	0.00	0.00	4,353.1	531.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,500.0	0.00	0.00	4,453.1	431.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,600.0	0.00	0.00	4,553.1	331.94	298.0	387.2	-371.1	0.00	0.00	0.00
SHANNON										
4,621.9	0.00	0.00	4,575.0	310.00	298.0	387.2	-371.1	0.00	0.00	0.00
4,700.0	0.00	0.00	4,653.1	231.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,800.0	0.00	0.00	4,753.1	131.94	298.0	387.2	-371.1	0.00	0.00	0.00
4,900.0	0.00	0.00	4,853.1	31.94	298.0	387.2	-371.1	0.00	0.00	0.00
5,000.0	0.00	0.00	4,953.1	-68.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,100.0	0.00	0.00	5,053.1	-168.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,200.0	0.00	0.00	5,153.1	-268.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,300.0	0.00	0.00	5,253.1	-368.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,353.1	-468.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,453.1	-568.06	298.0	387.2	-371.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,553.1	-668.06	298.0	387.2	-371.1	0.00	0.00	0.00
KOP (10°/100ft BUR)										
5,684.0	0.00	0.00	5,637.1	-752.10	298.0	387.2	-371.1	0.00	0.00	0.00
5,700.0	1.60	270.62	5,653.1	-768.05	298.0	387.0	-370.9	10.00	10.00	0.00
5,800.0	11.60	270.62	5,752.3	-867.27	298.1	375.5	-359.4	10.00	10.00	0.00
5,900.0	21.60	270.62	5,848.0	-962.98	298.4	347.0	-330.9	10.00	10.00	0.00
SHARON SPRINGS SHALE										
5,985.7	30.17	270.62	5,925.0	-1,040.00	298.8	309.6	-293.6	10.00	10.00	0.00
6,000.0	31.60	270.62	5,937.3	-1,052.28	298.9	302.3	-286.2	10.00	10.00	0.00
NIOBRARA FORMATION										
6,083.5	39.95	270.62	6,005.0	-1,120.00	299.5	253.5	-237.5	10.00	10.00	0.00
NIOBRARA A CHALK										
6,096.7	41.27	270.62	6,015.0	-1,130.00	299.5	244.9	-228.9	10.00	10.00	0.00
6,100.0	41.60	270.62	6,017.5	-1,132.46	299.6	242.7	-226.7	10.00	10.00	0.00
6,200.0	51.60	270.62	6,086.1	-1,201.08	300.4	170.2	-154.2	10.00	10.00	0.00
NIOBRARA B CHALK										
6,231.6	54.76	270.62	6,105.0	-1,220.00	300.6	144.9	-129.0	10.00	10.00	0.00
6,300.0	61.60	270.62	6,141.1	-1,256.06	301.3	86.8	-70.9	10.00	10.00	0.00
NIOBRARA C CHALK										
6,382.7	69.87	270.62	6,175.0	-1,290.00	302.1	11.5	4.3	10.00	10.00	0.00
6,400.0	71.60	270.62	6,180.7	-1,295.72	302.3	-4.9	20.7	10.00	10.00	0.00
6,500.0	81.60	270.62	6,203.9	-1,318.86	303.3	-102.0	117.7	10.00	10.00	0.00
BPI: 1834ft FSL & 600ft FEL of Sec 19										
6,583.9	90.00	270.62	6,210.0	-1,325.00	304.2	-185.7	201.3	10.00	10.00	0.00
6,600.0	90.00	270.62	6,210.0	-1,325.00	304.4	-201.7	217.3	0.00	0.00	0.00
6,700.0	90.00	270.62	6,210.0	-1,325.00	305.5	-301.7	317.3	0.00	0.00	0.00
6,800.0	90.00	270.62	6,210.0	-1,325.01	306.6	-401.7	417.2	0.00	0.00	0.00
6,900.0	90.00	270.62	6,210.0	-1,325.01	307.7	-501.7	517.1	0.00	0.00	0.00
7,000.0	90.00	270.62	6,210.0	-1,325.01	308.7	-601.7	617.0	0.00	0.00	0.00
7,100.0	90.00	270.62	6,210.0	-1,325.01	309.8	-701.7	716.9	0.00	0.00	0.00
7,200.0	90.00	270.62	6,210.0	-1,325.01	310.9	-801.7	816.8	0.00	0.00	0.00
7,300.0	90.00	270.62	6,210.0	-1,325.02	312.0	-901.7	916.7	0.00	0.00	0.00
7,400.0	90.00	270.62	6,210.0	-1,325.02	313.1	-1,001.7	1,016.7	0.00	0.00	0.00
7,500.0	90.00	270.62	6,210.0	-1,325.02	314.2	-1,101.7	1,116.6	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 8-59 19-24-12
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 8-59 19-24-12	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)
7,600.0	90.00	270.62	6,210.0	-1,325.02	315.3	-1,201.7	1,216.5	0.00	0.00	0.00
7,700.0	90.00	270.62	6,210.0	-1,325.02	316.3	-1,301.6	1,316.4	0.00	0.00	0.00
7,800.0	90.00	270.62	6,210.0	-1,325.02	317.4	-1,401.6	1,416.3	0.00	0.00	0.00
7,900.0	90.00	270.62	6,210.0	-1,325.03	318.5	-1,501.6	1,516.2	0.00	0.00	0.00
8,000.0	90.00	270.62	6,210.0	-1,325.03	319.6	-1,601.6	1,616.1	0.00	0.00	0.00
8,100.0	90.00	270.62	6,210.0	-1,325.03	320.7	-1,701.6	1,716.1	0.00	0.00	0.00
8,200.0	90.00	270.62	6,210.0	-1,325.03	321.8	-1,801.6	1,816.0	0.00	0.00	0.00
8,300.0	90.00	270.62	6,210.0	-1,325.03	322.9	-1,901.6	1,915.9	0.00	0.00	0.00
8,400.0	90.00	270.62	6,210.0	-1,325.03	323.9	-2,001.6	2,015.8	0.00	0.00	0.00
8,500.0	90.00	270.62	6,210.0	-1,325.03	325.0	-2,101.6	2,115.7	0.00	0.00	0.00
8,600.0	90.00	270.62	6,210.0	-1,325.04	326.1	-2,201.6	2,215.6	0.00	0.00	0.00
8,700.0	90.00	270.62	6,210.0	-1,325.04	327.2	-2,301.6	2,315.5	0.00	0.00	0.00
8,800.0	90.00	270.62	6,210.0	-1,325.04	328.3	-2,401.6	2,415.5	0.00	0.00	0.00
8,900.0	90.00	270.62	6,210.0	-1,325.04	329.4	-2,501.6	2,515.4	0.00	0.00	0.00
9,000.0	90.00	270.62	6,210.0	-1,325.04	330.5	-2,601.6	2,615.3	0.00	0.00	0.00
9,100.0	90.00	270.62	6,210.0	-1,325.04	331.6	-2,701.6	2,715.2	0.00	0.00	0.00
9,200.0	90.00	270.62	6,210.0	-1,325.04	332.6	-2,801.6	2,815.1	0.00	0.00	0.00
9,300.0	90.00	270.62	6,210.0	-1,325.04	333.7	-2,901.6	2,915.0	0.00	0.00	0.00
9,400.0	90.00	270.62	6,210.0	-1,325.04	334.8	-3,001.5	3,014.9	0.00	0.00	0.00
9,500.0	90.00	270.62	6,210.0	-1,325.04	335.9	-3,101.5	3,114.9	0.00	0.00	0.00
9,600.0	90.00	270.62	6,210.0	-1,325.04	337.0	-3,201.5	3,214.8	0.00	0.00	0.00
9,700.0	90.00	270.62	6,210.0	-1,325.04	338.1	-3,301.5	3,314.7	0.00	0.00	0.00
9,800.0	90.00	270.62	6,210.0	-1,325.04	339.2	-3,401.5	3,414.6	0.00	0.00	0.00
9,900.0	90.00	270.62	6,210.0	-1,325.04	340.2	-3,501.5	3,514.5	0.00	0.00	0.00
10,000.0	90.00	270.62	6,210.0	-1,325.04	341.3	-3,601.5	3,614.4	0.00	0.00	0.00
10,100.0	90.00	270.62	6,210.0	-1,325.04	342.4	-3,701.5	3,714.3	0.00	0.00	0.00
10,200.0	90.00	270.62	6,210.0	-1,325.04	343.5	-3,801.5	3,814.3	0.00	0.00	0.00
10,300.0	90.00	270.62	6,210.0	-1,325.04	344.6	-3,901.5	3,914.2	0.00	0.00	0.00
10,400.0	90.00	270.62	6,210.0	-1,325.04	345.7	-4,001.5	4,014.1	0.00	0.00	0.00
10,500.0	90.00	270.62	6,210.0	-1,325.04	346.8	-4,101.5	4,114.0	0.00	0.00	0.00
10,600.0	90.00	270.62	6,210.0	-1,325.04	347.8	-4,201.5	4,213.9	0.00	0.00	0.00
10,700.0	90.00	270.62	6,210.0	-1,325.04	348.9	-4,301.5	4,313.8	0.00	0.00	0.00
10,800.0	90.00	270.62	6,210.0	-1,325.04	350.0	-4,401.5	4,413.7	0.00	0.00	0.00
10,900.0	90.00	270.62	6,210.0	-1,325.04	351.1	-4,501.5	4,513.7	0.00	0.00	0.00
11,000.0	90.00	270.62	6,210.0	-1,325.04	352.2	-4,601.5	4,613.6	0.00	0.00	0.00
11,100.0	90.00	270.62	6,210.0	-1,325.04	353.3	-4,701.4	4,713.5	0.00	0.00	0.00
11,200.0	90.00	270.62	6,210.0	-1,325.04	354.4	-4,801.4	4,813.4	0.00	0.00	0.00
11,300.0	90.00	270.62	6,210.0	-1,325.04	355.5	-4,901.4	4,913.3	0.00	0.00	0.00
11,400.0	90.00	270.62	6,210.0	-1,325.04	356.5	-5,001.4	5,013.2	0.00	0.00	0.00
11,500.0	90.00	270.62	6,210.0	-1,325.04	357.6	-5,101.4	5,113.1	0.00	0.00	0.00
11,600.0	90.00	270.62	6,210.0	-1,325.04	358.7	-5,201.4	5,213.1	0.00	0.00	0.00
11,700.0	90.00	270.62	6,210.0	-1,325.04	359.8	-5,301.4	5,313.0	0.00	0.00	0.00
11,800.0	90.00	270.62	6,210.0	-1,325.03	360.9	-5,401.4	5,412.9	0.00	0.00	0.00
11,900.0	90.00	270.62	6,210.0	-1,325.03	362.0	-5,501.4	5,512.8	0.00	0.00	0.00
12,000.0	90.00	270.62	6,210.0	-1,325.03	363.1	-5,601.4	5,612.7	0.00	0.00	0.00
12,100.0	90.00	270.62	6,210.0	-1,325.03	364.1	-5,701.4	5,712.6	0.00	0.00	0.00
12,200.0	90.00	270.62	6,210.0	-1,325.03	365.2	-5,801.4	5,812.5	0.00	0.00	0.00
12,300.0	90.00	270.62	6,210.0	-1,325.03	366.3	-5,901.4	5,912.5	0.00	0.00	0.00
12,400.0	90.00	270.62	6,210.0	-1,325.03	367.4	-6,001.4	6,012.4	0.00	0.00	0.00
12,500.0	90.00	270.62	6,210.0	-1,325.02	368.5	-6,101.4	6,112.3	0.00	0.00	0.00
12,600.0	90.00	270.62	6,210.0	-1,325.02	369.6	-6,201.4	6,212.2	0.00	0.00	0.00
12,700.0	90.00	270.62	6,210.0	-1,325.02	370.7	-6,301.4	6,312.1	0.00	0.00	0.00
12,800.0	90.00	270.62	6,210.0	-1,325.02	371.8	-6,401.3	6,412.0	0.00	0.00	0.00
12,900.0	90.00	270.62	6,210.0	-1,325.02	372.8	-6,501.3	6,511.9	0.00	0.00	0.00

Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well CASTOR 8-59 19-24-12
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 8-59 19-24-12	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)
13,000.0	90.00	270.62	6,210.0	-1,325.02	373.9	-6,601.3	6,611.9	0.00	0.00	0.00
13,100.0	90.00	270.62	6,210.0	-1,325.01	375.0	-6,701.3	6,711.8	0.00	0.00	0.00
13,200.0	90.00	270.62	6,210.0	-1,325.01	376.1	-6,801.3	6,811.7	0.00	0.00	0.00
13,300.0	90.00	270.62	6,210.0	-1,325.01	377.2	-6,901.3	6,911.6	0.00	0.00	0.00
EPI: 1822.8ft FSL & 2040ft FEL of Sec 24										
13,391.3	90.00	270.62	6,210.0	-1,325.01	378.2	-6,992.6	7,002.8	0.00	0.00	0.00
13,400.0	90.00	270.62	6,210.0	-1,325.01	378.3	-7,001.3	7,011.5	0.00	0.00	0.00
13,500.0	90.00	270.62	6,210.0	-1,325.00	379.4	-7,101.3	7,111.4	0.00	0.00	0.00
13,600.0	90.00	270.62	6,210.0	-1,325.00	380.5	-7,201.3	7,211.3	0.00	0.00	0.00
BHL: 1826ft FSL & 2340ft FEL of Sec 24										
13,691.3	90.00	270.62	6,210.0	-1,325.00	381.4	-7,292.6	7,302.6	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				
3,161.8	3,115.0	PARKMAN				
3,881.9	3,835.0	SUSSEX				
4,621.9	4,575.0	SHANNON				
5,985.7	5,925.0	SHARON SPRINGS SHALE				
6,083.5	6,005.0	NIOBRARA FORMATION				
6,096.7	6,015.0	NIOBRARA A CHALK				
6,231.6	6,105.0	NIOBRARA B CHALK				
6,382.7	6,175.0	NIOBRARA C CHALK				

Plan Annotations				
MD (usft)	TVD (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.0	0.0	0.0	0.0	SHL: 1533ft FSL & 410ft FEL of Sec 19
400.0	400.0	0.0	0.0	START NUDGE (2°/100ft BUR)
999.9	995.5	38.2	49.6	EOB TO 12° INC
2,748.1	2,705.6	259.8	337.6	END OF TANGENT
3,348.0	3,301.1	298.0	387.2	EOD TO VERTICAL
5,684.0	5,637.1	298.0	387.2	KOP (10°/100ft BUR)
6,583.9	6,210.0	304.2	-185.7	BPI: 1834ft FSL & 600ft FEL of Sec 19
13,391.3	6,210.0	378.2	-6,992.6	EPI: 1822.8ft FSL & 2040ft FEL of Sec 24
13,691.3	6,210.0	381.4	-7,292.6	BHL: 1826ft FSL & 2340ft FEL of Sec 24